

Creating accessible documents (and fixing ones that aren't)

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[Course resources website](#)

<https://technicalassistance.hdiuky.net/accessible-document-links/>

Document accessibility: What it is and why it matters	2
Who benefits from accessible communication?	2
Assistive technology examples	3
POUR principles of accessibility	3
Regulations and standards	3
Screen readers.....	4
Accessible file formats.....	4
Office XML (.docx, .pptx)	4
PDF (Portable Document Format)	4
PDF/UA Standard	5
HTML and web content	5
Images and contrast	5
Alternative text (alt text).....	5
Color contrast	5
Don't rely on color alone to communicate or organize information	6
Fonts and typography.....	6
Choosing a font family	6
Text formatting	6
Headings.....	7

Office 365 accessibility.....	7
Document identification	7
Office accessibility tools	7
Check Accessibility	7
Alt Text	7
Working smarter	7
Microsoft Word tips.....	8
Paragraph & heading styles	8
Layout options and text wrapping.....	8
Microsoft PowerPoint tips	8
Embedding multimedia	8
Reading order pane	8
Reviewing a PDF in Adobe Acrobat.....	8
Document properties	9
Reading order	9
Accessibility tags panel.....	10
Resources	10

Document accessibility: What it is and why it matters

Accessible design means deliberately considering the needs of individuals with disabilities throughout the design process, resulting in experiences that make everyone feel welcome, regardless of their abilities or access methods.

Who benefits from accessible communication?

[Title 36 of the US Code of Federal Regulations](#) says that agencies must ensure that all functionality of ICT is accessible to and usable by individuals with disabilities, either directly or by supporting the use of assistive technology. For functions not otherwise covered, the ICT function should be accessible to those with any of the following functional limitations:

- People without vision or with limited vision
- People without perception of color

- People without hearing or with limited hearing
- People without speech
- People with limited manipulation, reach or strength
- People with limited language, cognitive, and learning abilities

Assistive technology examples

- Screen reader
- Screen magnifier
- Text reader
- Speech input
- Alternative keyboard
- Refreshable braille display

POUR principles of accessibility

The Web Accessibility Initiative, part of the international World Wide Web Consortium, has identified [4 guiding principles crucial to accessible content](#). The POUR principles define accessible content as:

Perceivable - Content can be perceived through various senses.

Operable - Interactions work regardless of how users interact with them.

Understandable - Content is clear, predictable, and consistent.

Robust - Content follows best practices to ensure compatibility with different devices, browsers, and assistive technologies (AT).

Regulations and standards

- [Rehabilitation Act of 1973](#)
 - [Section 504](#) prohibits discrimination based on disability in any program, service or activity that either receives Federal financial assistance or is conducted by a Federal agency.
 - [Section 508](#) requires Federal agencies to make all information and communications technology (ICT) accessible to employees and members of the public with disabilities.
- [Americans with Disabilities Act](#): A civil rights law that prevents employers, state and local governments, places of public accommodation, and telecommunications providers from discriminating against people with disabilities.

- [Web Content Accessibility Guidelines \(WCAG\)](#): Technical standards developed by the World Wide Web Consortium that can be used to test accessibility of digital content. The Section 508 and ADA accessibility requirements incorporate the WCAG standards by reference.

Screen readers

A screen reader is a piece of software that helps someone without vision or with limited vision interact with computers and other digital technologies. In the United States alone, more than 7 million people have some form of visual disability. Some common screen readers include:

- [NVDA \(NonVisual Desktop Access\)](#)
- [JAWS \(Job Access With Speech\)](#)
- [VoiceOver](#)
- [Windows Narrator](#)
- [TalkBack](#)
- [Orca](#)

Accessible file formats

Office XML (.docx, .pptx)

Advantages

- Easy to create and edit
- Simple formatting
- Lots of free templates
- Built-in accessibility tools
- Integrate with other Office products

Disadvantages

- Require paid programs to create and edit
- Formatting limitations
- Extremely limited form capability
- No support for complex tables
- Only Edge allows viewing without a plugin

PDF (Portable Document Format)

Advantages

- Native viewing in all major browsers
- Accessibility tag tree for maximum UX control
- Preserves advanced layouts and 'floating' content

Disadvantages

- Creating requires expensive software (Adobe Acrobat)
- Much more difficult to change and edit document content
- Requires a bit more tech-savvy to fix things

PDF/UA Standard

The PDF/UA (Universal Access) standard was introduced in 2012. PDF/UA documents are the standard for sharing information while preserving the document layout and design. A PDF meets the PDF/UA standard if:

- All meaningful content is tagged
- Tags are semantically appropriate
- Tag tree reflects logical reading order

HTML and web content

Advantages

- Users have more control over display
- Easy to share
- Modern CMSs make authoring simpler
- Search engine indexing

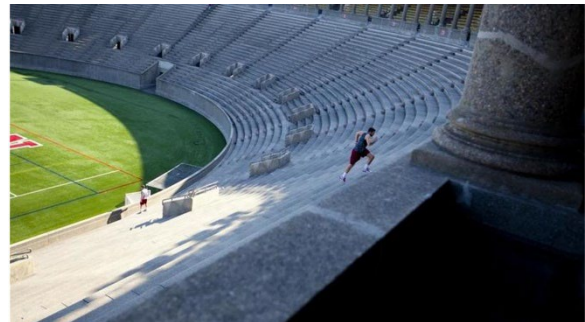
Disadvantages

- Print formatting is harder to control
- Raw HTML is intimidating
- Limitations of platform (such as the current WordPress or Drupal theme)

Images and contrast

Alternative text (alt text)

- Read by a screen reader
- Indexed by search engines
- Displayed if an image fails to load
- Context is key

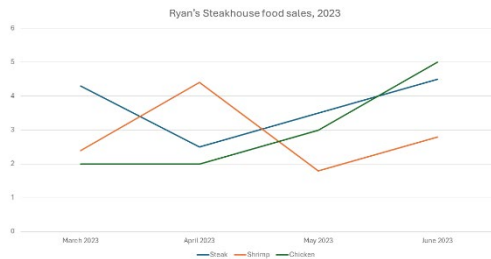


Color contrast

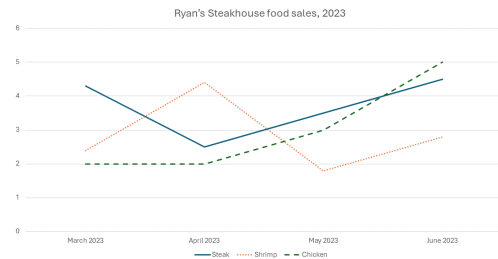
- Difference in brightness between foreground and background colors or elements
- Pertains to images, text, and icons
- Color contrast is commonly represented as a ratio between 1:1 and 21:1– the higher the first number, the greater the contrast
- WCAG 2.0 Level AA requires a contrast ratio of at least 4.5:1 between text and background

Don't rely on color alone to communicate or organize information

Less accessible



More accessible



Fonts and typography

- Font sizes are highly dependent on media type
 - Footnote text: 9pt
 - Body text: 12pt - 14pt
 - Headings: 18pt - 24pt
- Text left-aligned or justified
- Limit the use of italics

Choosing a font family

Font choices are subjective. Choose what you think looks best but ask for feedback from clients or colleagues.

- Sans-serif fonts like Roboto or Arial are easier to read as body text, especially with longer **digital** documents.
- Serif fonts like Times New Roman or **Playfair Display** stand out as headings and are good for longer **printed** documents.
- Overly decorative fonts like *Yellowtail* or **Rubik Glitch** can be used sparingly for logos or special text but shouldn't contain essential information.

Text formatting

- Lists are tagged appropriately
- Columns use column formatting instead of tabs
- Link names are unique and descriptive
- Proofing language is set and matches majority content
 - Content in other languages is tagged appropriately

Headings

Use headings in your documents, slides, and web content to help users navigate the document more easily.

- Provide structure, not style
- Nested hierarchically
- Label sections of the page
- Describe the content or purpose of a section

Office 365 accessibility

Note: Content located in headers or footers in Office documents is not accessible to assistive technologies. Avoid putting important information, such as text identifying a document as 'Confidential', in these locations. If the information is vital, be sure to include it in the body of the document as well.

Document identification

- File name is descriptive and identifies the document or its purpose
- Presentation or document title is set
 - **File > Info > Properties > Title**
- Files are saved in the most current format (.docx or .pptx)

Office accessibility tools

Check Accessibility

- Click **Accessibility: Investigate** in the Status bar OR
- Click **Review > Check Accessibility** in the ribbon

Alt Text

- Right click an image and select **View Alt Text** OR
- Select the image and navigate to **Picture format > Alt Text** in the ribbon
- Check the **Mark as decorative** checkbox for decorative images

Working smarter

- Make edits to the source document instead of the PDF
- Save well-formatted files as templates so you don't have to work so hard the next time

Microsoft Word tips

Paragraph & heading styles

- Use the **Styles** pane to designate headings and apply reusable formatting
- Built-in headings styles automatically update document structure
- Use line and paragraph spacing instead of new lines to add whitespace

Layout options and text wrapping

- Images, shapes and text boxes should be in-line when sharing source files
- Must include alternative text or be described in the surrounding content
- Elements with text wrapping are accessible when exporting to PDF

Microsoft PowerPoint tips

Embedding multimedia

- Audio, video, and multimedia files include captions or other alternatives
 - Captions are reviewed for accuracy and completeness
- The presentation does not contain flashing objects

Reading order pane

- Navigate to **Review > Check Accessibility > Reading Order Pane** in the ribbon
- Should match the visual order to the greatest extent possible
- Clearing checkboxes marks items as decorative and hides them from assistive technologies

Reviewing a PDF in Adobe Acrobat

Adobe Acrobat Pro is the gold standard in software for editing PDF files. Creating a PDF from scratch in Acrobat is time consuming and frustrating for even the most tech-savvy creators. Because Adobe open-sourced the PDF format in 2008, however, more user-friendly applications like Word and PowerPoint can export directly to PDF. Following the tips in the sections above should result in an accessible PDF export, but we can use Acrobat Pro to check PDFs and make small changes as needed.

Document properties

Access the Document properties panel by selecting **Menu > Document properties** or using the keyboard shortcut Ctrl + D.

Description tab

- The document must include a descriptive **Title** that identifies the current document without requiring users to read or interpret page content.
- **Advanced > Tagged PDF** should be marked Yes.

Security tab

- Regardless of the Security Method, **Content Copying for Accessibility** must be Allowed

Initial View tab

- Make sure **Window Options > Show** is set to Document Title rather than File Name.

Advanced tab

- Ensure that a **Language** is selected in the **Reading Options** group
- The language should match the **primary language** of the PDF.

Reading order

Side panel

- Fix the order in which objects are read by Adobe and by Adobe's Read out loud feature
- Solve basic tagging issues in a PDF

Floating panel

- Used for manually tagging a PDF
 - Choose between displaying page content order and structure type for the elements on the page
 - Group like elements, such as multiple paragraphs, into a single block
- Includes the Table Editor for creating tables with proper markup
 - Mark cells as header cells (<th>) or data cells (<td>)
 - Set the scope of header cells
 - Manage complex tables by allowing headers to span rows or columns

- Manually select header cells if Adobe gets them wrong

Accessibility tags panel

- View and edit the tag tree
- Affects the order in which assistive technology reads the document
- Should be a last resort for fixing (but an important step in checking) a PDF
- Right click a tag and select **Properties** to open the **Object properties** pane
 - Select the tag **Type** from the dropdown
 - The tag's **Title** only labels the tag in the tags panel and does not affect the way it is read by assistive technology
 - Setting the **Actual Text** field will override what a screen reader finds in the document. Any text contained in the tag will not be read.
 - The **Alternate Text for Images** and **Alternate Text for Links** fields allow you to add meaningful descriptions to elements. Alternate text should be added to the <Link> or <Figure> tag rather than any of the contents.

Resources

- [Course resources website](#)
- [NVDA for Windows Keyboard Commands: Quick reference guide](#)
- [WCAG Quick Reference](#) – A helpful, customizable quick reference to WCAG 2.0 requirements and techniques
- [Understanding WCAG 2.0](#) - A less technical guide to understanding and implementing WCAG 2.0

Color contrast testing

- [WebAIM: Contrast Checker](#)
- [Color contrast checker analyzer tool | Adobe Color](#)
- [Color Contrast Analyzer \(CCA\)](#)
 - [CCA 2.5 for Windows](#)
 - [CCA 2.4 for macOS](#)
- [Color Blind Vision Simulator | Color Blind Glasses Simulator \(pilestone.com\)](#)

Other testing tools

- [ANDI \(Accessible Name & Description Inspector\)](#) is a free web accessibility testing tool maintained by the US Social Security Administration.
- [NVDA \(NonVisual Desktop Access\)](#) – Free screen reader software for Windows computers
- [PDF Accessibility Checker \(PAC\) 2021 – PDF/UA Foundation](#) – Free tool for analyzing PDF accessibility. Indicates errors but doesn't fix them.