

Web Accessibility



The University of Vermont



The power of the Web is in its universality.

Access by everyone regardless of disability is an essential aspect.

– Tim Berners-Lee, W3C Director and inventor of the World Wide Web

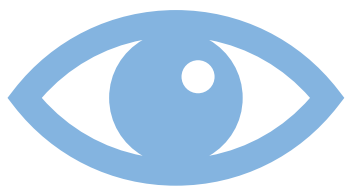
20% of the population has some kind of disability

Visual - Blindness, low vision, color-blindness

Hearing - Deafness and hard-of-hearing

Motor - Inability to use a mouse, slow response time, limited fine motor control

Cognitive - Learning disabilities, distractibility, inability to remember or focus on large amounts of information



Terms and Regulations



W3C[®]



**Web Content Accessibility Guidelines
(WCAG) 2.1**

W3C Recommendation 05 June 2018



More Web Accessibility Terms

A, AA, AAA - three progressive level of success criteria for WCAG

ARIA - Accessible Rich Internet Applications Suite, which defines a way to make web applications more accessible to people with disabilities

JAWS - Job Access With Speech is the world's most popular screen reader, developed for computer users whose vision loss prevents them from seeing screen content or navigating with a mouse

WebAIM - Web Accessibility in Mind is a non-profit organization based at Utah State University that provides comprehensive online resources on web accessibility

WAVE - a free online web accessibility evaluation tool provided by WebAIM

Four WCAG Principles (POUR)

1. **Perceivable** - Information and user interface components must be presentable to users in ways they can perceive.
2. **Operable** - User interface components and navigation must be operable.
3. **Understandable** - Information and the operation of user interface must be understandable.
4. **Robust** - Content must be robust enough that it can be interpreted reliably by a wide variety of user agents, including assistive technologies.

Areas with Common Web Accessibility Problems

- Images and ALT text
- Links and hypertext
- Semantic structure including headings and lists
- Video/audio content and captions, transcripts and audio descriptions

Accessible Images

- Include alternative (ALT) text that succinctly describe the image's content in context or function
- Don't include text, charts, or other data that could be easily presented using text or other HTML semantic structures
- When conveying data or detailed information, include a full-text equivalent somewhere on the page
- Have a 3:1 contrast ratio if used for user interaction or contain text (ie. buttons)

How and when is ALT text used?

- It is read by screen readers in place of images allowing the content and function of the image to be accessible to those with visual or certain cognitive disabilities.
- It is displayed in place of the image in browsers if the image file is not loaded or when the user has chosen not to view images.
- It provides a semantic meaning and description to images which can be read by search engines or be used to later determine the content of the image from page context alone.

The ALT attribute should:

- **Be accurate and equivalent** in presenting the same content and function of the image (including any and all text used within the image itself). It should not include text that is not available to sighted users viewing the image.
- **Be succinct.** This means the correct content (if there is content) and function (if there is a function) of the image should be presented as succinctly as is appropriate. (Less than around 100 characters.)
- **Be empty (alt="")** if the image is purely decorative or the content that the image conveys is presented within text in the surrounding context of the image
- **NOT use the phrases "image of ..."** or **"graphic of ..."** to describe the image. It is usually apparent to the user that it is an image.

Accessible Links and Hypertext

The intent of creating accessible links is to help users understand the purpose of each link without needing additional context so they can identify the purpose of the link decide whether they want to follow the link.

Assistive technology has the ability to provide users with a list of links that are on the Web page either in page source or alphabetical order. Link text that is as meaningful as possible will aid users who want to choose from this list of links. Meaningful links help users choose which links to follow without requiring complicated strategies to understand the page.

Link Requirements

- The purpose of each link (or form image button or image map hotspot) can be determined from the link text alone, or from the link text and its context (e.g. page title, section heading or table headers).
- Links (or form image buttons) with the same text that go to different locations are readily distinguishable.
- Links to non-HTML content (e.g. PDF, email links, DOC, PPT, etc.) or opening a new browser window are identified appropriately within the link text itself:
Registration Form (PDF) or Encyclopedia Britannica (opens in a new window)
- Clickable targets are at least 44 by 44 pixels in size unless an alternative target of that size is provided, the target is inline (such as a link within a sentence), the target is not author-modified (such as a default checkbox),

Link text should:

- **Avoid uninformative links phrases**, such as: click here, here, more, read more, link to, info, etc.
- **Be as concise as possible** without sacrificing meaningfulness
- **Never be empty**, they must always contain text or images with ALT text.
- **Be composed of human-readable text** and not simply be URLs or web addresses.
- **Look like links**. If they are not underlined they must have a 3:1 contrast ratio and present a “non-color designator” on both mouse hove and keyboard focus

How Proper Semantic Structure Aids Accessibility

- People with cognitive and learning disabilities can more easily find and prioritize content on the page.
- People using screen readers can skip to the main content directly and navigate to sections that are important to them.
- Keyboard users can browse pages and their sections more efficiently. Otherwise, users have to press the tab key multiple times to navigate through all links in each section.
- People using software that only shows the main content of a web page, such as people with cognitive disabilities, will receive better results if the page structure is correctly marked up.
- People with visual impairments, including people with low vision, have cues that provide orientation on the page and in the content.

Other Benefits of Using Correct Semantic Structure

- Mobile web users often have access to a so-called “reader” or “reading” mode that will only show the main content of the page if it is correctly marked up.
- People using certain browser plugins can use landmark roles to jump to specific sections on a page.
- Search engines can use the data to better index the content of a page.

Page Structure Concepts

- Add headings and nest them logically to label sections of web pages according to their relationships and importance
- Mark up the content on a page in a way that uses appropriate and meaningful elements (paragraphs, lists, quotes, tables, figures, etc.)
- Text labels are associated with form input elements.
- Include a mechanism to bypass blocks of content that are repeated on multiple Web pages.

Accessible Video and Audio

People who cannot hear audio or see video need alternatives. Examples include:

- Text transcripts and captions for audio content, such as recordings of a radio interview;
- Audio descriptions, which are narrations to describe important visual details in a video;
- Sign language interpretation of audio content, including relevant auditory experiences.

Well-written text transcripts containing the correct sequence of any auditory or visual information provide a basic level of accessibility and facilitate the production of captions and audio descriptions.

Captions and transcripts

- Captions are provided for all prerecorded audio content in synchronized media, except when the media is a media alternative for text and is clearly labeled as such.
- An alternative for time-based media or audio description of the prerecorded video content is provided for synchronized media, except when the media is a media alternative for text and is clearly labeled as such.
- Captions are provided for all live audio content in synchronized media.
- Audio description is provided for all prerecorded video content in synchronized media.

YouTube's Automatic Captions:

- Lack correct capitalization and punctuation
- Do not include speaker identification when there are multiple people on screen
- Will usually mess up proper names of people, places, companies, products, etc.
- Will not transcribe essential sound effects, such as (applause), (music playing), (doorbell), or even (silence)
- Will be even less accurate under the following conditions: poor audio quality, multiple speakers, speaker with an accent or dialect, non-speech sounds, non-English words are spoken, mumbling or slurring
- Can be easily edited to fix the above issues

Additional web accessibility topics include:

- Writing clearly and simply
- Accessible forms and tables
- Accessible JavaScript
- Color contrast issues
- Accessible PDF and other non-HTML content delivered on the web

For further information:

- [Web Accessibility Overview in the Drupal Web Guide](#)
- [WebAIM](#) (articles, courses, tools, simulations) based at Utah State University
- [WAVE Web Accessibility Evaluation Tool](#) by WebAIM
- [W3C WAI](#) (WCAG guidelines) from the W3C
- [Before and After Demonstration](#) of web pages from the W3C
- [3PlayMedia](#) accessible media services (video and audio captioning, webinars, legal information)
- [Colour Contrast Analyser](#) for Windows or macOS with simulator