# MDOD IT Accessibility Initiative (ITAI) Accessibility Resource Guide

## Overview of Digital Accessibility

Digital accessibility is defined as:

* “The term 'digital accessibility' can be defined as the ability of a website, mobile application (app) or electronic document to be easily navigated and understood by users with and without disabling conditions including visual, auditory, motor or cognition.” – [MDOD ITAI Webpage](https://mdod.maryland.gov/news/Pages/Web-Accessibility.aspx)
  + [ITAI “What is Digital Accessibility” webinar](https://www.youtube.com/watch?v=J3uX9F72_so&list=PLumC5bfSMu-Y9V50vlY64jZQvLnGaVSLg&index=12&t=106s): this session explains the definition of digital accessibility, the laws and standards applied in Maryland, and what resources are available in Maryland for state agencies to learn more.
* “Web accessibility means that websites, tools, and technologies are designed and developed so that people with disabilities can use them.” -W3C WAI
  + [W3C Digital Accessibility Foundations Course](https://www.w3.org/WAI/courses/foundations-course/): the W3C has developed an introductory course to accessibility intended for both technical and non-technical individuals.
* [ADA Legal Definition](https://www.ada.gov/resources/disability-rights-guide/): Title II requires that State and local governments give people with disabilities an equal opportunity to benefit from all of their programs, services, and activities (e.g. public education, employment, transportation, recreation, health care, social services, courts, voting, and town meetings).

## Maryland Accessibility Law & Policy

* The [MD Non-Visual Access Clause (NVA)](https://casetext.com/statute/code-of-maryland/article-state-finance-and-procurement/division-i-state-finance/title-35-department-of-information-technology/subtitle-3-information-processing-and-security/section-35-311-nonvisual-access-clause): Maryland’s accessibility law that requires state agencies to purchase accessible IT products. It establishes the timeline for assessment, remediation, and consequences of non-compliance.
  + The [NVA Standards Statute](https://casetext.com/regulation/maryland-administrative-code/title-14-independent-agencies/subtitle-33-department-of-information-technology/chapter-143302-information-and-communication-technology-nonvisual-access-standards): The technical standards that fall under the NVA. The standards are divided into similar sections as Section 508 and directly quote it in some parts.
  + [Section 508 of the Rehabilitation Act](https://www.access-board.gov/ict/#d1): The federal standards for accessible IT procurement. While not directly applicable in Maryland, they are essential to know to understand the NVA standards.
* [MD 7-910: Equivalent access requirements for students with disabilities](https://govt.westlaw.com/mdc/Document/NCEB8F110EAC011ECA884C480C170FC94?originationContext=document&transitionType=StatuteNavigator&needToInjectTerms=False&viewType=FullText&ppcid=0a90a116f5f54570ab4876f5fcccc778&contextData=%28sc.Default%29): This law requires the public school system in Maryland to procure accessible IT solutions, evaluate them during the process, and submit annual reports to the Department of Education.
* The [Americans with Disabilities Act Title II](https://www.justice.gov/opa/pr/justice-department-publish-final-rule-strengthen-web-and-mobile-app-access-people): A final ruling was published in April 2024 that determines the technical standards for ADA compliance and its application to digital content. Title II requires compliance for all public-facing content provided by state and local public entities.
* [Web Content Accessibility Guidelines](https://www.w3.org/WAI/standards-guidelines/wcag/): the internationally accepted standards of web accessibility. The above laws all directly reference WCAG in some capacity. WCAG has multiple publications with 2.2 being the latest. Each publication has three levels of compliance: A, AA, and AAA.

## Universal Accessibility Principles

### Alternative Text

Alternative text (alt-text) provide assistive technology with additional information regarding buttons, links, and images that can be read to the user. Alternative text is crucial for those with visual impairments and users with screen readers as it can provide a verbal description and necessary background information that is usually depicted through visual means. It also replaces the image if it does not load properly which helps avoid loss of information. Here is an example of good and bad alternative text:



Bad Alternative Text: family\_photo.jpg

Good Alternative Text: a family with two boys, a mom, and a dad smiling and laughing.

### Reading Order

Reading order or focus order is the way in which a computer understands the chronological order of a website and is used by the keyboard and screen readers to determine in which order the information on a website should be read. Users who use screen readers depend on well-designed reading order to properly intake the information provided on the website. Keyboard-only users rely on it to move around the website to use links and interactive elements. Users with cognitive disabilities may struggle to understand content that is not in a logical order. Here is an example of a poorly designed reading order and a well-designed reading order.

Bad reading order:

1. Statistics of the event

2. Background information

3. The event name

4. Contact information

Good reading order:

1. The event name

2. Contact information

3. Background information

4. Statistics of the event

### Headings

Headings are used for organizing content in a comprehensive manner. Screen readers use them to navigate the website quickly based on topics and main ideas. Proper heading formatting allows users to parse through information in chronological order and by rank of importance. Screen readers are able to use them as shortcuts so it is important to have a proper order of heading rankings in order to obtain the highest level of readability. Here is an example of a bad heading structure and a good heading structure.

Bad Headings: (Heading level 2) Steve’s life as a carpenter

(Heading level 1) Who is Steve?

(Heading level 3) Steve’s current project

(Heading level 4) Steve’s contact information

Good Headings: (Heading level 1) Who is Steve?

(Heading level 2) Steve’s life as a carpenter

(Heading level 3) Steve’s current project

(Heading level 2) Steve’s contact information

### Use of Color & Contrast

When trying to emphasize an element or distinguish it from surrounding context (links, important information, etc), colors should not be the sole distinguisher used. Creating an icon or using an underline should be a first and foremost way to help users with limited-vision or colorblindness. Here is an example of a poorly designed error message and a well-designed error message.

Bad: Error! Improper format

Good: \*Error! Improper format\*

Ensuring proper color contrast is another vital aspect of web accessibility. Those who have trouble distinguishing certain tones of color can face challenges on websites. Sometimes, buttons and text colors can blend with the background, making it very difficult to interpret. Thus, ensuring that color contrast meets standards (4.5:1 ratio for text on background) is crucial for web designers to help improve the general accessibility and readability of their content. Here is an example of good and bad color contrast:

Bad Color Contrast: Red and Green are considered a bad combination.

Good Color Contrast: Black on White or its inverse are the standard combination.

### Link Purpose & Description

Links should indicate to users what is their destination. URLs do not always do this, especially particular content such as YouTube videos or news articles. Especially long URLs are difficult to communicate to AT users and visibly make pages and content more confusing. By using a short phrase, links are easy to understand and tell users the subject matter they should expect to see. It’s important to use phrases that are descriptive and not “click here” or “learn more”; unique link text helps screen reader users quickly identify links without having to rely on context. It also helps cognitive disabilities focus on what they are looking for and helps with touch targeting on mobile. Here is an example of a bad link description and a good link description:

Bad Link Description: Click here for more information on accessibility.

Good Link Description: More information on accessibility

### Forms & Error Identification

When creating a digital form, it is vital that it contains sufficient instruction and accessible error indication. All response boxes should have a clear correlation with the question being asked and be readily accessible while using a screen reader or other forms of assistive technology. Labels for input boxes are important for allowing users to ensure they know what the form wants in these boxes. Error messages should tell users what information they are missing, any format suggestions, and be communicated via assistive technology to the user. Here is a general example of a poorly designed form, and a well-designed form.

Bad Form: Responses boxes are not directly labelled; visual labels are clumped together without sufficient spacing; error messages do not indicate what is required for form submission; screen readers are not told which fields are required because they have a visible red outline and no other indicator

Good Form: clear labelling with field association; easy to understand reading order; error messages are associated with missing fields and explain format errors if needed; screen readers pick up important information such as required fields and choice selections

### A/V Media

When information is portrayed through an alternative source reliant on audio (video, recording, etc), it is necessary to have accurate captions to accompany the video or a transcript. Those who are hard of hearing depend on captions to grasp the information being discussed. It is also important to note that automatically generated captions are typically not sufficient for videos as they are prone to inaccuracies. Here is an example of a worst case, average case, and best case scenarios for videos with captions.

Worst Case: Video does not have any captions or transcript, and the video is the sole provider of information on the website

Average Case: The video does have captions but they are automated and have errors leading to a misunderstanding of content

Best Case: The video is fully captioned with an attached transcript.

Audio description is a similar concept; it ensures visual content is communicated to the user. Proper audio description is usually found in television, theatre, and film as a separate audio track for visually impaired users to consume. It is difficult to implement in shorter web-format videos; in these cases, descriptive narrative is the best option. The voiceover on a video should mirror what is on-screen and directly state any text shown. Here is an example of bad audio description and good audio description.

Bad Audio Description: A video is explaining the difference between investing at age 20 versus age 30. A chart is shown on screen showing the different amounts person A and person B have at age 60. The voiceover states “See the difference? Person A has earned significantly more by this time.”

Good Audio Description: The same video but the voiceover instead states “See the difference? Person A has earned $600,000 while person B has earned $350,000. That’s a $250,000 difference by age 60.”

### Assistive Technology Compatibility

Assistive technology is crucial for those suffering from any sort of cognitive or physical impairment and provides a unique approach to help reduce barriers posed by their impairment. When discussing web accessibility, this could be a screen reader, different style of keyboard, and zoom functionality or any form of technology that can assist those in using a computer or phone.

## Resources in Maryland

* [Maryland Department of Disabilities](https://mdod.maryland.gov/Pages/Home.aspx): MDOD provides guidance on multiple areas of disability policy and improvement of delivery of services.
  + [MD Technology Assistance Program](https://mdod.maryland.gov/mdtap/Pages/MDTAP-Home.aspx): MDTAP is part of the federal [ATAP library service](https://ataporg.org/) for assistive technology. Marylanders with disabilities can try out different types of AT to see what best fits their needs and find out where and how to acquire them. MDTAP is home to multiple programs such as the Financial Loan Program, High-Tech AT Reuse Center, and a new 3D Printing AT Lab.
  + [IT Accessibility Initiative](https://mdod.maryland.gov/news/Pages/Web-Accessibility.aspx): Housed in MDTAP, the ITAI provides consultative services to other state agencies on various topics of digital accessibility. The Initiative offers training in digital accessibility, SME support for procurements, and collaborates with the DoIT Office of Accessibility on testing and evaluations.
    - [The ITAI Webinar Series](https://www.youtube.com/playlist?list=PLumC5bfSMu-Y9V50vlY64jZQvLnGaVSLg) covers multiple subjects from Word and PDF accessibility to video conferencing.
* DoIT Office of Accessibility: The DoIT Office of Accessibility works on enforcing the NVA Clause, improving the procurement process and training procurement officers in NVA compliance, and conducts testing and evaluation of state digital content to ensure continued compliance.
* [National Federation of the Blind](https://nfb.org/): A major advocacy organization for the blind and visually impaired. The NFB was the primary writer for the NVA Clause.
  + [Center for Excellence in Nonvisual Accessibility (CENA)](https://nfb.org/programs-services/center-excellence-nonvisual-access): CENA was created to advocate for greater digital accessibility and assist partners in adopting best practices. CENA offers training and testing services.
* [Maryland Initiative for Digital Accessibility](https://mida.umd.edu/): MIDA is a University of Maryland program that is connecting faculty and students with disability rights organizations and tech companies to develop “born-accessible” approaches and solutions.
* [The Maryland TRACE Center](https://trace.umd.edu/): The TRACE Center is a research group within UMD. While they do not offer direct services, much of their research and development has improved testing tools and standards.
* [Raising the Floor](https://raisingthefloor.org/): A nonprofit that worked with the TRACE Center to develop Morphic, an AT tool for desktop computers. RtF works to improve digital accessibility, literacy, and development across the world.

## Other Resources

* [Section508.gov](https://www.section508.gov/): The main resource for federal accessibility. There are separate sections for procurement, content creation guides, website development and testing, and training offered throughout the country.
* [W3C WAI](https://www.w3.org/WAI/): The W3C’s Web Accessibility Initiative is a great starting point for learning about accessibility. There is a free course for those wanting to learn what is accessibility; guides for policy implementation, content creation, and testing; and a complete walkthrough of how to understand the WCAG standards.
* [AT3 Center](https://at3center.net/): The training center for the National Assistive Technology Act. Offers free training in digital accessibility and helps find each state’s assistive technology program.
* [ADA.gov](https://www.ada.gov/): The ADA website provides all of the guidance and resources issued on ADA compliance. It also provides a breakdown of the titles and regulations covered by the ADA.
* [U.S. Access Board](https://www.access-board.gov/): The federal agency tasked with Section 508 enforcement and awareness. Their website offers explanations of the guidelines for both digital and physical accessibility and what training they offer. Some of the material is strictly for federal employees so check ahead prior to attempting to register.
  + [ADA Training](https://www.accessibilityonline.org/training): several webinar series, some of which are directly from the US Access Board. They cover both digital and physical accessibility, legal updates, and assistive technology.