Web Accessibility
For Content Creators and Developers
But first...

*stands on soapbox
Many people with sensory impairments use your websites
22% of adults in the US identify as having a disability.
Who has a disability?

Not Able

Able

See
Hear
Walk
Read print
Write with pen or pencil
Communicate verbally
Tune out distraction
Learn
Mange physical/mental health
A person does not have a disability.

Disability arises when circumstances deny the opportunity to meet a need.

Some disabilities can be overcome by modifying the environment.
People who use screen readers browse webpages the same as anyone else.

• Sighted users do not read every word on a webpage, they:
  • Skim the sections
  • Scan for headings
  • Scan for links

• People who use screen readers do the same.
People who use screen readers browse webpages just like anyone else.
Investments in Web Accessibility pay big dividends
On with the show...

*steps off soapbox
Who is responsible for making my website accessible.
Accessibility is a team effort shared by web developers and content creators
Web Developers
Compliance is a shared responsibility
How do we measure if content is accessible?
WCAG 2.0?

It is a set of Web Content Accessibility Guidelines. If a website passes the guidelines it is accessible to people with a wide variety of disabilities.

Overriding principles:

• Perceivable
• Operable
• Understandable
• Robust
Checking for accessibility requires both automated and manual testing.

You will notice in the lower right corner of the presentation that indicates if testing requires manual help or automated testing.
### WCAG 2.0

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Perceivable

Content is available to the senses (sight, hearing, and/or touch)

1. Perceivable
   1.1 Text Alternatives
   1.2 Time-based Media
   1.3 Adaptable
   1.4 Distinguishable
1. Perceivable 1.1 Text Alternatives

Text equivalents for every non-text element.

```
<img src="cat.jpg" alt="Cat wearing a cone on its head after surgery">
```
1. Perceivable

1.1 Text Alternatives

CMS Toolbar Insert Image
Audio and video media require alternatives

Audio = transcript  Video = captioning

Video Captioning surrounds us, binds us, holds us together.
1. Perceivable

Use of color

Normal

Protanopia (red-green)

Monochromacy (very rare)
## Contrast ratio

<table>
<thead>
<tr>
<th>Contrast Ratio</th>
<th>Color Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.5:1</td>
<td>#D4D4D4</td>
</tr>
<tr>
<td>2.0:1</td>
<td>#B3B3B3</td>
</tr>
<tr>
<td>2.5:1</td>
<td>#A4A4A4</td>
</tr>
<tr>
<td>3.0:1</td>
<td>#949494</td>
</tr>
<tr>
<td>3.5:1</td>
<td>#888888</td>
</tr>
<tr>
<td>4.0:1</td>
<td>#808080</td>
</tr>
<tr>
<td>4.5:1</td>
<td>#777777</td>
</tr>
<tr>
<td>7.0:1</td>
<td>#5A5A5A</td>
</tr>
<tr>
<td>20:1</td>
<td>#000000</td>
</tr>
</tbody>
</table>

**1. Perceivable**

**1.3 Distinguishable**

> 18px

< 17px
1. Perceivable 1.3 Distinguishable

Contrast ratio

• Font-size 17px or less requires 4.5:1 ratio
• Font-size 18px or more requires 3:1 ratio
• Link text vs. body text requires 3:1 or use an underline

PASS  FAIL  FAIL
1. Perceivable

1.4 Distinguishable

Check link hover states

- [Link text](#) vs. body text requires 3:1 or use an underline
1. Perceivable

1.3 Distinguishable

Checking for contrast violations on images or gradients
1. Perceivable

1.3 Distinguishable

Checking for contrast violations on images or gradients
More on this tool later...
1. Perceivable

No images of text
Interface forms, controls, and navigation are operable

2. Operable

- 2.1 Keyboard Accessible
- 2.2 Enough Time
- 2.3 Seizures
- 2.4 Navigable
2. Operable

2.1 Keyboard Accessible

No Mouse

• Every interaction on a site should be possible with the “tab”, “spacebar” and “enter” button

• “Skip over” nav to main content

• Demo on this later...
2. Operable

2.1 Keyboard Accessible

Pop-up and Modals

• Please do not use pop-ups

• It is very difficult to make them keyboard accessible

• If they are used, it should be unavoidable (that means not an email sign up or an advertisement)
Give user control over things that move, like rotating banners.

- Timing Adjustable
- Pause, Play, next, back
- Must have aria attributes
Warning!
2. Operable

Don’t do this
2. Operable

Provide ways to help users navigate, find content, and determine where they are.

- Bypass blocks (skip to links)
- Pages have titles
- Focus order
- Link purpose
- Provide more than one way to get to a page
- **Use headings and Labels**
- Focus must be visible on all elements that can have focus
2. Operable

Bypass Blocks

2.4 Navigable

Main body text.
2. Operable

Bypass Blocks (Skip-to links)

2.4 Navigable
2. Operable

Focus visible and focus order

2.4 Navigable

Manual Check
<p>is for Paragraphs</p>

Search engines and screen readers use HTML to understand your content.

- `<p>` for paragraphs
- `<ol><ul>` for lists
- `<h1><h2><h3>` is for headings and don’t skip headings
- Tables ONLY for data. No exceptions
CMS Toolbar Headings

2. Operable

2.4 Navigable
Headings

It is good practice to nest headings properly. When stepping down through headings, skipping levels should be avoided. That means that an `<h1>` is followed by an `<h1>` or `<h2>`, an `<h2>` is followed by a `<h2>` or `<h3>` etc.

When stepping up through headings it is counted as an Alert. Technically you can skip any number of levels.
Proper use of headings
2. Operable

Bad use of headings

2.4 Navigable
Link purpose/ ambiguous links

• Bad:
  • “More”
  • “Read more”
  • “Learn more”
  • “Click here” ← NEVER DO THIS

• Good Adequate:
  • “More news”
  • “Read full article”
  • “Learn more about cats”
  • “Click here to read more about cats”
2. Operable

CMS Toolbar Link Options

2.4 Navigable
2. Operable

Good link text

2.4 Navigable
2. Operable

Bad link text

2.4 Navigable
2. Operable

Link purpose (advanced technique)

Example of Code:

```html
<a href="/joel-crawford-smith" rel="tag" title="Joel Crawford-Smith">
  "Read more"
  <span class="element-invisible">about Joel Crawford-Smith</span>
</a>
```
Content and interface are understandable

3. Understandable

3.1 Readable
3.2 Predictable
3.3 Input Assistance
3. Understandable

Language

• Language of page can be programmatically determined.

  <html lang="en"><head><meta charset="utf-8">

• Language of Parts
  • Write it simple.
  • Provide summaries for large sections of text.
  • E.S.L.
3. Understandable

Don’t make the page do something the user did not ask for.

- Focus should not cause an action

- On Input don’t make unexpected screen changes

- Consistent navigation – Navigation should be persistent and consistent on every page.

- Consistent identification – Keep markup consistent from page to page. Examples: Label form elements, wrap navigation in `<nav>` or provide aria role.
3. Understandable

3.3 Input Assistance

Input assistance

• Make forms easy to understand
  • Provide labels for form elements
  • Provide help text

• “To err is human”
  • Form Error Prevention
  • Help people recover from errors
Content can be used reliably by a wide variety of user agents, including assistive technologies

4. Robust

4.1 Compatible

- Validate your code - [https://validator.w3.org](https://validator.w3.org)

- Name, Role, Value
4. Robust

4.1 Compatible

<p> is for Paragraphs

Search engines and screen readers use HTML to understand your content.

• <p> for paragraphs
• <ol><ul> for lists
• <h1><h2><h3> is for headings
• Tables ONLY for data. No exceptions
What are the requirements for PDF?

• Bad news:
  90% of what you just heard applies to PDF files.
Accessibility Testing

• Automated accessibility tools only catch some of the issues.

• Accessibility testing also requires the human brain for manual testing.
Volunteers?
Automated Tools

- **WAVE**
  - Web accessibility evaluation tool developed by WebAIM.org. that checks your page for compliance with WCAG 2.0

- **Color Contrast Analyzer**
  - Color contrast evaluation tool.
  - It evaluates the page as it appears in the browser, so it is able to handle text over gradients and advanced CSS attributes.
WAVE tool: wave.webaim.org
Color Contrast Analyzer: https://goo.gl/oolQX6
WAVE testing unc.edu demo
Color Contrast Analyzer on unc.duke.edu demo
Testing with screen reader demo
Steps

1. WAVE it (or Axe it)

2. Color Analyze it

3. Check hover states

4. Navigate with keyboard

5. Check with Screen reader
Accessibility Testing

ANYTHING YOU DO HELPS!

😊
Thank you!

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