

Evaluating the Accessibility of Web Content with Free, Web-Based Tools

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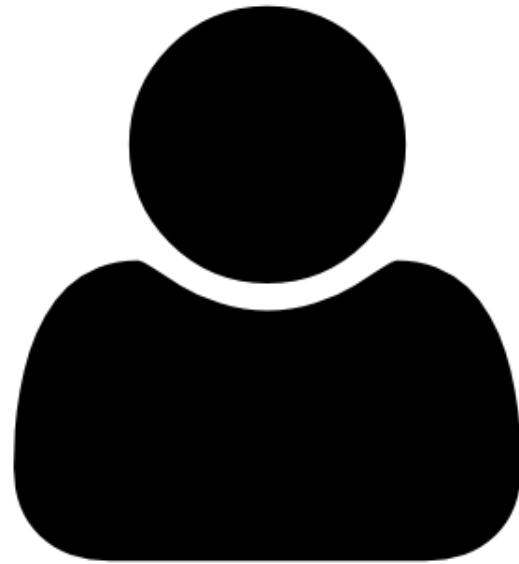
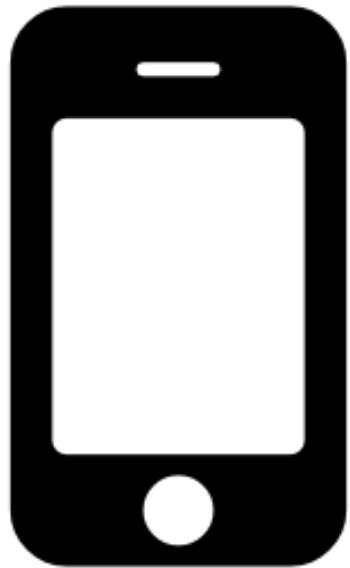
The Case for Accessibility

“The power of the Web is in its universality. Access by everyone regardless of disability is an essential aspect.” – Tim Berners-Lee

The Case for Accessibility

“To enable persons with disabilities to live independently and participate fully in all aspects of life, States Parties shall take appropriate measures to ensure to persons with disabilities access, on an equal basis with others... to information and communications, including information and communications technologies and systems.” – UNCRPD

Designing for accessibility benefits everyone



In higher education

TLC Accessibility Update, Dr. Rachel Thompson

- Applicable laws
 - Rehabilitation Act of 1973
 - Section 504
 - Section 508
 - Americans with Disabilities Act (ADA)



In higher education

TLC Accessibility Update, Dr. Rachel Thompson

- Requirements
 - Departments of Justice & Education
 - Dear Colleague (2010)
 - Universities charged with planning for accessible technology tools, services, and information
 - “Accessible”
 - W3C Web Content Accessibility Guidelines (WCAG), 2.0 A/AA/AAA



Web Accessibility Evaluation Tools

Evaluation tools that can be used to determine whether or not web content is accessible.

Human testing is required

- No automated evaluation tool can tell you if your site is accessible, or even compliant.
- Human testing is always necessary.



Standards and guidelines used

- Most commonly used:
 - WCAG 2.0 A/AA/AAA
 - Section 508



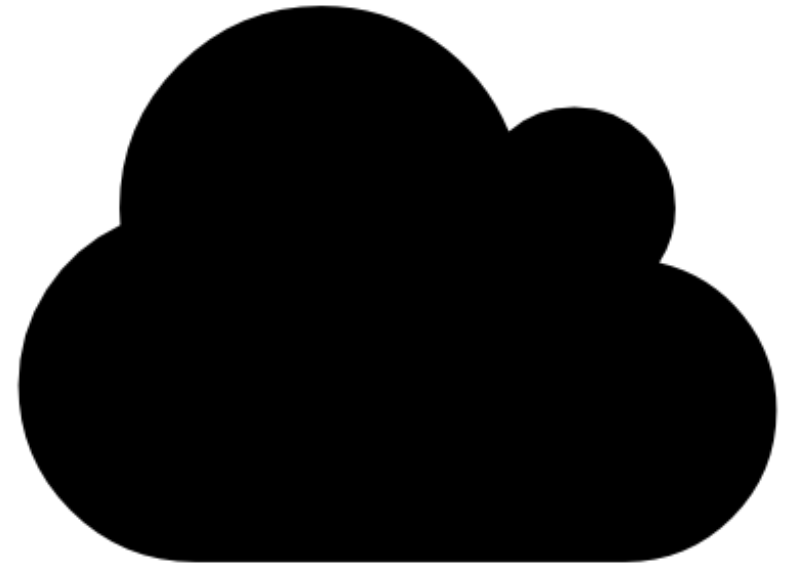
Free vs. commercial

- Knowledge of users
- Size of the site being examined
- Information need



Platform

- Online service
- Within a browser
- Within an authoring tool
- Installed on hard drive or server



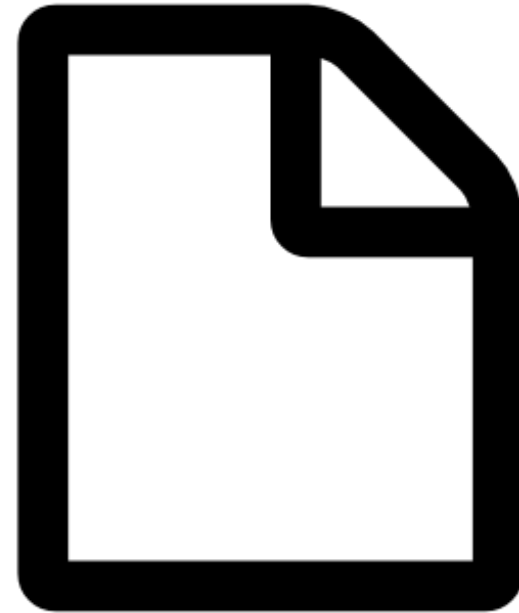
Repair functionality

- Evaluation only
- Evaluation and repair



Report style

- Text-based
- Graphic/icon-based
- Evaluation and Reporting Language (EARL)



Report style: text-based

Accessibility Review

Export Format: PDF Report to Export: All [Get File](#)

Accessibility Review (Guidelines: [WCAG 2.0 \(Level AA\)](#))

Known Problems (14)

Likely Problems (0)

Potential Problems (433)

HTML Validation

CSS Validation

1.1 Text Alternatives: Provide text alternatives for any non-text content

Success Criteria 1.1.1 Non-text Content (A)

Check 238: [input element has alt attribute.](#)

Repair: Remove the alt attribute from all input elements except those with a type attribute value of "image".

✖ **Line 49, Column 1:**

```
<input type="text" name="q" id="q" onblur="this.value=(this.value=='') ? 'SEARCH' : this.value;" onf ...
```

1.3 Adaptable: Create content that can be presented in different ways (for example simpler layout) without losing information or structure.

Success Criteria 1.3.1 Info and Relationships (A)

Check 57: [input element, type of "text", missing an associated label.](#)

Repair: Add a label element that surrounds the control's label. Set the for attribute on the label element to the same value as the id

Report style: graphic/icon-based

h1

News



alt

News

X2

Bell Named UA President | VIDEO

UA, YMCA, PARA Honor 'Swim to the Top' Participants

UA-Led Expedition Turns up More Fossilized Animal Remains

UA's Leeper Honored for Statistical Contributions to Medicine, Public Health

h1

Events



alt

Events

X2

1 JUL Using Tegrity in Blackboard
Wed July 1, 9:00 a.m.

1 JUL P-Card Works Software
Wed July 1, 1:30 p.m.

3 JUL Classes Dismissed - Independence Day
Fri July 3, All Day

7 PIVOT - Identifying Funding

h1

Spotlight



alt

*Sp

h3 → A UA re... t... called
wizards, can guide water in...
protecti... source.

h3 Spe... in Cuba
Six UA s... o... with new eyes
after sp... on the island
through...
alt *Thumbnail*

Report style: EARL

```
1 <?xml version="1.0" encoding="UTF-8" ?>
2
3 <rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
4   xmlns:earl="http://www.w3.org/ns/earl#"
5   xmlns:dct="http://purl.org/dc/terms/"
6   xmlns:cnt="http://www.w3.org/2007/content#"
7   xmlns:ptr="http://www.w3.org/WAI/ER/EARL/pointers#"
8   xml:base="http://www.example.org/earl/report#">
9
10  <earl:Assertion rdf:ID="assert">
11    <earl:result rdf:resource="result" />
12    <earl:test rdf:resource="http://www.w3.org/TR/2008/NOTE-WCAG20-TECHS-20081211/F65" />
13    <earl:subject rdf:resource="http://example.org/resource/index.html" />
14    <earl:assertedBy rdf:resource="http://example.org/cooltool/" />
15  </earl:Assertion>
16
17  <earl:Software rdf:about="http://example.org/cooltool/">
18    <dct:title xml:lang="en">Cool Tool accessibility checker</dct:title>
19    <dct:hasVersion>1.0.c</dct:hasVersion>
20    <dct:description xml:lang="en">A reliable compliance checker for
```


Which tool is best?

- Depends on your skills set and web responsibilities
- Often best to use a variety of tools



Automated Tools: Strengths & Limitations

“No automated evaluation tool can tell you if your site is accessible, or even compliant.” – WebAIM

Strengths

- Efficiency
- Can catch:
 - Missing alt text
 - form controls without labels
 - (many) contrast errors



Strengths

“Automated testing tools excel when the decision logic can be boiled down to a simple yes or no answer, and that answer can be determined using machine accessible data.”



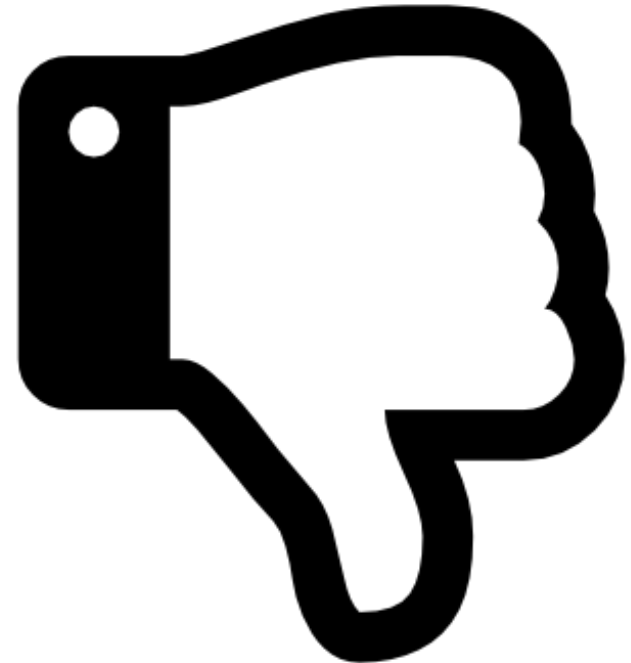
Limitations

- Pass != accessible
- May give a false sense of security
- May inaccurately portray a site or app as being fully accessible



Limitations

- Require human review:
 - Logical meaning
 - Logical flow
 - Tab order
 - Visible input focus
 - Keyboard access
 - Meaningful text alternatives



Limitations



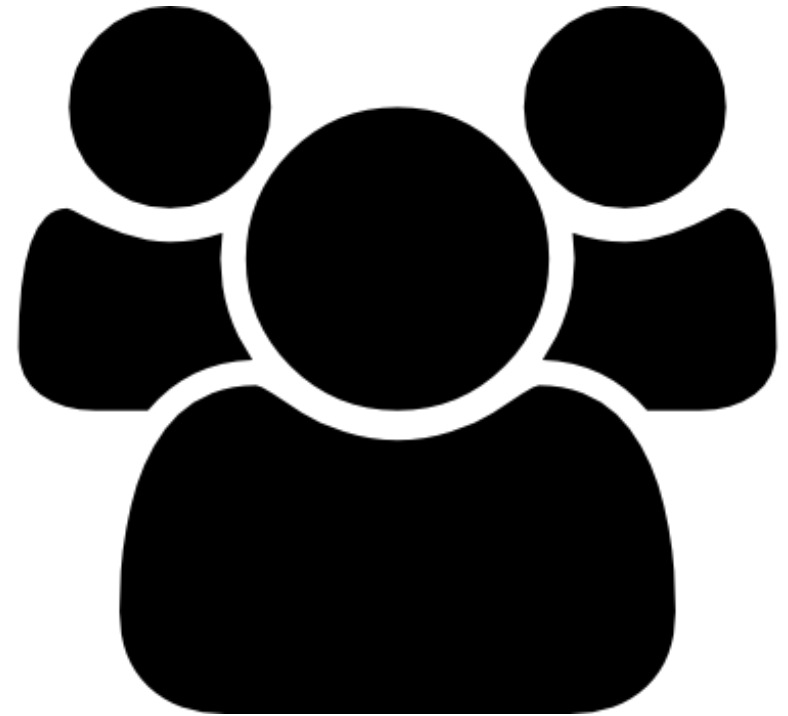
Picture of a student



A postgraduate engineering student working in the new electron microscope lab

Bottom line

“To be effective, accessibility checkers should form part of a wider process. A comprehensive approach, including testing by people with different abilities and skills as well as evaluation by individuals knowledgeable in the field of accessible Web design is best.”



Web Accessibility Evaluation Tools List



Web Accessibility Evaluation Tools List

▼ Filters:

▼ Guidelines

- WCAG 2.0 – W3C Web Content Accessibility Guidelines 2.0 (38 tools)
- WCAG 1.0 – W3C Web Content Accessibility Guidelines 1.0 (16 tools)
- BITV, German government

Guidelines (1 tool)

- Section 508, US federal procurement standard (14 tools)
- Stanca Act, Italian accessibility legislation (3 tools)

► Languages

► Type of tool

► Assists by ...

► Automatically checks...

► License

- Tools providing accessibility information (1 tool)

- Guidelines
- Languages
- Type of tool
- Assists by...
- Automatically checks...
- License
- Tools providing accessibility info

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

Web Accessibility Evaluation Tools List

FireEyes by Deque Systems Inc.



FireEyes is a Firefox plugin that integrates with Firebug and allows developers, QA engineers and subject matter experts to test individual and multiple pages for Section 508 and WCAG 2 accessibility issues. It has built-in color contrast analysis, screen reader simulation and support for DHTML pgs.

<http://www.deque.com/products/fireeyes/>, Version: 2, Released: 2010-Jun-01

▼ Detailed Information about “FireEyes”

- | | |
|---|---|
| <ul style="list-style-type: none">• Guidelines: <u>WCAG 2.0</u> – <u>W3C Web Content Accessibility Guidelines 2.0</u>, Section 508, <u>US federal procurement standard</u>• Assists by: Generating reports of evaluation results, Providing step-by-step evaluation guidance, Displaying information within web pages, Modifying the presentation of web pages• Automatically checks: Single web pages, Groups of web pages or web sites, Restricted or password protected pages• Languages: English, Japanese (日本語) | <ul style="list-style-type: none">• Browser plugins: Firefox, Internet Explorer ≥ 9• APIs: Java, Web service (Rest API, Webhook...)• Supported formats: <u>CSS</u>, <u>HTML</u>, <u>XHTML</u>, <u>PDF</u>• Online Service: Hosted service, Server installation, Browser plugin• Report formats: <u>HTML</u>, <u>CSV</u>, Exports issues to JIRA and HP ALM• License: Free Software, Commercial, Enterprise• Accessibility information: (none provided)• Information updated: 2014-Nov-20 |
|---|---|

Browser Extensions



Accessibility Developer Tools

offered by Google Accessibility

★★★★★ (57)

[Developer Tools](#)

56,213 users

+ ADD TO CHROME



OVERVIEW

REVIEWS

RELATED

g+1

269

The screenshot shows a Chrome browser window displaying the Guardian website. The Chrome Developer Tools are open, and the Accessibility audit pane is visible on the right side of the bottom panel. The audit pane shows a list of rules that are violated by the page, with one or more elements on the page shown as a result for each rule. The website content includes the Guardian logo, navigation links, and several news articles.



Compatible with your device

Accessibility audit and element properties.

This extension will add an Accessibility audit, and an Accessibility sidebar pane in the Elements tab, to your Chrome Developer Tools.

To use the audit: go to the Audits tab, select the Accessibility audit, and click Run. The audit results will appear as a list of rules which are violated by the page (if any), with one or more elements on the page shown as a result for each rule.

To use the sidebar pane: inspect an element

Report Abuse

Browser Extensions

Apps

Extensions

Themes

TYPES

Chrome App

Websites

CATEGORIES

All

FEATURES

Runs Offline

By Google

Free

Available for

Works with

RATINGS



ChromeVox

offered by chrome.google.com

★★★★☆ (436)

[Developer Tools](#)

73,036 users

+ ADD TO CHROME



OVERVIEW

REVIEWS

SUPPORT

RELATED

g+1

783

weather - Google Search x

www.google.com/search?scient=psy-ab&hl=en&site=&source=hp&q=weather&btnK=Google+Search#scient=psy-ab&hl=en&source=hp&q=weather&pbx=1

Web Images Videos Maps News Shopping Gmail more -

Google weather

Search About 1,160,000,000 results (0.23 seconds)

Everything

Images

Maps

Videos

News

Shopping

More

San Francisco, CA
Change location

Show search tools

Weather for San Francisco, CA

69°F | °C

Partly Cloudy

Wind: W at 16 mph

Humidity: 60%

Mon Tue Wed Thu

68° 56° 64° 55° 63° 54° 60° 54°

Detailed forecast: The Weather Channel Weather Underground - AccuWeather

National and Local Weather Forecast, Hurricane, Radar and Report

www.weather.com/ - Cached

33 minutes ago - The Weather Channel and weather.com provide a national and local weather forecast for cities, as well as weather radar, report and hurricane ...

10 Day Weather Forecast for Las...

www.weather.com/weather/10day/La...
The Weather Channel - weather ...

Maps

www.weather.com/weather/.../interact...
Our interactive local weather ...

By Google

Compatible with your device

ChromeVox - Giving Voice to Chrome

The ChromeVox screen reader is an extension to Chrome that brings the speed, versatility, and security of Chrome to visually impaired users.

Unlike most accessibility software, it is built using only web technologies like HTML5, CSS and Javascript. ChromeVox was designed from the start to enable unprecedented access to modern web apps, including those that utilize W3C ARIA (Access to Rich Internet Applications) to provide a rich, desktop-like

Website


Report Abuse

View all


where

Transfer)

WordPress



Access Monitor




Test your WordPress site for accessibility compliance. Run on-demand tests or schedule a weekly accessibility check.

[Download Version 1.0.4](#)

[Description](#) [Installation](#) [FAQ](#) [Screenshots](#) [Changelog](#) [Stats](#) [Support](#) [Reviews](#) [Developers](#)

WordPress



The banner features a blue background with a network of white dotted lines. It includes several circular icons: the WordPress logo, a link icon, a leaf icon, the AA symbol, a code icon, a large orange accessibility icon (a person in a wheelchair), and a list icon.

WP Accessibility

WP Accessibility fixes common accessibility issues in your WordPress site.

[Download Version 1.4.1](#)

[Description](#) [Installation](#) [FAQ](#) [Screenshots](#) [Changelog](#) [Stats](#) [Support](#) [Reviews](#) [Developers](#)

tota11y

How it works

tota11y is a single JavaScript file that inserts a small button in the bottom corner of your document. (It's on this very page.)

The toolbar consists of several plugins that each provide their own functionality.

Many of these plugins "annotate" elements on the page. Sometimes to show their existence, other times to point out when something's wrong.



h2roduction to algebra

Videos exploring why algebra was developed helps us explain our world.



h2lear equ

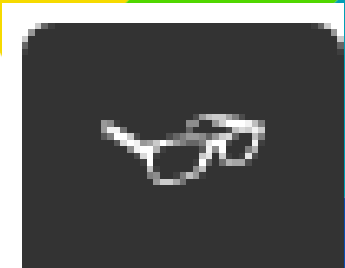
We will now about how i take on. The the heart of



h2lear ine

Headings

- 1 Algebra I
 - 2 Introduction to algebra
 - 2 Linear equations
 - 2 Linear inequalities
 - 2 Two-variable linear equat functions
 - 2 Functions
 - 2 Sequences
 - 2 Systems of linear equatin



aXe (The Accessibility Engine)



axe

THE ACCESSIBILITY ENGINE

Web Accessibility Evaluation Tool

“WAVE is developed and made available as a free community service by WebAIM. Originally launched in 2001, WAVE has been used to evaluate the accessibility of millions of web pages.”

WAVE demo



WAVE

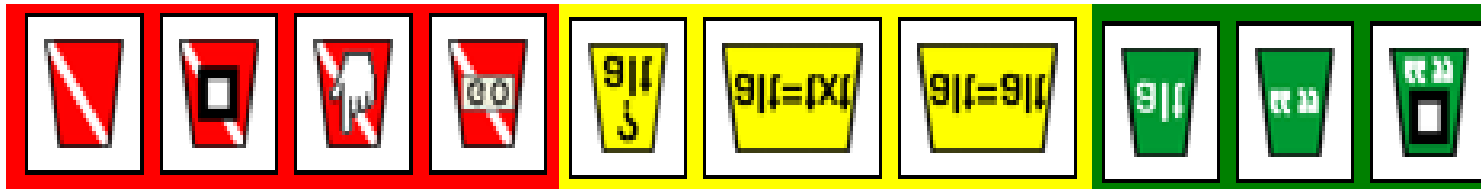
web accessibility evaluation tool

WAVE = Web Accessibility Evaluation Tool

<http://wave.webaim.org>

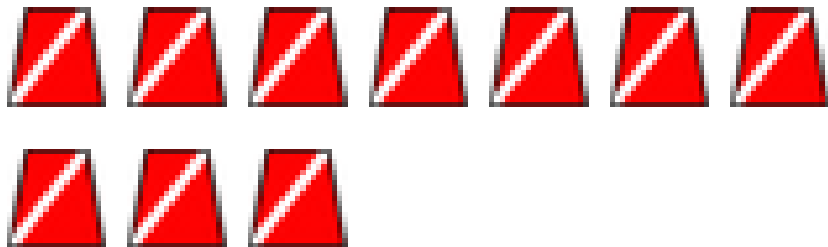


WAVE Icons



✓ Errors (52)

✓ 10 X Missing alternative text ⓘ



Documentation

Errors Missing alternative text

What It Means

Image alternative text is not present.

Why It Matters

Each image must have an alt attribute. Without alternative text, the content of an image will not be available to screen reader users or when the image is unavailable.

How to Fix It

Add an alt attribute to the image. The attribute value should accurately and succinctly present the content and function of the image. If the content of the image is conveyed in the context or surroundings of the image, or if the image does not convey content or have a function, it should be given empty/null alternative text (`alt=""`).

The Algorithm... in English

An image does not have an alt attribute.

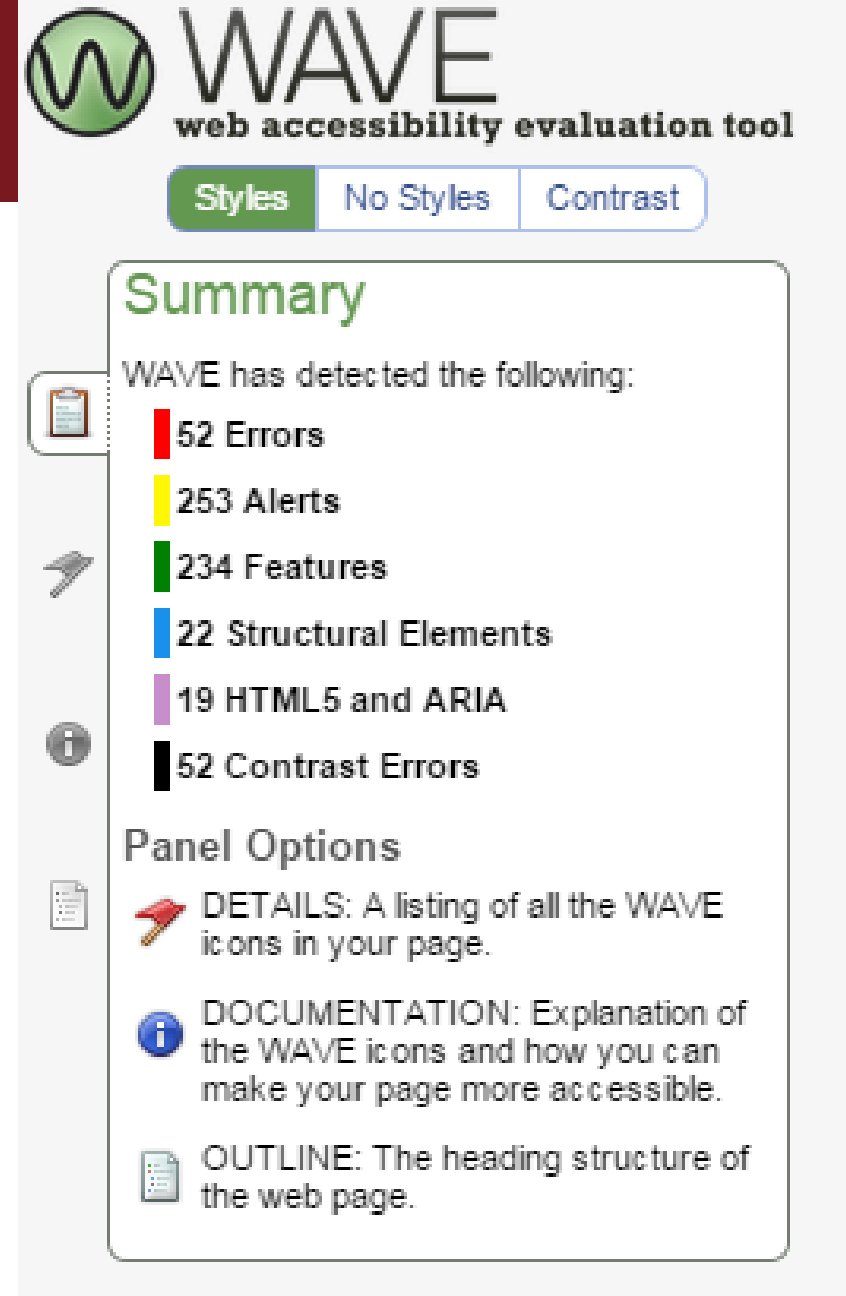
Standards and Guidelines

- [Section 508 \(a\)](#)
- [1.1.1 Non-text Content \(Level A\)](#)

[Icon index](#)

Sidebar

- Three Views
 - Styles
 - No styles
 - Contrast



The screenshot shows the WAVE web accessibility evaluation tool interface. At the top, there is a logo for WAVE (web accessibility evaluation tool) and three tabs: "Styles" (selected), "No Styles", and "Contrast". Below the tabs is a "Summary" section with a green heading. The summary text reads: "WAVE has detected the following:". Below this text is a list of results, each preceded by a colored bar and an icon: 52 Errors (red bar, clipboard icon), 253 Alerts (yellow bar, arrow icon), 234 Features (green bar, arrow icon), 22 Structural Elements (blue bar, arrow icon), 19 HTML5 and ARIA (purple bar, arrow icon), and 52 Contrast Errors (black bar, information icon). Below the summary is a "Panel Options" section with a document icon. It lists three options: "DETAILS: A listing of all the WAVE icons in your page." (with a red arrow icon), "DOCUMENTATION: Explanation of the WAVE icons and how you can make your page more accessible." (with an information icon), and "OUTLINE: The heading structure of the web page." (with a document icon).

WAVE
web accessibility evaluation tool

Styles No Styles Contrast

Summary

WAVE has detected the following:

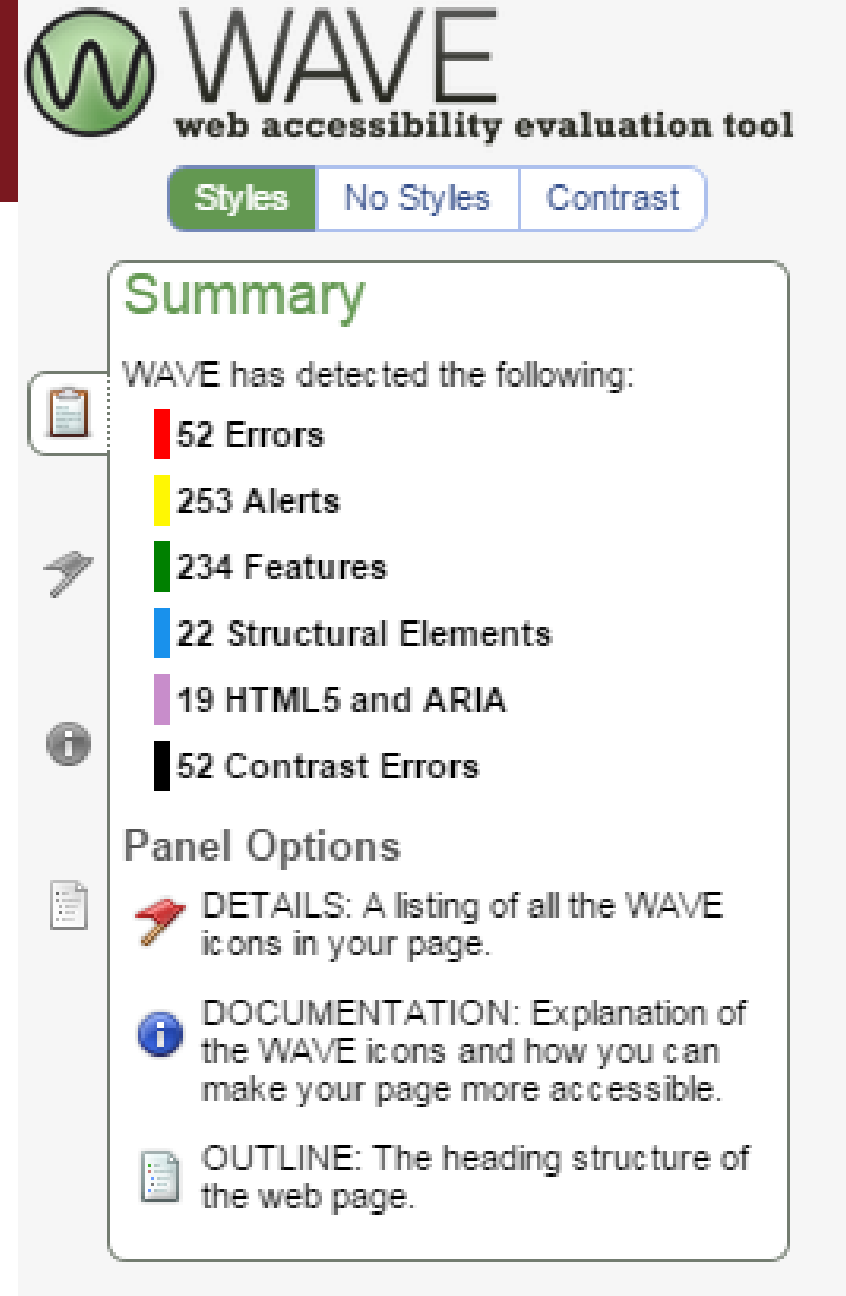
- 52 Errors
- 253 Alerts
- 234 Features
- 22 Structural Elements
- 19 HTML5 and ARIA
- 52 Contrast Errors

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.

Sidebar

- Summary
 - Errors
 - Alerts
 - Features
 - Structural elements
 - HTML5 and ARIA
 - Contrast Errors



The screenshot shows the WAVE web accessibility evaluation tool interface. At the top, there is a logo for WAVE (web accessibility evaluation tool) and three tabs: "Styles", "No Styles", and "Contrast". Below the tabs is a "Summary" section. The summary text reads: "WAVE has detected the following:". Below this text is a list of results, each preceded by a colored bar and an icon: 52 Errors (red bar, clipboard icon), 253 Alerts (yellow bar, arrow icon), 234 Features (green bar, arrow icon), 22 Structural Elements (blue bar, arrow icon), 19 HTML5 and ARIA (purple bar, arrow icon), and 52 Contrast Errors (black bar, information icon). Below the summary is a "Panel Options" section with three items: "DETAILS: A listing of all the WAVE icons in your page." (with a red arrow icon), "DOCUMENTATION: Explanation of the WAVE icons and how you can make your page more accessible." (with an information icon), and "OUTLINE: The heading structure of the web page." (with a document icon).

WAVE
web accessibility evaluation tool

Styles No Styles Contrast

Summary

WAVE has detected the following:

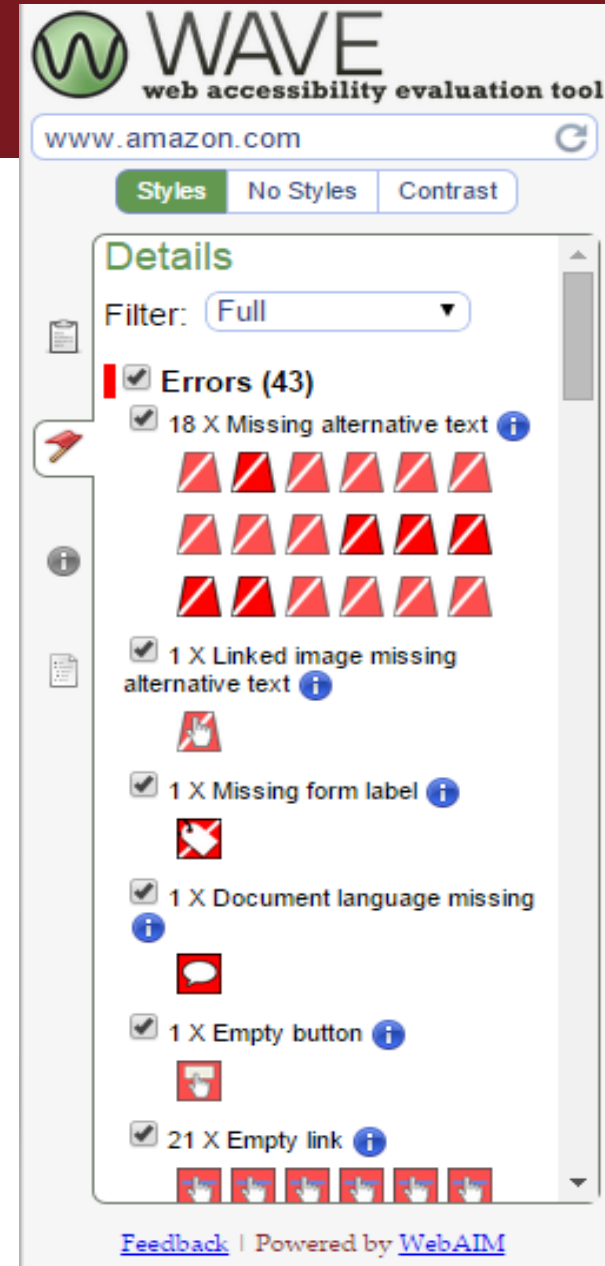
- 52 Errors
- 253 Alerts
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- 19 HTML5 and ARIA
- 52 Contrast Errors

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.

Sidebar

- Details - A listing of all the WAVE icons in your page.
- Filters: Full, AA, A, 508
- Select "i" to go to relevant documentation



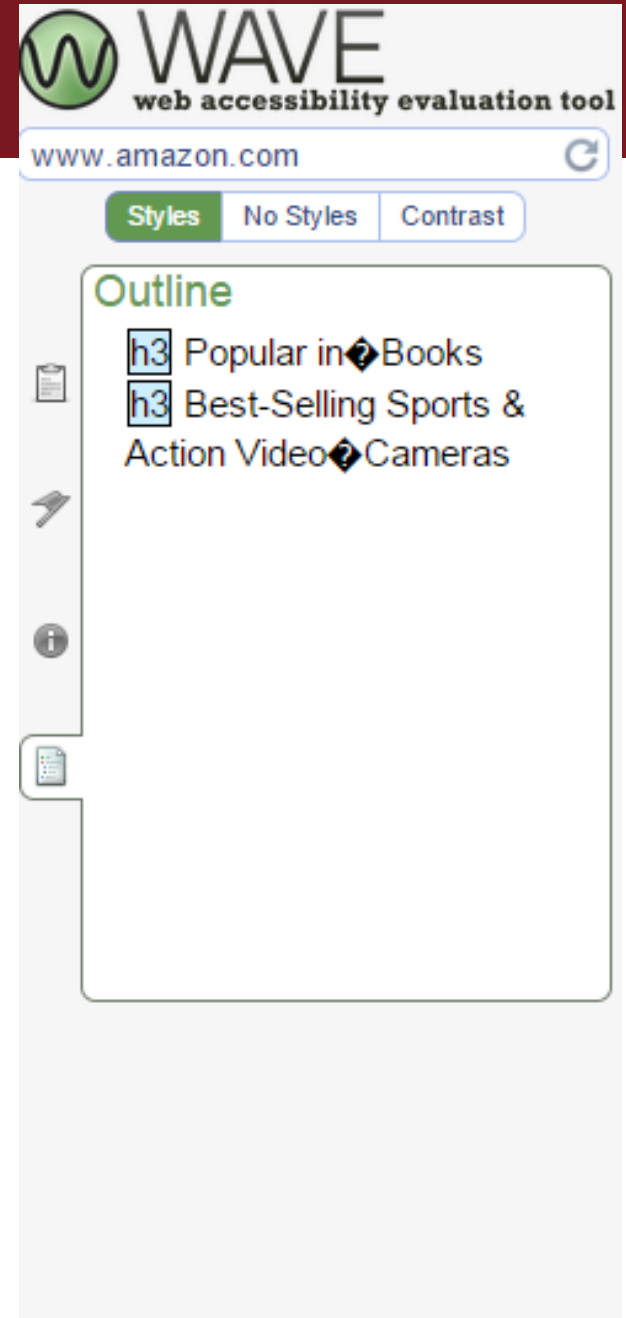
The screenshot displays the WAVE web accessibility evaluation tool interface. At the top, the WAVE logo and "web accessibility evaluation tool" are visible. Below the logo, the URL "www.amazon.com" is shown in the address bar. The interface includes a sidebar with a "Details" section. The "Details" section has a "Filter" dropdown set to "Full". Below the filter, there is a list of errors, each with a checkbox and an information icon ("i"). The errors listed are:

- 18 X Missing alternative text (represented by 18 red diagonal slash icons)
- 1 X Linked image missing alternative text (represented by a red diagonal slash icon with a hand cursor)
- 1 X Missing form label (represented by a red diagonal slash icon with a hand cursor)
- 1 X Document language missing (represented by a red speech bubble icon)
- 1 X Empty button (represented by a red diagonal slash icon with a hand cursor)
- 21 X Empty link (represented by 21 red diagonal slash icons with hand cursors)

At the bottom of the sidebar, there is a "Feedback" link and a "Powered by WebAIM" logo.

Sidebar

- Outline - The heading structure of the web page.



The image shows a screenshot of the WAVE (Web Accessibility Evaluation Tool) interface. At the top, the WAVE logo is displayed with the text "web accessibility evaluation tool". Below the logo, the browser address bar shows "www.amazon.com". There are three buttons: "Styles" (highlighted in green), "No Styles", and "Contrast". The main content area is titled "Outline" and lists the following heading structure:

- ### Popular in Books
- ### Best-Selling Sports & Action Video Cameras

The sidebar also includes a vertical toolbar with icons for a document, a hand, an information icon, and a document with a list.

Chrome Extension

The image shows a Chrome browser window displaying the Amazon.com homepage. A Chrome extension, WAVE (web accessibility evaluation tool), is active and overlaid on the left side of the page. The WAVE interface includes a logo, a 'Summary' section with statistics (48 Errors, 168 Alerts, 171 Features, 22 Structural Elements, 14 HTML5 and ARIA, 52 Contrast Errors), and 'Panel Options' for 'DETAILS', 'DOCUMENTATION', and 'OUTLINE'. The Amazon homepage content is visible in the background, featuring a navigation bar with the Amazon logo, a search bar, and a main promotional banner for the 'ALL-NEW kindle paperwhite | \$119'. Below the banner, there are movie recommendations for 'TRANSFORMERS AGE OF EXTINCTION', 'THE WORDS', and 'The 1', and an advertisement for 'Get XFINITY Home Limited Time Offer'.

Amazon.com: Online Shop | www.amazon.com

Apps For quick access, place your bookmarks here on the bookmarks bar. [Import bookmarks now...](#)

The following apply to the entire page:

WAVE web accessibility evaluation tool

Styles No Styles Contrast

Summary

WAVE has detected the following:

- 48 Errors
- 168 Alerts
- 171 Features
- 22 Structural Elements
- 14 HTML5 and ARIA
- 52 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.

amazon Soak up Summer

All Your Amazon.com Today's Deals Gift Cards Sell Help

Hello, Sign in Your Account Try Prime Wish List Cart

ALL-NEW kindle paperwhite | \$119

Our best-selling Kindle—now even better

Movies Included with Prime Membership at No Additional Cost [See more](#)

TRANSFORMERS AGE OF EXTINCTION

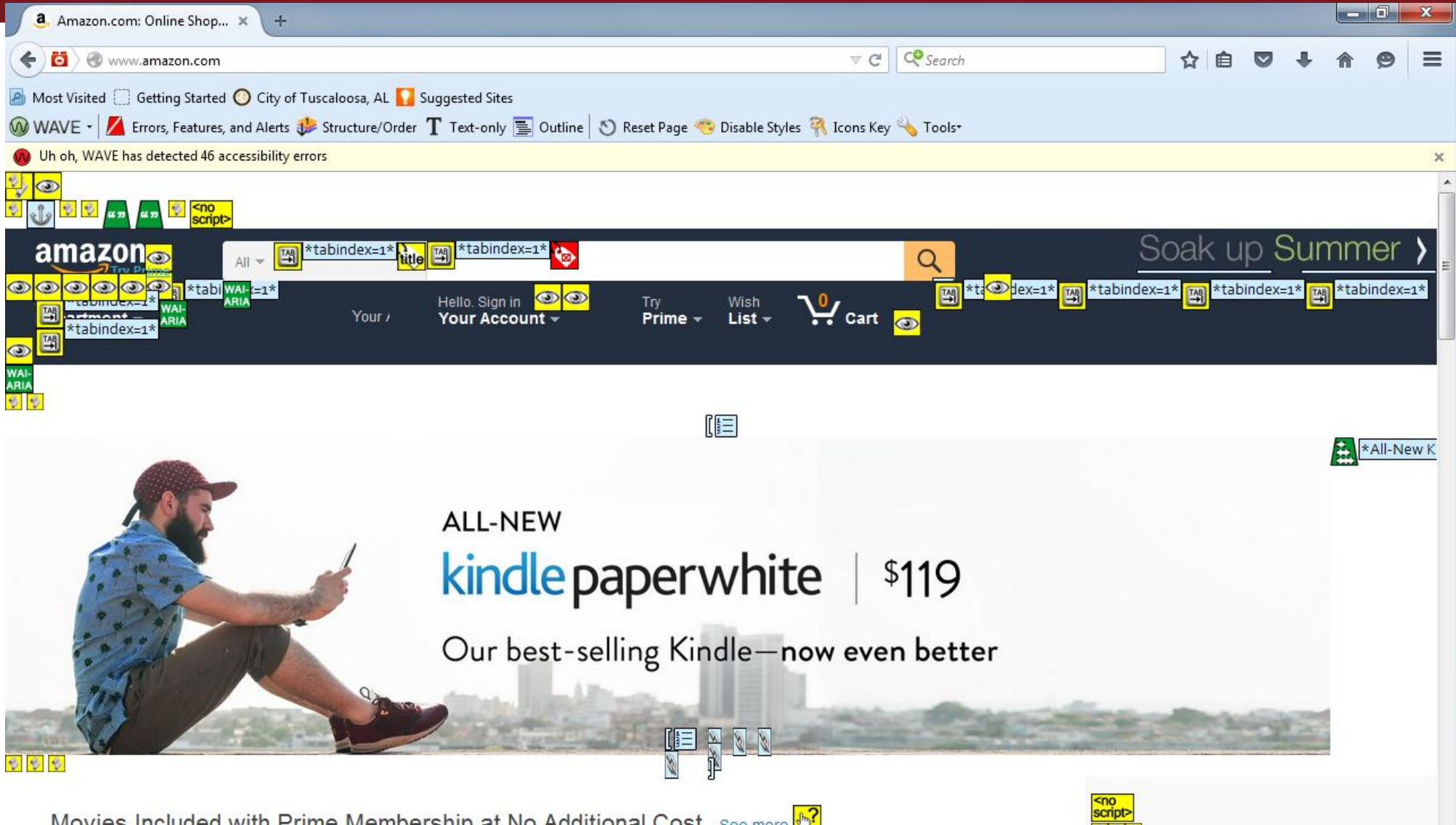
THE WORDS

The 1

Get XFINITY Home Limited Time Offer

Feedback | Powered by WebAIM

Firefox Toolbar



Differences

Web Service

- Submit a web page address.
- WAVE server downloads content and a custom version of Firefox renders page with CSS applied.
- The virtual page is checked against WAVE rules.
- The original page is loaded.
- Icon and report data loaded.
- WAVE icons and descriptions are inserted into the original page and interface.

Extension/Toolbar

- Evaluate content directly within browser
- No info sent to WAVE server (“100% private and secure”)
- Can check intranet, password-protected, dynamically generated, or sensitive web pages
- Evaluate the rendered version of your page, locally displayed styles and dynamically-generated content from scripts can be evaluated.

WAVE API

- The WAVE API can now be licensed as a stand-alone, installable product.
- For more information: <http://wave.webaim.org/api/>

Let's create
accessibility.

“Disability is a phenomenon
of the experience that occurs
by the individual intersecting
with the environment.”

– Valerie Fletcher

Resources

On the HighEdWeb Alabama
site & at bit.ly/hewebAL