

Introduction: An Accessible Web

This guide developed by the IITS Web development team will get you started with developing websites compliant with The **Accessibility for Ontarians with Disabilities Act** (<https://accessontario.com/aoda>). Most of this guide will cover points on how to ensure your web content such as text, images, links and forms are compatible with assistive technologies like screen readers (which allows users with vision problems to hear the webpage content audibly). Also, included are some tools that help in the process.

Why Accessibility is Important

Creating accessible content, whether on a website or elsewhere, is intended to ensure that the content is available in a meaningful way to all users. This includes not only individuals with disabilities (including visual, auditory, physical or cognitive disabilities) but also older users who may have experienced a change in their former abilities with aging. Ensuring that your content is easily available and understood by all users will allow that content to be shared more widely to your audience.

The Accessibility for Ontarians with Disabilities Act (or AODA) became law on June 13, 2005. Non-compliance with the standards outlined in the AODA can result in financial penalties.

As of 1 January 2014, under the AODA, public sector organizations, which includes the University, shall make new internet websites and web content on them conform with the World Wide Web Consortium Web Content Accessibility Guidelines (WCAG) 2.0 to Level A. This requirement will extend to Level AA on all websites by 1 January 2021.

You can refer to the University of Toronto's official accessibility statement at <https://www.utoronto.ca/accessibility>.

Online Resources

WebAIM (<http://webaim.org/>) is a formidable resource which not only provides HTML coding snippets but provides additional explanation as to why some solutions are preferred over others. This guide directly references examples found on WebAIM.

Another excellent online resource is the Web Content Accessibility Guidelines themselves (<https://www.w3.org/WAI/WCAG20/quickref/>) published by the World Wide Web Consortium, the international community that develops open standards for the web.

Validate Existing Site

A web accessibility evaluation tool called WAVE (<http://wave.webaim.org/>) is available on the WebAIM site. Entering the URL of your existing site will provide a summary highlighting areas for concern as well as included usability features on that page.

The screenshot displays the WAVE web accessibility evaluation tool interface. On the left, a sidebar shows a 'Summary' section with the following statistics: 1 Error, 49 Alerts, 24 Features, 43 Structural Elements, 84 HTML5 and ARIA, and 13 Contrast Errors. Below these are 'Panel Options' including 'DETAILS', 'DOCUMENTATION', and 'OUTLINE'. The main content area shows the University of Toronto Scarborough website. The top navigation bar includes links for 'Future Students', 'Current Students', 'Faculty', 'Alumni & Giving', 'Careers@UTSC', 'A-Z Listing', and 'People Directory'. The main header features the university logo and a navigation menu with 'APPLY TO UTSC', 'ACADEMIC LIFE', 'CAMPUS LIFE', 'RESEARCH & INNOVATION', 'OUR STORY', and 'CONTACT'. The main content area features a large image of two overlapping human profiles (one blue, one red) with the headline 'Adversity and politics' and a sub-headline 'New research suggests negative life events can lead people to adopt more extreme political views'. Below this is a 'News' section with several articles, including 'WannaCry: what U of T community should know about the malware attack', 'Alum wins national leadership award for software adapting teaching to the 21st century', and 'Clinical psychologist receives award for new study on patients with borderline personality disorder'. A 'view all' link is visible at the bottom right of the news section.

Going over the validation results and fixing errors will bring your site closer to being accessible.

Text

The content on your website should be easy to read for all users. Font size, style, colour and contrast are a few of the things that can help ensure that text is readable by all users, even if they have low vision.

Font Choice

- Use real text rather than text embedded within graphics.
- Select basic, simple, easily-readable fonts. (sans-serif, Arial, Verdana)
- Use a limited number of fonts.

Font Size

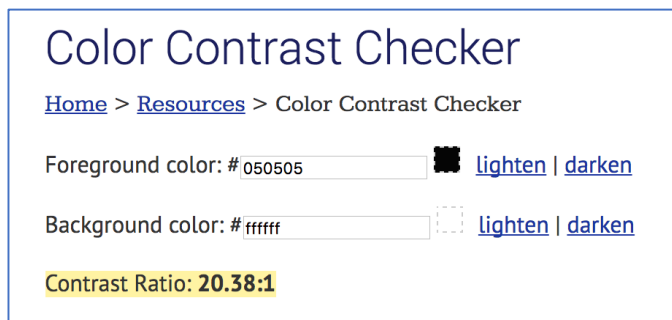
- Avoid small font sizes. (Here at UTSC we use a base font of 14px as a standard on all of our websites)

Font Colour & Style

- Avoid blinking or moving text.
- Limit the use of font variations such as bold, italics, and ALL CAPITAL LETTERS.
- Ensure sufficient contrast between the text and the background. (use [Color Contrast Checker](#) on WebAim)

WebAim's "Color Contrast Checker"

The "[Color Contrast Checker](#)" found on WebAim's website is a great tool. By entering the colour of the text and the background it appears on, it can be determined if there are visibility issues with the proposed colour choices: <http://webaim.org/resources/contrastchecker/>



The screenshot shows the 'Color Contrast Checker' interface. At the top, it says 'Color Contrast Checker' with a breadcrumb trail: 'Home > Resources > Color Contrast Checker'. Below this, there are two input fields. The first is labeled 'Foreground color: #050505' and has a small black square icon to its right. To the right of the input field are two links: 'lighten' and 'darken'. The second input field is labeled 'Background color: #ffffff' and has a small white square icon to its right. To the right of this input field are also two links: 'lighten' and 'darken'. At the bottom of the interface, the 'Contrast Ratio: 20.38:1' is displayed in a yellow box.

Achieving a target ratio of **4.5:1** or higher will pass all low vision tests.

Images

Alternative Text (Alt tag)

When images are used on a page they need to be accompanied by alternative text to describe their content. This is accomplished by use of the Alt tag (**alt=""**) attribute in the HTML.

```

```

This creates the means for screen readers to read alternative text (between the quotes) and provide the user with details about what the image contains. Also, if the image fails to load the alternative text is displayed and is a benefit to sighted users as well.

The alt attribute should typically:

- Be accurate and equivalent in presenting the same content and function of the image.
- Be succinct. Typically, no more than a few words are necessary, though rarely a short sentence or two may be appropriate.
- Only describe the image and not reiterate any content that already appears in text on the page.
- NOT to use the phrases "image of ..." or "graphic of ..." to describe the image. It usually apparent to the user that it is an image. If the fact that an image is a photograph or illustration, etc. is important content, it may be useful to include this in alternative text.

Text in an Image

In the majority of cases using text within an image is not advised, as it can make the content inaccessible and also be difficult to view properly on a smaller, mobile screen. If it cannot be avoided however, here are some things to consider:

- **Use larger font sizes.** Using regular or small font sizes may force the user to zoom in causing the text to become blurred and illegible.
- **Maintain good contrast.** If the text is over a solid colour be sure there is high a contrast between the two. Use WebAim's [Color Contrast Checker](#) when making colour choices.
- **Avoid using text over an image.** Using text over an image can be tricky since the contrast between the two can be inconsistent. As mentioned previously, maintaining a good contrast level between text and its background allows legibility for users who may have low vision.
- **Do not use transparent text.** Using transparent text degrades contrast and can be problematic for all users.

Structure

Titles

Separating your content into multiple pages is key in creating a meaningful hierarchy across your website. Just as important is separating content on single page that would otherwise be lengthy. Using a title and sub-titles to identify sections on a page lays the groundwork in making it accessible to all users.

A lengthy page with a title and sub-titles, which in HTML are known as headings or more technically **Header Tags (<h1>, <h2>, <h3> etc.)**, allows sited users to scan the page to find information they're looking for quickly. Similarly, users navigating the site via screen readers can access headings skip through them to get to the information they need.

Here's an example of a page with two levels of headings (titles):

Summer Kite Flying

Egestas sociis natoque penatibus et magnis dis parturient .

Location

Nullam quis risus eget urna mollis ornare vel eu leo.

Dates

Egestas sociis natoque penatibus et magnis dis parturient montes.

Prizes & Giveaways

Egestas sociis penatibus et magnis .ridiculus mus. Cras justo odio,

Screen readers start at the top of the page and make its way down reading all the content. However, when proper header tags are present a user can prompt the screen reader to list the headings:

Summer Kite Flying

Location

Dates

Prizes & Giveaways

The user can then quickly understand what content is on the page and if it has the information they need.

There are a few best-practices to keep in mind when using header tags. Let's take a look at the same information with the HTML showing:

`<h1>Summer Kite Flying</h1>`

Egestas sociis natoque penatibus et magnis dis parturient .

`<h2>Location</h2>`

Nullam quis risus eget urna mollis ornare vel eu leo.

`<h2>Dates</h2>`

Egestas sociis natoque penatibus et magnis dis parturient montes.

`<h2>Prizes & Giveaways</h2>`

Egestas sociis natoque penatibus magnis .ridiculus mus. Cras justo odio.

As you can see the `<h1>..</h1>` tag is used only once. This is because there is a single main title on any given page. The `<h2>..</h2>` tag is used multiple times as there can be more than one subtitle per page. If Location had its own subsections it would then utilize `<h3>..</h3>` tags for those headings. As more heading levels are introduced they should remain in sequence. For instance, it is not a good practice to go from an `<h1>` to an `<h3>` tag without an `<h2>` present.

Navigation

Some users who employ assistive technologies to access the web use keyboard commands rather than a mouse to navigate a site. Using the **Tab** key allows a user to jump to interactive components of a page such as navigation, links and form elements.

Tip: Including a "Skip to main content" link before the navigation allows users to avoid hearing the full list of menu items each time a page loads

In most cases tabbing through a website does not require any special settings. Items gain focus in the HTML order on that page ignoring any layout styles set by CSS. But it is recommended to always check to ensure that a website can be explored with a keyboard only.

Sometimes it may be necessary to deviate from the natural tab order. Should you come across such a situation and need assistance in determining the best user experience please contact the web team at: web@utsc.utoronto.ca

Links

Links are one of the core components of HTML. It provides the user the means of moving from one page to another to find the information they need. Ensuring links are descriptive not only improves user experience and accessibility, but it elevates a site's relevance with search engines.

A keyboard user can tab through the links on a page which prompts a screen reader to read out the linked text. If a page is filled with links that say "Click Here" this is what a user hears without any context to where they lead.

Instead of a sentence like:

If you're a beginner and you would like to learn more about our Trainer Kites [click here](#).

Consider:

If you're a beginner we have a great selection of [Trainer Kites](#) to get you started.

While there is no maximum allowable length for link text, it is more practical for it to be just long enough to convey its purpose. Anything more will slow down the process for someone listening to a list of links via screen reader.

Forms

Forms are used as a means of receiving information from users. Therefore, it is of great benefit they are well organized, logical and easy to use. Instructions, cues, required form fields, field formatting requirements etc. should be clearly identified to users.

Many users are only able to use a keyboard to navigate and use the web. So, forms must be built so that they can be completed by using a keyboard only.

Should you need help creating a form please contact the web team at: web@utsc.utoronto.ca

Tables

Since screen readers handle tables differently from each other, the use of tables should be limited to presenting tabular data. When used, the zebra striping (alternating row colours) should almost always be employed in order to make each row more easily readable as in the example below:

First Name	Last Name	Job Title	Twitter
James	Matman	Chief Sandwich Eater	@james
Andor	Nagy	Designer	@andornagy
Tamas	Biro	Game Tester	@tamas
Zoli	Mastah	Developer	@zoli
Szabi	Nagy	Chief Sandwich Eater	@szabi

Since screen readers will not determine which cells contain the headers unless they are properly identified, it is important to ensure they receive the right tagging.

In the example above the first row uses **table heading** <th> instead of **table data** <td> for each item:

Table Headings

```
<tr>
  <th>First Name</th>
  <th>Last Name</th>
  <th>Job Title</th>
  <th>Twitter</th>
</tr>
```

Table Data

```
<tr>
  <td>James</td>
  <td>Matman</td>
  <td>Chief Sandwich Eater</td>
  <td>@james</td>
</tr>
```

Tip: Avoid nested tables at all costs. While they may not be a major issue for sighted users, visually impaired users listening to a screen reader can easily become disoriented.

Rich Media

As rich media (including videos and audio clips) is becoming increasingly common as online resources, it's important to consider how to make them accessible for all users. In order to meet WCAG 2.0 guidelines, the following is required:

WCAG 2.0 Guideline 1.2.1 - "An alternative for time-based media is provided that presents equivalent information for prerecorded audio-only content."

WCAG 2.0 Guideline 1.2.2 - "Captions are provided for all prerecorded audio content in synchronized media, except when the media is a media alternative for text and is clearly labelled as such."

For video content, providing captions will allow users with accessibility concerns (including hearing loss or literacy needs) to access that content effectively. This means providing a means to view an accurate transcription of the audio of a video as text, to play in sync with the video content itself, including not only spoken dialogue, but also other audio elements including sound effects and descriptions of music playing.

For audio-only elements such as podcasts, providing a transcript also allows all users to access the content effectively.

While some online services such as YouTube provide a rudimentary captioning option automatically, this caption content should be reviewed carefully to ensure its accuracy and overall quality. The automated captions can be edited for accuracy, or there are many service providers available who can perform a more thorough captioning service if required, for a fee.

For more details about the various types of captioning available, or assistance supporting this requirement in your own rich media content, please contact the IITS web team.

Conclusion

As mentioned, this is simply a starter kit and there's much more that can be found on sites such as <http://webaim.org/>.

Ben Poynton (ben.poynton@utoronto.ca), the AODA Officer within the Department of the Vice-Provost Students can also offer advice on tools and services available regarding Accessibility questions. This office has a number of resources available to assist with accessibility questions, including the following:

- [Accessible Communications](http://aoda.hrandequity.utoronto.ca/communications/) (http://aoda.hrandequity.utoronto.ca/communications/)
- [Accessible Teaching](http://aoda.hrandequity.utoronto.ca/teaching/) (http://aoda.hrandequity.utoronto.ca/teaching/)

Finally, please feel free to reach out to the IITS Web team (web@utsc.utoronto.ca) for any assistance or questions you may have regarding your website and accessibility.