Helping Patrons by Making Content and Services Accessible

Kelsey Flynn
Technical Information Specialist
U.S. Army Corps of Engineers – Portland District
Kelsey.m.Flynn@usace.army.mil

What we will discuss today:

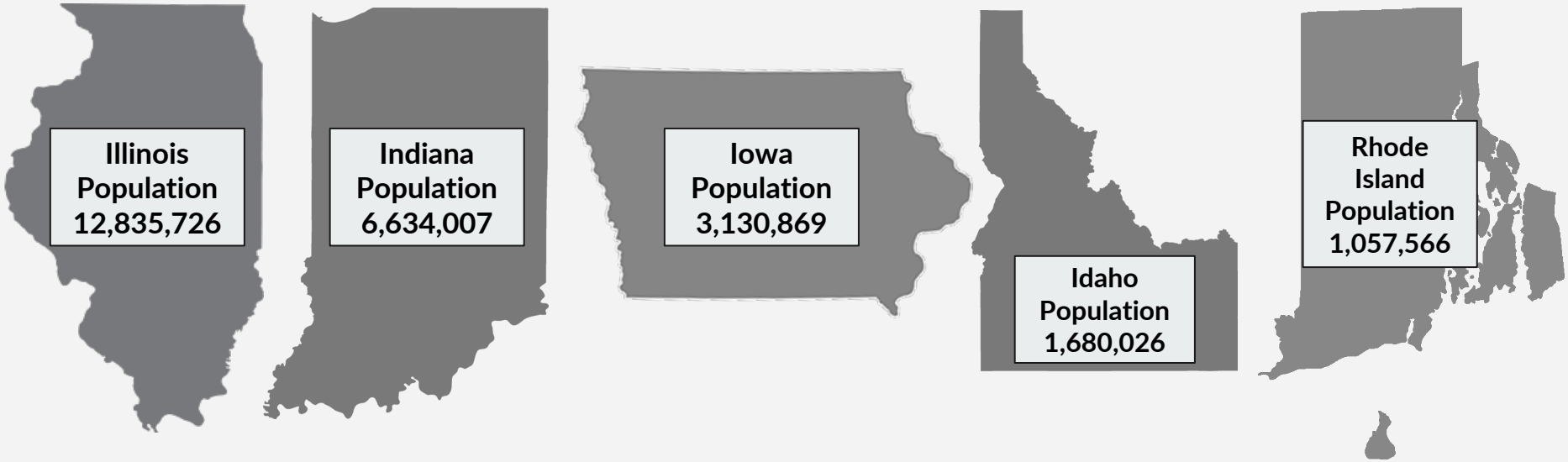
- Screen readers
- Disability sensitivity
- Website design
- Accessibility aids
- Training

Vision Loss

According to the 2018 National Health Interview Survey, 25.5 million American Adults age 18 and older reported experiencing vision loss.

(Centers for Disease Control and Prevention)

25.5 Million Americans...



Population of all the "I" States: 25,338,194

(United State Census Bureau, 2018)

Sensitivity

- Treat patrons as individuals
- Remember to give clear and accurate directions
- Do not treat an adult as a child
- Always ask first if a person needs assistance
- It’s okay to use the words, *"see"*, *"look" or "read"*
- Identify yourself and others

Language Sensitivity

Appropriate Terminology
https://www.brown.edu/campus-life/support/accessibility-services/resources-teaching-students-disabilities/appropriate-terminology

National Center On Disability and Journalism
http://ncdj.org/style-guide/

The Courtesy Rules of Blindness
http://www.blind.net/general-information/the-courtesy-rules-of-blindness.html

The Language of Disability and Political Correctness
http://www.acedisability.org.au/information-for-providers/language-disability.php

What are screen readers?

Screen readers are software programs that allow people who are blind or have low vision to use computers. The software works by reading text displayed on the screen and converting the text to speech using a speech synthesizer or into braille using a refreshable braille display.

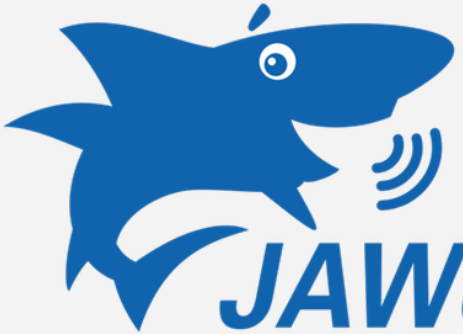
(American Foundation for the Blind)

Popular Screen Readers

- JAWS: Job Access With Speech
- NVDA: NonVisual Desktop Access
- VoiceOver: Apple Products
- Narrator: Microsoft Windows 10
- ChromeVox: Chromebooks

JAWS: Job Access With Speech

Freedom Scientific®



JAWS® for Windows

JAWS: Job Access With Speech

Platform:

- Systems starting with Windows Vista (2006)

Cost:

- $1,285 professional license – 3 PCs

Internet Compatibility:

- Mozilla Firefox
- Google Chrome
- Microsoft Edge

Voice Options:

- Includes voices for over 30 different languages

(Freedom Scientific)

JAWS: Job Access With Speech

Training:

- Built-in free DAISY Player and full set of DAISY-formatted basic training books
- Training videos online

Output:

- Internal software speech synthesizer
- Refreshable braille displays

PDF capabilities:

- Works with Adobe Reader to read PDF documents

(Freedom Scientific)

JAWS: Job Access With Speech

Advantages:

- Two annual updates
- Popular in schools and government agencies
- Network licensing option
- Free support and help

JAWS: Job Access With Speech

Disadvantages

- Initial cost
- Update cost (software maintenance agreement)
- Training is not intuitive

JAWS: Job Access With Speech

Introduction to JAWS (Video 1 of 4) - Statewide Vision Resource Centre
https://www.youtube.com/watch?v=L7_67n4NTkc

Listening to JAWS (Video 2 of 4) - Statewide Vision Resource Centre
https://www.youtube.com/watch?v=b55ijS4I0Ws

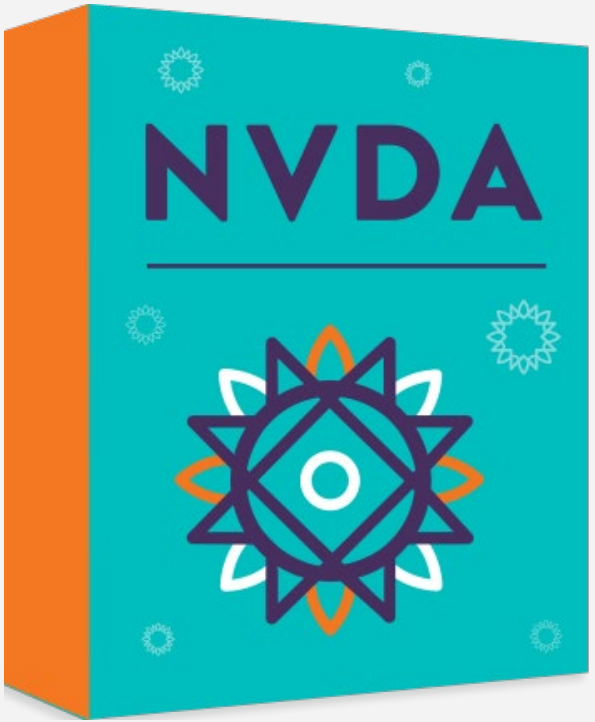
Navigating a Document with JAWS (Video 3 of 4) - Statewide Vision Resource Centre
https://www.youtube.com/watch?v=pTTb8DomNDU

Selecting Text with JAWS (Video 4 of 4) - Statewide Vision Resource Centre
https://www.youtube.com/watch?v=2wmxNEaEbxc

NVDA: NonVisual Desktop Access

NV Access

Empowering lives through
non-visual access to technology



NVDA: NonVisual Desktop Access

Platform:

- Systems starting from Windows Server 2008 R2

Cost:

- Free

Internet Compatibility:

- Mozilla Firefox
- Google Chrome
- Microsoft Edge

Voice Options:

- Includes voices for over 50 different languages

(NVAccess, 2019)

NVDA: NonVisual Desktop Access

Training:

- Free user guide
- Training videos online
- Training ebooks and audiobooks for sale
  - Ebook: $25.00
  - Audiobook: $35.00
  - Braille Book: $50.00

Output:

- Internal software speech synthesizer
- Refreshable braille displays

PDF capabilities:

- Works with Adobe Reader to read PDF documents

(NVAccess)

NVDA: NonVisual Desktop Access

Advantages:

- Free!!
- Community run email list
- Open-source software
- Constant updates
- Intuitive learning experience
- Portable on a flash drive

NVDA: NonVisual Desktop Access

Disadvantages:

- Telephone support
- Something new to learn
- Different voices cost more

NVDA: NonVisual Desktop Access

American Foundation for the Blind: Learn NVDA
https://www.afb.org/blindness-and-low-vision/using-technology/assistive-technology-videos/learn-nvda

- Hotkeys and Commands
- Windows Basics
- Using the Internet
- Using Google Docs and Drive

VoiceOver: Apple Products

VoiceOver: Apple Products

Platform:

- Systems starting with Mac OS X 10.4 (2005)

Cost:

- Mac computer ($1,000 - $2,000)

Internet Compatibility:

- Safari
- Google Chrome
- Mozilla Firefox

Voice Options:

- Includes voices for over 35 different languages

(Apple Accessibility, 2019)

VoiceOver: Apple Products

Training:

- Free online user guide

Output:

- Internal software speech synthesizer
- Refreshable braille displays

PDF capabilities:

- Able to read PDFs

(Apple Accessibility)

VoiceOver: Apple Products

Advantages:

- Integrated into all “built-in-apps”
- Apple Accessibility team
- Stable and predictable
- Many voice options
- Accessibility package

VoiceOver: Apple Products

Disadvantages:

- Only available on Apple products
- Updates only with system updates
- Not portable

VoiceOver: Apple Products

- VoiceOver Quick Start Guide
- Hadley Instructional Videos: VoiceOver

https://www.hadley.edu/InstructionalVideos/

Narrator: Windows

Microsoft

Narrator: Windows

Platform:

- Windows 10 & 11

Cost:

- Windows computer ($300 - $1,500)

Internet Compatibility:

- Microsoft Edge

Voice Options:

- Includes voices for over 40 different languages

(Microsoft: Windows Support)

Narrator: Windows

Training:

- Free guide to Narrator

Output:

- Internal software speech synthesizer
- Refreshable braille displays

PDF capabilities:

- Not able to read PDFs

(Microsoft: Windows Support)

Narrator: Windows

Advantages

- Works well with Windows Desktop
- Easily update Windows
- Feedback Hub
- Steady improvement

Narrator: Windows

Disadvantages

- Less-than-intuitive keystrokes
- Lack of usability on wide range of websites
- Lack of video tutorials
- Difficulties using Chrome or Firefox

ChromeVox: Chromebooks

chrome

ChromeVox: Chromebooks

Platform:

- Chromebook running on Chrome OS 56 or above

Cost:

- Chromebook ($250 - $1,000)

Internet Compatibility:

- Google Chrome

Voice Options:

- Includes voices for 38 different languages

(ChromeVox User Guide)

ChromeVox: Chromebooks

Training:

- Free guide to ChromeVox
- Training videos online

Output:

- Internal software speech synthesizer
- Refreshable braille displays

PDF capabilities:

- Not able to read PDFs

(ChromeVox User Guide)

ChromeVox: Chromebooks

Advantages

- Great training videos online
- Has improved greatly
- ChromeVox-Discuss
- ChromeVox Feedback

ChromeVox: Chromebooks

Disadvantages

- Still working through some bugs
- Something new to learn
- Not able to read PDFs

ChromeVox: Chromebooks

Chrome and Chrome OS Accessibility Series

https://www.youtube.com/playlist?list=PL5aqr5w5fRe7QWzXhqxrilIVduWEmLHM2

Other tips and tricks

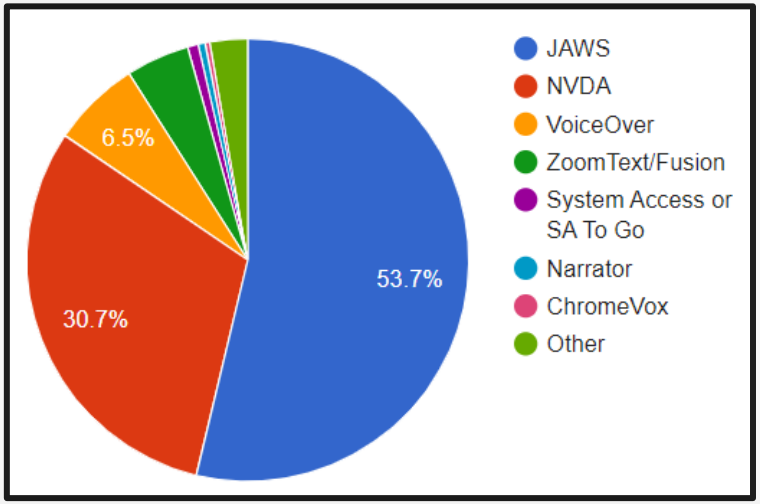
- All computers or as many as possible
- Multiple screen readers
- Headphones
- Patron preference
- Keyboard navigation
- Practice beforehand

WebAIM: Web Accessibility in Mind

WebAIM Screen Reader User Survey

Which of the following is your primary desktop/laptop screen reader?

Response	# of respondents	% of respondents
JAWS	832	53.7%
NVDA	476	30.7%
VoiceOver	100	6.5%
ZoomText/Fusion	72	4.7%
System Access or System Access to Go	12	0.8%
Narrator	8	0.5%
ChromeVox	5	0.3%
Other	43	2.8%

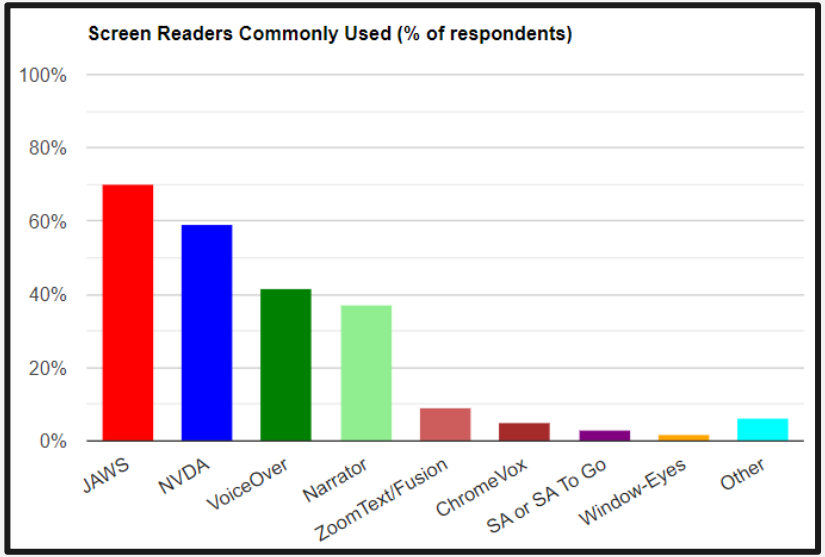


(WebAIM: Web Accessibility in Mind, 2021)

WebAIM Screen Reader User Survey

Which of the following desktop/laptop screen readers do you commonly use?

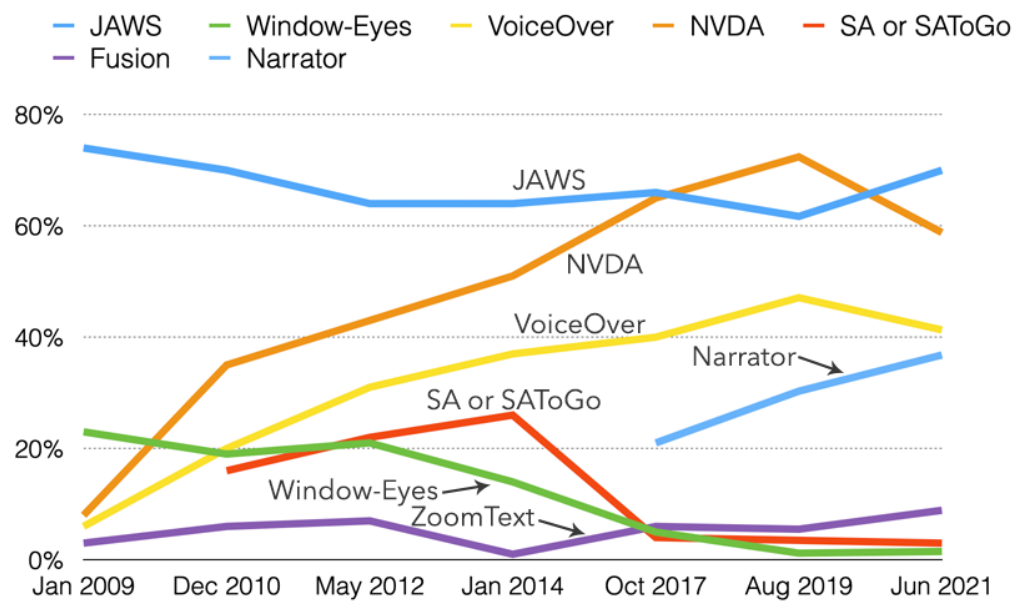
Response	# of respondents	% of respondents
JAWS	1097	70.0%
NVDA	922	58.8%
VoiceOver	648	41.3%
Narrator	577	36.8%
ZoomText	140	8.9%
ChromeVox	73	4.7%
System Access or System Access to Go	47	3.0%
Window-Eyes	24	1.5%
Other	99	6.3%



(WebAIM: Web Accessibility in Mind, 2021)

WebAIM Screen Reader User Survey

Historical trends for primary screen reader usage

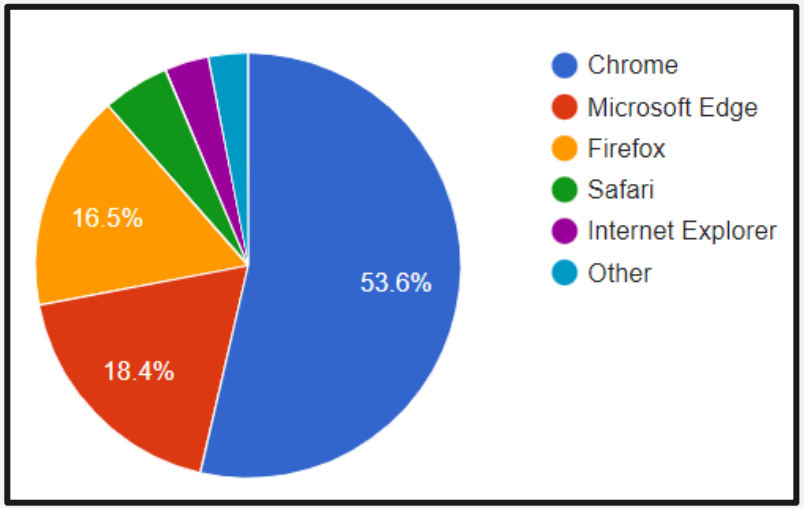


(WebAIM: Web Accessibility in Mind, 2021)

WebAIM Screen Reader User Survey

When using your primary screen reader, which browser do you use most often?

Response	# of respondents	% of respondents
Chrome	833	53.6%
Microsoft Edge	286	18.4%
Firefox	257	16.5%
Safari	79	5.1%
Internet Explorer	52	3.3%
Other	47	3.0%

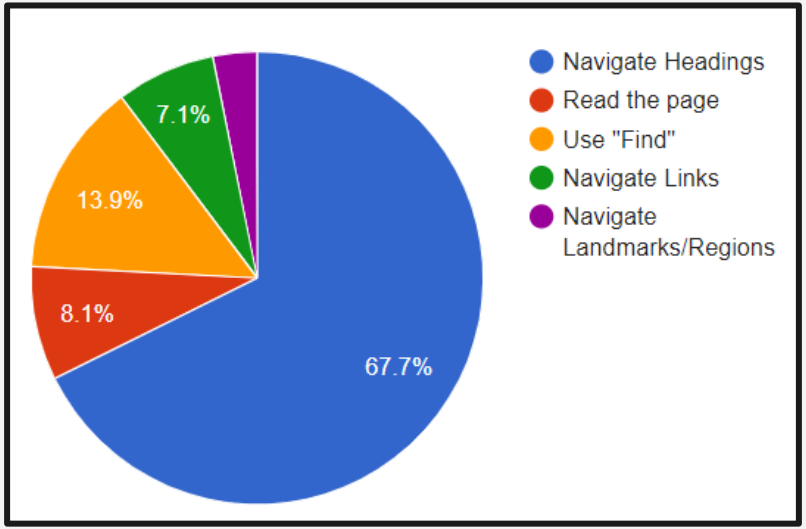


(WebAIM: Web Accessibility in Mind, 2021)

WebAIM Screen Reader User Survey

When trying to find information on a lengthy web page, which of the following are you most likely to do first?

Response	# of respondents	% of respondents
Navigate through the headings on the page	1047	67.7%
Read through the page	126	8.1%
Use the Find feature	215	13.9%
Navigate through the links of the page	110	7.1%
Navigate through the landmarks/regions of the page	49	3.2%

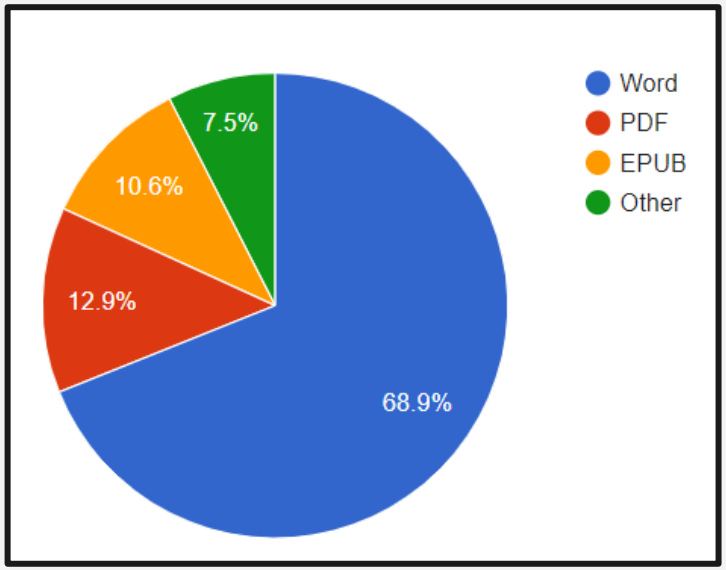


(WebAIM: Web Accessibility in Mind, 2021)

WebAIM Screen Reader User Survey

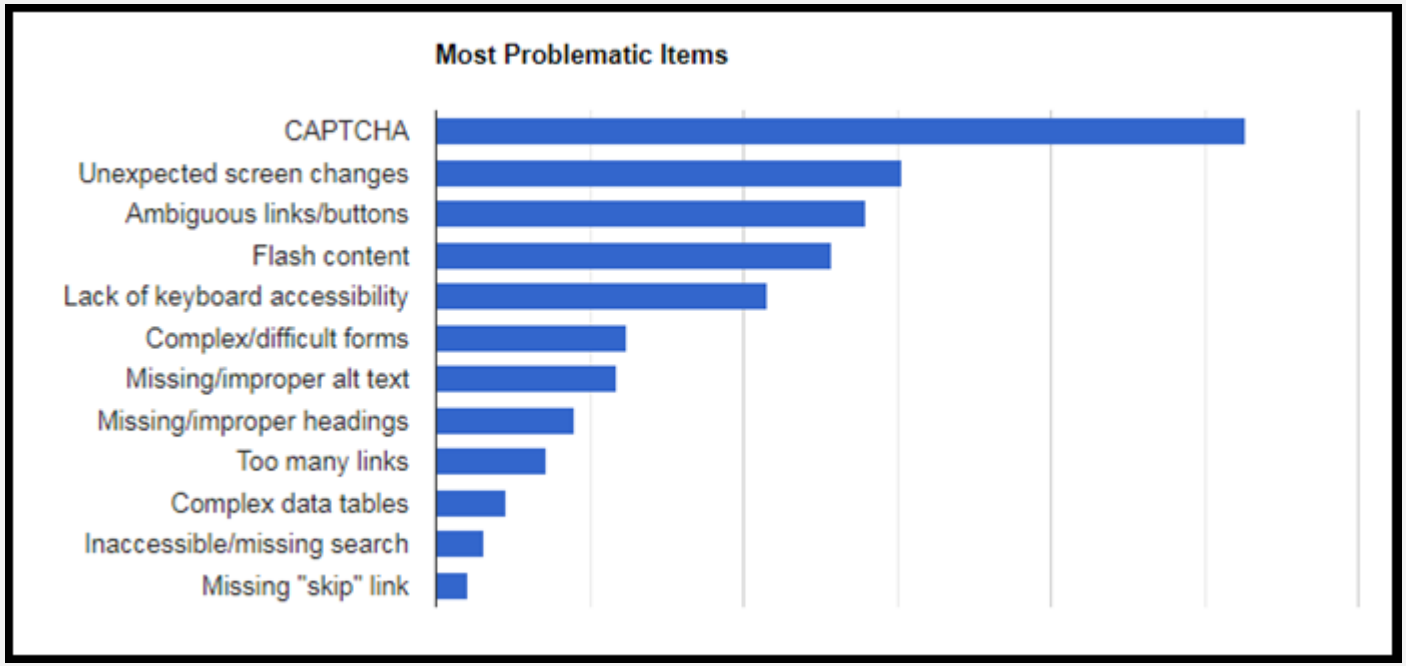
Which document format do you find most accessible?

Response	# of respondents	% of respondents
Word	1036	68.9%
PDF	194	12.9%
EPUB	160	10.6%
Other	113	7.5%



(WebAIM: Web Accessibility in Mind, 2021)

WebAIM Screen Reader User Survey

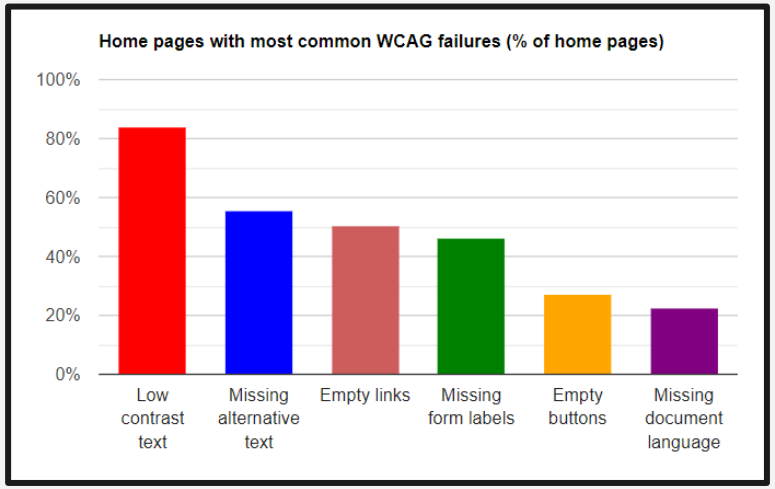


(WebAIM: Web Accessibility in Mind, 2017)

The WebAIM Million

Home pages with most common WCAG 2 failures

WCAG Failure Type	% of home pages in 2022	% of home pages in 2021	% of home pages in 2020
Low contrast text	83.9%	86.4%	86.3%
Missing alternative text for images	55.4%	60.6%	66.0%
Empty links	50.1%	51.3%	59.9%
Missing form input labels	46.1%	54.4%	53.8%
Empty buttons	27.2%	26.9%	28.7%
Missing document language	22.3%	28.9%	28.0%



***96.5% of all errors detected fall into these six categories.**

The WebAIM Million

- **Across the one million home pages, 50,829,406 distinct accessibility errors were detected—an average of 50.8 errors per page**. The number of detected errors decreased by 1.1% since the February 2021 (51.4 errors/page) analysis. "Errors" are WAVE-detected accessibility barriers having notable end user impact, and which have a very high likelihood of being WCAG 2 Level A/AA conformance failures.

- **Home page complexity increased significantly in 12 months**, from an average of 887 elements in February 2021 to 955 elements per home page in February 2022 - a 7.7% increase.

Your Library's Website Design

- Evaluation Tools
  - Screen readers
  - Screen magnification
  - Section 508
  - Web Content Accessibility Guidelines

(WebAIM: Web Accessibility in Mind)

Your Library's Website Design

- Web Accessibility Initiative
  - Evaluate early
  - Contrast ratio
  - Name links carefully
  - Keyboard mobility

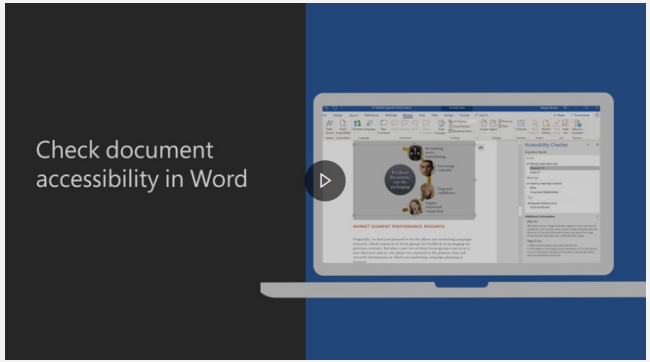
(Web Accessibility Initiative)

Making Documents Accessible

Check	Req.	Task
☐	Y	Tag elements
☐	Y	Document Properties
☐	Y*	Tag Table elements
☐	Y*	Logical Reading Order
☐	Y	Bookmarks
☐	Y	No Blank Pages
☐	Y	Pages are Right Read
☐	Y	Alt text on images
☐	N	Tag as list
☐	N	Change watermarks to background images

- USACE Digital Library PDF Check Guide

Making Documents Accessible



Word Document Accessibility

Adobe PDF Accessibility

Screen Magnification Software

- Magnifiers and full-featured screen magnifiers
- Zoom: Apple
- Ease of Access: Microsoft
  - Magnifier
  - Color inversion
- Cost
  - Free - $1,000

(American Federation for the Blind)

Speech Recognition Software

- Recognizes your voice
  - Typing
  - Navigating desktop
- Can be used with screen reader software
- Cost
  - Free - $600

(American Federation for the Blind)

CCTV and Magnification Scanning Systems

- Enlarge or magnify print and pictures
- Enhance contrast or brighten
- Optical Character Recognition (OCR)
- Cost
  - $400 - $4,000

(American Federation for the Blind)

Further Learning

New England American Disabilities Act Learning:
Disability Rights Laws Overview
http://learn.newenglandada.org/

Hadley Institute for the Blind and Visually Impaired:
Blindness Basics
https://www.hadley.edu/BB_SE_register2.asp

Thank you!

Any Questions?

Contact info:
Kelsey.M.Flynn@usace.army.mil