

Accessibility Testing, Tools, & Resources



Brian Treease

@brianmtreeese | www.briantree.se

We Still Have to Test

A computer monitor with a black bezel and a silver stand. The screen is white and displays the text "One Browser" and "One Device" in a dark gray, sans-serif font. The monitor is centered on a white background.

One Browser
One Device

One Browser
One Device





It's All About the
Human Experience



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VoiceOver speaks descriptions of items on the screen and can be used to control the computer using only your keyboard.

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Use VoiceOver

Turn Off VoiceOver

Windows Users...

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



Home of the free NVDA screen reader



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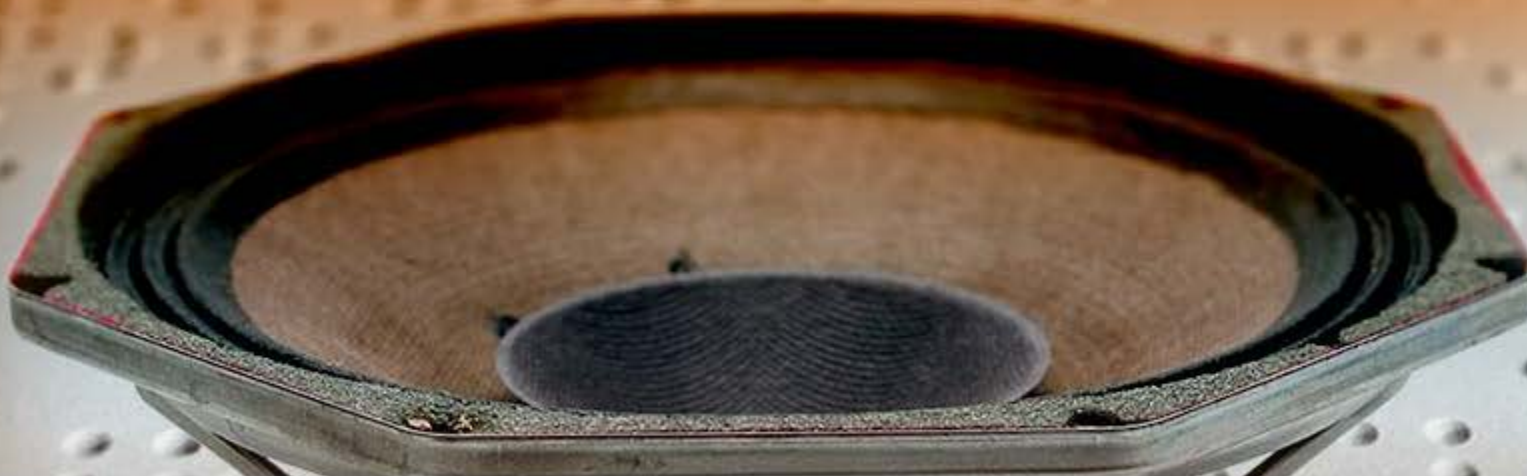
Download NVDA

Download NVDA 2015.3, the latest version of the free screen reader made by users for users.

New to NVDA? Find out about its

[Features](#) and [System Requirements](#)

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Checkpoints for Web Content Accessibility Guidelines

Some checkpoints specify a priority level that may change under certain (indicated) conditions.

Priority 1 checkpoints

| In General (Priority 1) | Yes | No | N/A |
|--|-----|----|-----|
| 1.1 Provide a text equivalent for every non-text element (e.g., via "alt", "longdesc", or in element content). <i>This includes:</i> images, graphical representations of text (including symbols), image map regions, animations (e.g., animated GIFs), applets and programmatic objects, ascii art, frames, scripts, images used as list bullets, spacers, graphical buttons, sounds (played with or without user interaction), stand-alone audio files, audio tracks of video, and video. | | | |
| 2.1 Ensure that all information conveyed with color is also available without color, for example from context or markup. | | | |
| 4.1 Clearly identify changes in the natural language of a document's text and any text equivalents (e.g., captions). | | | |
| 6.1 Organize documents so they may be read without style sheets. For example, when an HTML document is rendered without associated style sheets, it must still be possible to read the document. | | | |
| 6.2 Ensure that equivalents for dynamic content are updated when the dynamic content changes. | | | |
| 7.1 Until user agents allow users to control flickering, avoid causing the screen to flicker. | | | |
| 14.1 Use the clearest and simplest language appropriate for a site's content. | | | |
| And if you use images and image maps (Priority 1) | Yes | No | N/A |
| 1.2 Provide redundant text links for each active region of a server-side image map. | | | |
| 9.1 Provide client-side image maps instead of server-side image maps except where the regions cannot be defined with an available geometric shape. | | | |
| And if you use tables (Priority 1) | Yes | No | N/A |
| 5.1 For data tables, identify row and column headers. | | | |
| 5.2 For data tables that have two or more logical levels of row or column headers, use markup to associate data cells and header cells. | | | |
| And if you use frames (Priority 1) | Yes | No | N/A |
| 12.1 Title each frame to facilitate frame identification and navigation. | | | |
| And if you use applets and scripts (Priority 1) | Yes | No | N/A |
| 6.3 Ensure that pages are usable when scripts, applets, or other programmatic objects are turned off or not supported. If this is not possible, provide equivalent information on an alternative accessible page. | | | |
| And if you use multimedia (Priority 1) | Yes | No | N/A |

Test for Accessibility

Just Like We Test for Everything Else

Accessibility Tools

<http://wave.webaim.org/>




Web page address...



Powered by [WebAIM](#)

http://wave.webaim.org/

 **WAVE**
web accessibility evaluation tool

https%3A%2F%2Fwww.usa.gov%2F




Styles No Styles Contrast

Summary

WAVE has detected the following:

- 0 Errors
- 0 Alerts
- 5 Features
- 32 Structural Elements
- 10 HTML5 and ARIA
- 0 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.

 E-mail or Chat Us Your Question 

 Change Text Size **A A**

USA.gov

 Home

 Government Agencies and Elected Officials

 Health

 Housing and Community

 Jobs and Unemployment

 Money and Shopping

 Travel and Immigration

 More Services

 ARIA

 ARIA

Search the Government 

  **Español** **For Kids**

 Search

http://wave.webaim.org/

**WAVE**
web accessibility evaluation tool

https%3A%2F%2Fwww.usa.gov%2F



Styles No Styles Contrast



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 E-mail or Chat Us Your Question 

 Change Text Size AA



 Home


 Government Agencies and Elected Officials

 Health

 Housing and Community


 Jobs and Unemployment

 Money and Shopping

 Travel and Immigration

 More Services


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 ARIA

Search the Government 

 ARIA

 Search

http://wave.webaim.org/

 **WAVE**
web accessibility evaluation tool

https%3A%2F%2Fwww.usa.gov%2F


Styles No Styles **Contrast**

Details


No contrast issues were detected.

Does not account for background images, gradients, etc. Ensure fall-back contrast is defined in case images or CSS3 do not display.

Contrast Tools

Foreground color:
#0000ff 

[lighter](#) | [darker](#)

Background color:
#ffffff 

[lighter](#) | [darker](#)

Contrast Ratio: **8.6:1**

Normal Text: [Sample](#)

AA: **Pass**

AAA: **Pass**

Large Text: [Sample](#)








AA: **Pass**

AAA: **Pass**

[Desaturate page](#)

E-mail or Chat Us Your Question Change Text Size **A**A

USA.gov

-  Home
-  Government Agencies and Elected Officials
-  Health
-  Housing and Community
-  Jobs and Unemployment
-  Money and Shopping
-  Travel and Immigration
-  More Services


Español **For Kids**

Search the Government

Most Popular



http://wave.webaim.org/

**WAVE**
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E-mail or Chat Us Your Question

Change Text Size AA

<https://www.usa.gov>


[Styles](#) [No Styles](#) [Contrast](#)

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AAA: **Pass**


[Desaturate page](#)





 Home


 Government Agencies and Elected Officials


 Health

 Housing and Community

 Jobs and Unemployment

 Money and Shopping


 Travel and Immigration

 More Services


[Español](#)

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Search the Government

 Search

Most Popular



http://wave.webaim.org/

Outline

h1

h2 Contact USA.gov

h2 Most Popular

h2 Find a Job

h2 Travel

h2 Money and Credit

h2 Immigrate to the
United States

h2 Find Government
Services and Information
by Topic

h2 Contact Government
Agencies and Elected
Officials

h3 Browse Categories to
Contact

h4 Federal Agencies and
Branches of Government

h4 State, Local, and Tribal
Governments

h4 Elected Officials

h3 Quick-Find and Contact

h2 Contact USA.gov

E-mail or Chat Us Your Question

Change Text Size **A**A



Home



Government
Agencies and
Elected Officials



Health



Housing and
Community



Jobs and
Unemployment



Money and
Shopping



Travel and
Immigration



More
Services

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Outline

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h3

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E-mail or Chat Us Your Question

Change Text Size **A**



Home



Government
Agencies and
Elected Officials



Health



Housing and
Community



Jobs and
Unemployment



Money and
Shopping



Travel and
Immigration




More
Services

Español

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 Search

Most Popular



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usa.gov

Styles No Styles Contrast

Outline

h1

h2 Contact USA.gov

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h2 Travel

h2 Money and Credit

h2 Immigrate to the United States

h2 Find Government Services and Information by Topic

h2 Contact Government Agencies and Elected Officials

h3 Browse Categories to Contact

h4 Federal Agencies and Branches of Government

h4 State, Local, and Tribal Governments

h4 Elected Officials

h3 Quick-Find and Contact

h2 Contact USA.gov

[Skip to Main Content](#)

- [E-mail or Chat Us Your Question](#)

h1



alt *USA.gov*

- [Change Text Size](#)



- [Home](#)
- [Government Agencies and Elected Officials](#)
- [Health](#)
- [Housing and Community](#)
- [Jobs and Unemployment](#)
- [Money and Shopping](#)
- [Travel and Immigration](#)
- [More Services](#)

h2 Contact USA.gov

- [Call 1-844-USA-GOV1 \(1-844-872-4681\)](#)
- [E-mail USA.gov](#)

http://wave.webaim.org/

WAVE
web accessibility evaluation tool

usa.gov

Styles No Styles

Outline

- h1
- h2 Contact USA.gov
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- h2 Find Government Services and Information by Topic
- h2 Contact Government Agencies and Elected Officials
 - h3 Browse Categories to Contact
 - h4 Federal Agencies and Branches of Government
 - h4 State, Local, and Tribal Governments
 - h4 Elected Officials
 - h3 Quick-Find and Contact

Skip to Main Content

- E-mail or Chat Us Your Question

USA.gov

alt *USA.gov*

- Change Text Size



- Home
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- Travel and Immigration
- More Services

Contact USA.gov

- Call 1-844-USA-GOV1 (1-844-872-4681)
- E-mail USA.gov

[Resources](#) > Colour Contrast Analyser (CCA)

Colour Contrast Analyser

The Colour Contrast Analyser (CCA) helps you determine the legibility of text and the contrast of visual elements, such as graphical controls and visual indicators.

This tool provides two useful core functionalities:

1. a pass/fail assessment against [WCAG 2.0](#) color contrast success criteria
2. a simulation of certain visual conditions, including dichromatic color-blindness and cataracts, to demonstrate how your web content appears to people with less than 20/20 vision

The CCA is available for Windows and Mac, and in multiple languages including English, French, Dutch, Italian, German, Hindi, Korean and traditional Chinese. **Note:** the visual simulation functionality is only available in the Windows version.



Download for windows

Colour Contrast Analyser 2.2a English (Zip, 663KB)



Download for Mac

Colour Contrast Analyser 1.5.13 (DMG, 1.5MB)

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☐ Free

☐ Available for

☐ Works with



Accessibility Developer Tools

offered by Google Accessibility

★★★★★ (67)

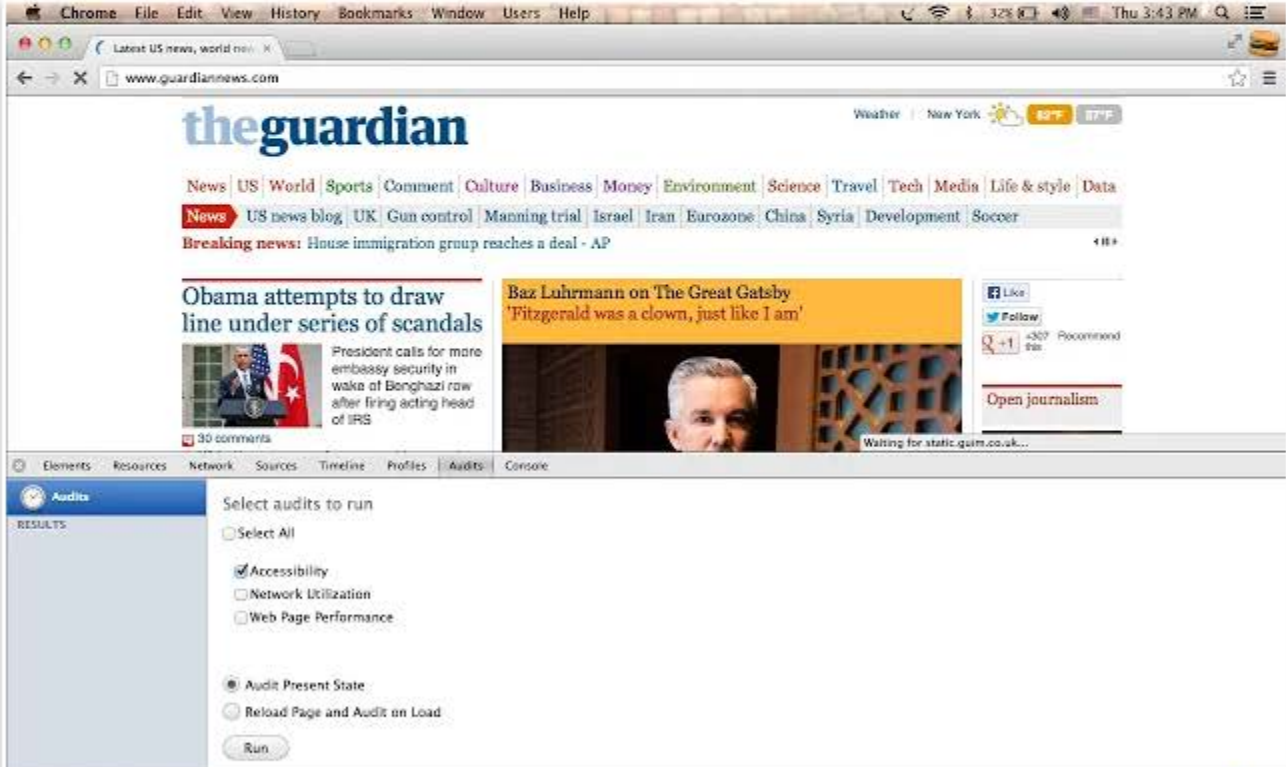
Developer Tools

64,620 users

OVERVIEW

REVIEWS

RELATED




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

Version: 2.10.9

Updated: September 4, 2015

Size: 67.25KB

Language: English

Web Accessibility

GETTING STARTED

What is Accessibility?

Accessible Design

Accessible Code

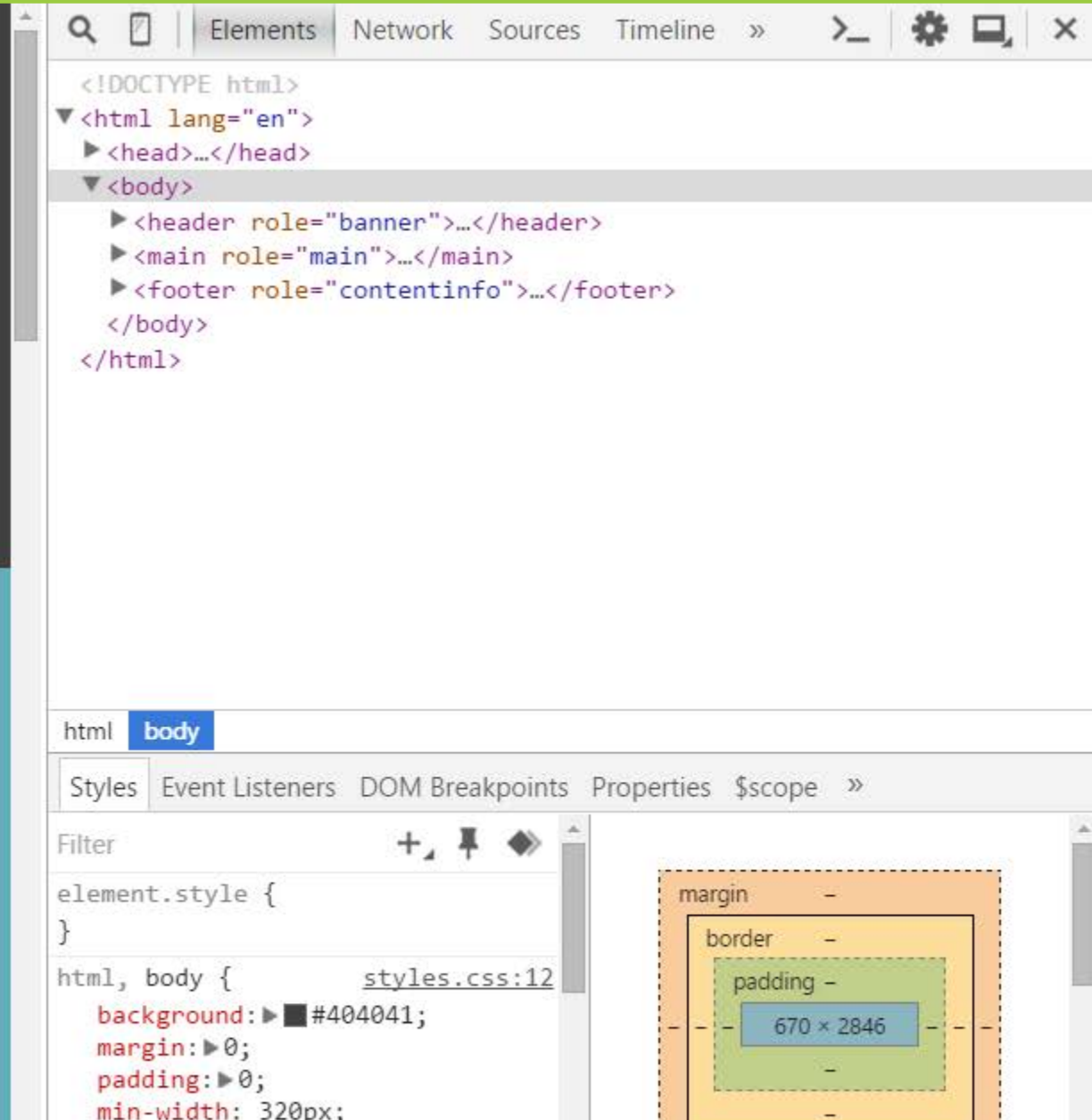
ARIA

WCAG & Section 508

Testing & Tools

Accessibility is About Everyone

Learn how to design and build Websites and Web



Web Accessibility

GETTING STARTED


- What is Accessibility?
- Accessible Design
- Accessible Code
- ARIA
- WCAG & Section 508
- Testing & Tools

Accessibility is
About Everyone

Learn how to design and build Websites and Web

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ElementsNetworkSourcesAudits»⌵⚙️🖨️✕

 Audits

RESULTS

Select audits to run

☒ Select All

☒ Accessibility

☒ Network Utilization

☒ Web Page Performance

☒ Audit Present State

☐

Web Accessibility

GETTING STARTED

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Audits

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Web Accessibility


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- WCAG & Section 508
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Accessibility is About Everyone

Learn how to design and build Websites and Web

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 Audits

RESULTS

file:///C:/Users/Br

▼ Accessibility

▶️ [Warning] Text elements should have a reasonable ...

▶️ [Warning] These elements are focusable but either ...

▶️ [Green] Not applicable tests (14)

▶️ [Green] Passing tests (9)

▼ Network Utilization

▼ Web Page Performance

▶️ [Yellow] Remove unused CSS rules (1)

Web Accessibility

GETTING STARTED

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- WCAG & Section 508
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Accessibility is
About Everyone

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 Audits

RESULTS

 file:///C:/Users/Br

▼ Accessibility

▶️ [Warning] Text elements should have a reasonable ...

▶️ [Warning] These elements are focusable but either ...

▶️ [Passing] Not applicable tests (14)

▶️ [Passing] Passing tests (9)

▼ Network Utilization

▼ Web Page Performance

▶️ [Warning] Remove unused CSS rules (1)



<http://www.tenon.io/>



[PRICING](#)

[DOCS](#)

[GET CODE](#)

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[LOGIN](#)

ENTER A WEBSITE URL OR <HTML> TO TEST YOUR SITE'S ACCESSIBILITY

1

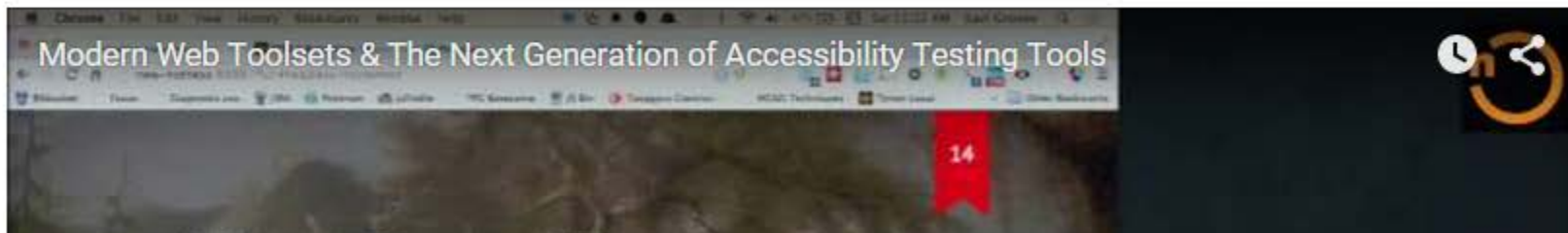
ex: `<p>Hello world</p>` or `http://google.com`

[Show Options](#)

[Analyze Your Webpage](#)

SOLVE WCAG 2.0 & SECTION 508 ISSUES BEFORE THEY HAPPEN WITH OUR ROBUST,
FLEXIBLE, AND EASY API

[Register Free](#)



- An API that can be used to integrate accessibility testing into our existing toolsets
- Extremely flexible, reliable and accurate
- Written to test against the WCAG guidelines
- Still not a replacement for human testing
- Accessibility testing that's inserted into our process

There's No Replacement for Human Testing

Accessibility Resources

<http://webaim.org/>



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[Introduction to Web Accessibility](#)



[WebAIM Training](#)



We have web accessibility in mind

Our mission is to empower organizations to make their web content accessible to people with disabilities.

[Accessibility Training](#)



[Accessible Site Certification](#)



[Community](#)

- A non-profit organization with a mission to expand the potential of the web to people with disabilities
- Great info regarding the development and design of accessible websites and applications
- Make the specification easier for us to understand
- They provide:
 - Checklists
 - Contrast checkers
 - The WAVE accessibility evaluation tool

<http://a11yproject.com/>

The Accessibility Project

A community-driven effort to make web accessibility easier.

[Learn more](#) [Contribute on Github](#)

How-tos

[How-to: Using Caption Services with HTML5 Video](#)

How to implement captions on HTML5 video (and audio) elements.

[How-to: Use Skip Navigation links](#)

Use skip nav links to ease keyboard user fatigue and frustration.

[How-to: Use TITLE attributes](#)

Short answer: Avoid using title attributes except in a few special circumstances.

[How-to: Use role="application"](#)

ARCHIVE CATEGORIES

[How-tos](#)

[Myths](#)

[Quick tests](#)

[Quick tips](#)

[Assistive technology](#)

[Basics](#)

- A11y is short for accessibility
- A community effort to break down the complexities of web accessibility
- You can contribute!
- Provide very useful tutorials
- Shut down common accessibility myths
- Provide tests and tips

bitsofcode

THE ACCESSIBILITY CHEATSHEET

Posted on 02 June 2015

We all know that accessibility is important. The problem is, it is not always clear what exactly we can do to make our sites more accessible.

The Web Accessibility Initiative created some Web Content Accessibility Guidelines (WCAG) targeted at us, web content developers, to create more accessible websites. The WCAG contain some very useful information, and so I decided to condense the very extensive guidelines and highlight some practical examples of what we can do to implement them and make our websites more accessible.

OVERVIEW

The guidelines for accessible content have four overarching principles, each with more specific guidelines. You can click on the link to go to the relevant section of this article.

- 1 - "Perceivable" - Information and user interface components must be presentable to users in ways they can perceive.
 - 1.1 - Text Alternatives

<http://bitsofco.de/2015/the-accessibility-cheatsheet/>

- A nice condensed view of the Web Content Accessibility Guidelines
- Real world examples
- Revisit each time before you begin a new project

<http://khan.github.io/tota11y/>

[on github](#)



tota11y

an accessibility visualization toolkit

from your friends at



<http://khan.github.io/tota11y/>

- A bookmarklet that we can run on any page
- Lets us know of errors in code and color
- Can be added as a bookmarklet in the browser
- Can be referenced from within our site by including the script

aXe Browser Extensions

Lighter shades | tabled panel | popup menu | **accordion**

<http://a11ywins.tumblr.com/>

- A collection of accessible user interfaces from around the web
- Brings a fresh perspective on accessible UI patterns
- Great place to get inspired
- Can submit our own favorite examples

ARIA Can Be Complex and Confusing

Periodic Table of ARIA 1.0 Roles

| | | | | | | | | | | | |
|---------|-------------------|----------------|----------|----------|----------|-------------|---------------|----------|--------------|---------------|------------|
| link | | | | | | | | | | main | img |
| alert | alertdialog | menuitem-radio | tab | treeitem | form | textbox | article | group | presentation | banner | grid |
| log | dialog | progress-bar | tabpanel | menu | button | spinbutton | column-header | heading | region | complementary | gridcell |
| status | menuitem | scrollbar | timer | menubar | checkbox | combobox | definition | list | separator | contentinfo | row |
| marquee | menuitem-checkbox | slider | tooltip | tablist | option | radio-group | directory | listitem | toolbar | navigation | row-header |
| | | application | treegrid | tree | radio | listbox | document | math | note | search | |



Forms



Tabular data



Document sections



Interactive elements

Legend

Colors or Patterns?

- High level glance of existing roles
 - Forms
 - Document structure
 - Tabular data
 - Interactive elements

Periodic Table of ARIA 1.0 attributes

| | | | | | | | | |
|------------------|----------------------|---------------|-----------------|-------------------|---------------|------------------------|---------------|---------------|
| aria-describedby | aria-required | | | | aria-hidden | aria-busy | aria-valuenow | |
| aria-label | aria-multiline | aria-live | aria-atomic | aria-haspopup | aria-invalid | aria-disabled | aria-valuemin | |
| aria-labelledby | aria-multiselectable | aria-relevant | aria-controls | aria-autocomplete | aria-expanded | aria-checked | aria-valuemax | |
| | aria-orientation | aria-owns | aria-dropeffect | aria-flowto | aria-selected | aria-pressed | aria-setsize | |
| | aria-sort | aria-readonly | | | aria-grabbed | aria-active-descendant | aria-level | aria-posinset |

Name
Value

Role

State

Legend

Interactive elements

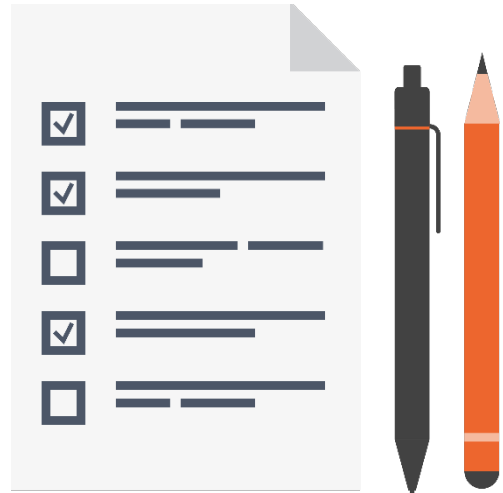
Colors or Patterns?

☒ Colors ☐ Patterns

- High level view of ARIA attributes
 - Name
 - Value
 - State

These Are Just a Few

It's a Wrap



It's the right thing to do

It's not only about blind people

It's good for everyone and it's good for business too

It doesn't cost extra money

It doesn't take a bunch of crazy voodoo

It's a Wrap



We need to get everyone on board

We need to set project goals and plan up front

We need to consider users with a wide range of abilities and technology

We need to use proper semantic HTML

It's a Wrap



We need to structure our content in a logical order

We need to add information when building rich, dynamic web applications

We need to focus on accessibility just as we focus on everything else

We need to test

It's a Wrap



A little empathy goes a long way

There's no such thing as 100% accessible

Accessibility affects all aspects of good design and development

Focus on Accessibility

And You'll Be Better Indeed!