Making Your PDF Accessible (the basics)

Amy Hepler Lead UX/Accessibility Developer NCDIT

Oct. 29, 2024



Portable Document Format (PDF)

- Created by Adobe in 1990s to preserve visual format and allow easy sharing of documents
- Offers many accessibility features but must be deliberately incorporated
- Has a reputation of being difficult and frustrating to remediate





PDF/Universal Accessibility (PDF/UA) Standards

- Technical standards for created accessible PDFs
- Based on WCAG 2.0 principles
- Follows the Matterhorn Protocol
 - 31 checkpoints for possible ways to fail PDF/UA
- WCAG and PDF/UA are similar with overlap and differences



How many measurable WCAG Guidelines are there to create accessible web content?

- 32
- 44
- 78
- 92



Does WCAG Apply to PDF?

The short answer is, yes.



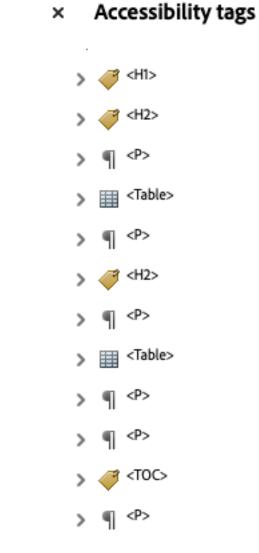
The Basics of Accessible PDFs

- 1. Optimize the source document for accessibility
- 2. Save the file as a **tagged PDF**
- 3. Provide metadata for the PDF (such as document language)
- 4. Create and edit tags (similar to HTML tags)
- 5. Ensure the reading order is logical
- 6. Ensure the tab order is sequentially correct
- 7. Check PDF with **automated and manual testing** for accessibility



What are Tags?

- Invisible labels that provide significant information
- Critical for assistive technology
- Semantic structure of what the document is about and how it's organized
- Very important step to ensure accessibility



NCD



Remediation Flow of PDFs

General workflows for different scenarios



Easiest & Fastest: Start with the source document ...





If you start with an untagged PDF file ... (and don't have the source)





If you start with a paper or a scanned document ...

Ē





Easiest & Fastest Route of PDF Remediation: Start with an Optimized Source File

- Real, semantic elements
- Headings
- Text
- Alternative (ALT) text
- Color contrast
- Links
- Tables



Headings

- Real, semantic headings
- Start at level 1
- Not skip any levels
- Logical outline of hierarchy
- Accurate, informative and concise

Home	Insert Draw	/ Design	Layout	Referer	nces Ma	ailings	Review	>>
Paste	K A ≁ Font	Paragraph	Ay ~ Styles	Dictate	Sensitivity	Add-in	ns Editor	r
	AaBbCcDdl	AaBbCcDdE No Spacing	AaBb Heading		bCcDi iding 2	Styles Pane		
*	$\frac{\text{utlining}}{\leftarrow} \text{Hom}$	ie Insert $\hat{} \rightarrow ightarrow$	✓ st	Design now Level: // now Text Form now First Line	matting	Referen	nces >> Show Document S	

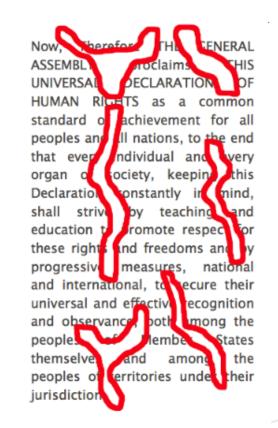


Text

- Fonts are easily readable
- Line spacing is at least 1.5 within paragraphs
- Paragraph spacing is at least 1.5 times larger than line spacing
- Text is not fully justified

This is kind of hard to read, isn't it?

This font is clear and easy to read.





Alternative (ALT) Text

- All meaningful images, graphs & charts, and other non-text content have alt text.
- Accurately conveys its purpose
- It is concise
- All meaningful non-text content has a long description when needed (for example: a complex graph)





How would you describe this object and its context to someone who is blind or low vision?

- The subject(s) in detail
- The setting
- The actions or interactions
- Other relevant information

(1-2 detailed sentences recommended)

Dog with collar sitting outdoors on wood park bench

Generate alt text for me



Color Contrast

- Text/Fonts
 - Regular text (18pt normal or 14pt bold)
 - Min. 4.5:1 ratio with the background
 - Large text (>18pt)
 - Min. 3:1 ratio with the background
- User Interface Components and Graphical Objects:
 - Min 3:1 ratio against adjacent colors
 - Buttons
 - Icons that convey information
 - Graph or chart components (ex. Graph lines/shapes)
 - Form field text boxes
- Colour Contrast Analyser

	Colour Contras	t Analyser (CCA)	
Foreground o	olour			
HEX 🗸	#CC	0220		
			11	<u></u> 북 🚺 🕖
Background	colour			Colour picker
HEX 🗸	#FF	FFFF		
			(井 🖍 🛛
▼ Sample pre	view			
exam	ple text shov	ving con	trast	
WCAG 2.1 res	sults			Contrast ratio 5.8:1
► 1.4.3 Cor	ntrast (Minimum) (/	4 A)		
Pass	(regular text)	🕑 Pas	s (large	text)
► 1.4.6 Cor	ntrast (Enhanced) ((AAA)		
🛛 🚫 Fail (regular text)	🕑 Pas	s (large	text)
► 1.4.11 No	on-text Contrast (A	A)		
🕑 Pass	(UI components a	and graphic	al objec	ts)



Links

- Correctly designated
- Visually distinguishable
- Meaningful and not generic

Join our <u>Accessibility</u> <u>Community of Practice</u> (A11y CoP) today!



Tables

- Real tables
- Properly formatted
- Have table headings
- Simple tables (one header row and/or one header column)
 - Complex tables can be problematic to tag properly after PDF export
- No blank cells

Date	A11y CoP Topic
01-24-2024	Accessible PPTs
02-27-2024	Document A11y
03-26-2024	A11y Testing
04-30-2024	Plain Language
05-28-2024	DOJ Deep Dive Part 1
06-25-2024	DOJ Deep Dive Part 2
07-30-2024	Everyday Asst. Technologies
08-27-2024	Asst. Technologies Demo
09-24-2024	Alt Text





Converting Optimized Source File to Tagged PDF



Saving as Tagged PDF from Word in Windows

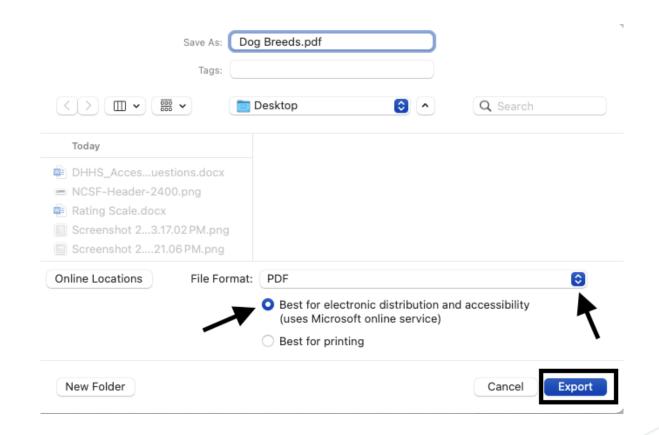
- 1. Select File > Save as Adobe PDF
- 2. In the pop-up dialog, select**Options**
- 3. Ensure Enable Accessibility and Reflow with tagged Adobe PDF is checked
- 4. Leave option Convert Word Headings to Bookmarks selected
- 5. Select OK

Acrobat PDFMaker	×
PDF Options Convert document information Create PDF/A-1a:2005 compliant file Finable Accessibility and Reflow with tagged Adobe PDF Create Bookmarks Convert Word Headings to Bookmarks Convert Word Styles to Bookmarks Convert Word Bookmarks Convert Comments	
Page range All Current page Selection Page(s) From: 3 To: 3 * OK Cance	



Saving as Tagged PDF from Word in Mac

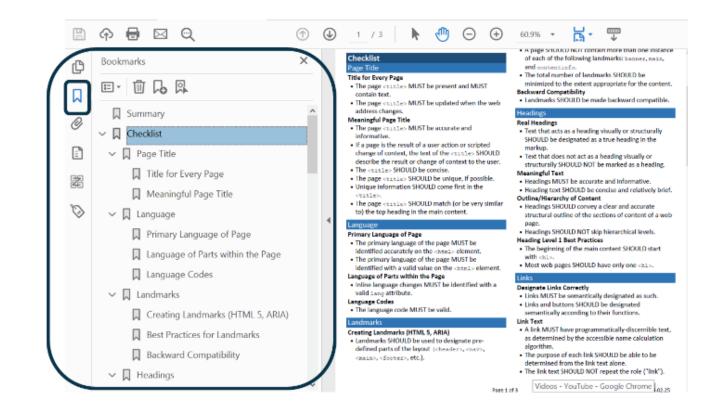
- 1. Select File > Save as
- 2. In the File Format dropdown menu, select **PDF**
- Select the Best for
 electronic distribution
 and accessibility radio
 button
- 4. Select Export





What are PDF Bookmarks?

- Bookmarks are generated automatically
- Based on heading structure
- A convenient way to jump to sections





Untagged PDF Conversions

Beware! Takes time and effort



Ways to Produce Inaccessible, Untagged Results Examples

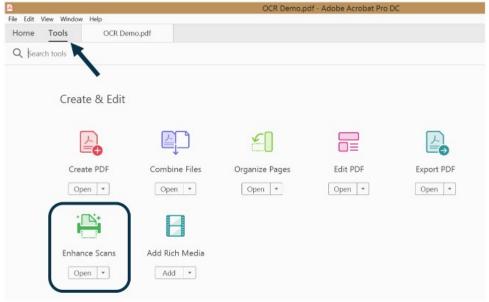
- Scanning a document produces a single image
- Using **Print > Save as PDF** from a document or webpage
- Options within Acrobat such as create PDF from scanner, screenshot, webpage, or clipboard.

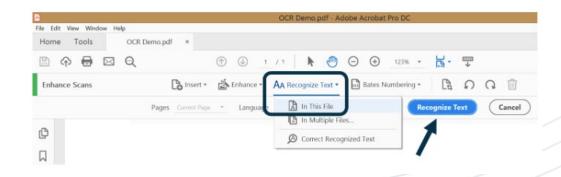


Scan PDFs with Optical Character Recognition (OCR)

Acrobat Pro DC has a built-in OCR text recognition tool

- Open file, go to Tools > Create & Edit section > Enhance Scans > Recognize Text > In This File
- Select Recognize Text
- Adjust reading and tab order as needed







Reading Order, Tab Order and Metadata

Acrobat Pro is required for PDF remediation



The Acrobat Pro Interface

View > Show/Hide > Navigation Panes (Side Panes on Mac)

- Navigation Pane
- Document Pane
- Tasks Pane

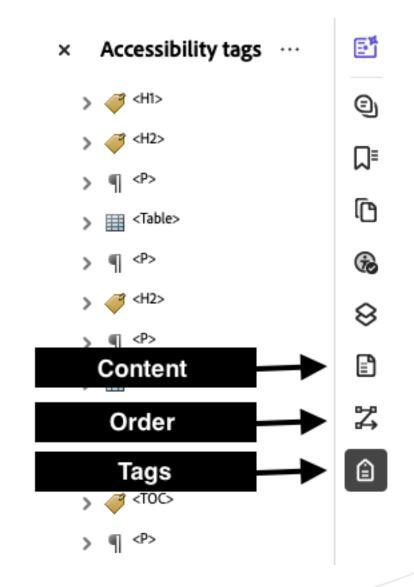
🖲 😑 \land 😭 State of North Carolina	a × + Create			0 Q 🗰	0
All tools Edit Convert E-Sign	↔	Find text or tools Q	ቀ 🛱	Share 🗗 Al Assist	ant
All tools × Control Send for comments Control Send for comments Control Protect a PDF Control Redact a PDF Compress a PDF Prepare a form Prepare a form Add comments	 ▶ ● ↓ ● ↓ ● ↓ ↓	Purpose This standard offers guidance for designing and delivering websites and digital services to prioritize a digital-inst public experience' in the State of North Carolina. It outlines statutory requirements, clarifies mandates, and expands on best practices for the state digital assets. With over 10.2 million constilluents served annually, the majority of inferactions occur online and horsassing our mobile software. Recognizing the with to digital annuals is at the primary manar of expagament, tatle agencies are urged to device and device that or equinals, accessible, and secure by design. This approach alms to enhance customer satisfaction, trust, and overall experience. Content Lead	×	, ∰ <table> ¶ <p> , € <t12> , 20</t12></p></table>	© ∏ (° ⊗ ° ° ×
Convert to PDF Add a stamp Task/Tool Pane		North Carolina Department of Information Technology (NCDIT) – Digital Bolutions Team Scope Except as otherwise provided, this standard applies to all North Carolina state agencies' websites and digital services that are: Maintained by an agency directly or by a contractor or other entity on behalf of an agency; and Intended State agencies a ad-facing websites		• ¶ ↔ <i>d</i> <ाoc- - avigation Pane	



Navigation Pane

Most important panes relevant to accessibility

- Content
- Order
- (Accessibility) Tags



NCD

Document Pane

- Main area which the document is displayed
- Select text in this pane to tag or highlight previously tagged text

C) A) C) A) A

With over 10.2 million constituents served annually, the majority of interactions occur online and increasingly on mobile devices. Recognizing the shift to digital channels as the primary means of engagement, state agencies are urged to develop and design their websites and digital services to meet the public's expectations for high-quality, user-friendly experiences that are seamless, accessible, and

secure by design. This approach aims to enhance customer satisfaction, trust, and overall experience.

This standard offers guidance for designing and delivering websites and digital services to prioritize a

digital-first public experience! In the State of North Carolina. It outlines statutory requirements, clarifies

Content Lead

North Carolina Department of Information Technology (NCDIT) - Digital Solutions Team

mandates, and expands on best practices for the state's digital assets.

Scope

Purpose

Except as otherwise provided, this standard applies to all North Carolina state agencies' websites and digital services that are:

- · Maintained by an agency directly or by a contractor or other entity on behalf of an agency; and
- Intended for use by the public

State agencies are also encouraged to apply the requirements of this standard to internal-facing websites and digital services to the greatest extent practicable.

This standard does not apply to third-party websites or digital services, such as social media sites, that are designed to facilitate online sharing of text or other media among communities of users, and that are used by an agency for that purpose.



Tasks Pane

- Includes the Accessibility tools
 - Reading Order Tool
 - Full Check

C Prepare for accessibility 꼬 Convert to PDF Add a stamp Automatically tag PDF Use a certificate Automatically tag form fields Use print production E Change reading options Measure objects Check for accessibility Compare files Open accessibility report Add rich media Identify form fields Use guided actions 2 Add alternate text Prepare for accessibility 🔆 Use setup assistant Apply PDF standards 12 Fix reading order



×

Reading Order

 After tagging document, check content order by using Tags and Order navigation panes.

• Key Points:

- Changing Tag order in the Tag Pane does not affect the visual stacking order
- Checking the Order in the Order
 Pane affects the tag order.





Working in the Order Pane

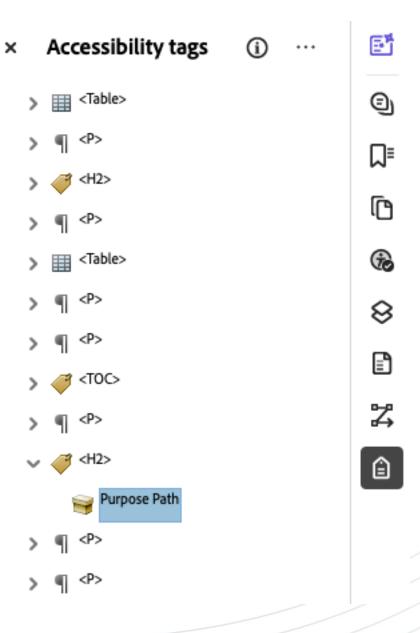
- Moving items in the **Order Pane**, moves tags in the **Tag Pane**
- Changing order in the Order
 Pane, changes the visual stacking order
- Numbering relates to the stacking order – not screen reader reading order
- You may need to use the Tags
 Pane to fix order of multiple tags
 next to each other

	× Order (i) ···
	✓ ➡ digital-accessibility-usability-standard.pdf
	> Page 1
	> Page 2
urpose	> Page 3
2 End standard offers guidance for designing and delivering websites and digital services to prioritize a 2 jal-first public experience' in the State of North Carolina. It outlines statutory requirements, clarifies	V Page 4
Adates, and expands on best practices for the state's digital assets. With over 10.2 million constituents served annually, the majority of interactions occur online and	🥞 [1] Path
ncreasingly on mobile devices. Recognizing the shift to digital channels as the primary means of engagement, state agencies are urged to develop and design their websites and digital services to meet he public's expectations for high-quality, user-friendly experiences that are seamless, accessible, and	[2] This standard offers guidance for desig
secure by design. This approach aims to enhance customer satisfaction, trust, and overall experience.	[3] Path North Carolina Department of Inf
3 Vorth Carolina Department of Information Technology (NCDIT) – Digital Solutions Team	> Page 5
Scope	> Page 6
Except as otherwise provided, this standard applies to all North Carolina state agencies' websites and ligital services that are: • Maintained by an agency directly or by a contractor or other entity on behalf of an agency; and	> Page 7
 Intended for use by the public State agencies are also encouraged to apply the requirements of this standard to internal-facing websites 	> Page 8
and digital services to the greatest extent practicable.	> Page 9
are designed to facilitate online sharing of text or other media among communities of users, and that are used by an agency for that purpose.	Page 10
	> Page 11
	> Page 12
	> 📄 Page 13
	> Page 14



Working in the Tags Pane

- For simple documents, easiest way to define screen reading order is within **Tags Pane**
 - For documents more focused on visual presentation, you may need to use the **Order Pane** to fix the reading order
- Analyze your content
 - Headings should be read before its associated content
 - In long quotes, with speakers name at bottom, it's better to read it first for screen readers to know who the quote is from
 - If content refers to footnotes, sometimes it's appropriate that they are read immediately following the associated content rather than at the end.
- Arrange tags in a logical reading order (drag/drop)

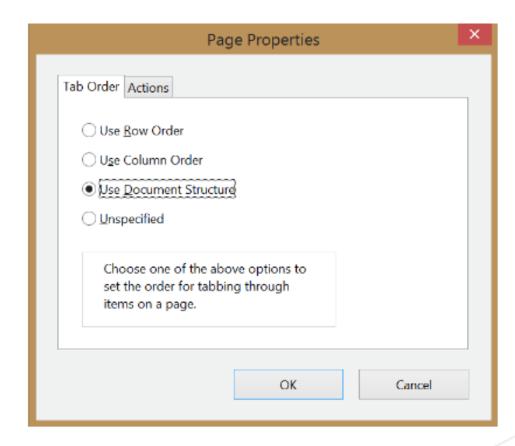




Tab Order

Documents with links or form fields must have tab order defined

- Open the Page Thumbnails Pane
- Select all thumbnails in the navigation pane (Control + Click)
- Right-click one of the active thumbnails, select Page Properties
- On the Tab Order tab, confirm Use
 Document Structure is selected and click OK.





Document Metadata

Document Title and Language



Document Title

First information read to screen reader users

- Go to File > Properties
- Under the **Description** tab, add the title in the **Title** field
- Next, go to the Initial View tab
- Under Windows Options > Show section, select Document
 Title from the drop-down menu.

	Document Properties
(Description Security Fonts Initial View Custom Advanced
Description	K
File:	CRH Practical Matters for Patients.pdf
Title:	Practical Matters for Patients
Author:	John Smith
Subject:	
Keywords:	
Created:	9/12/24, 12:48:54 PM Additional Metadata
Modified:	9/12/24, 12:48:54 PM
Application:	Microsoft® PowerPoint® for Microsoft 365
Advanced	
PDF Produ	Icer: Microsoft® PowerPoint® for Microsoft 365
PDF Vers	sion: 1.7 (Acrobat 8.x)
Locat	tion: /Users/amy.hepler/Downloads/
File S	Size: 481.93 KB (493,492 Bytes)
Page S	Size: 10.00 x 7.50 in Number of Pages: 12
Tagged P	PDF: Yes Fast Web View: No
Help	Cancel

	cription Security	Fonts	Initial View	Custom	Advanced	
Layout and Magn	ification					
Navigation tab:	Page Only		٦ 🗉			
Page layout:	Default		•			
Magnification:	Default					
Open to page:		of 12				
		0112				
Window Options						
Resize window						
Open in Full Sc						
	ent Title 😌					
Show. Docume						



Document Language

Specify document language for screen readers to read correctly

- Go to File > Properties
- Under the Advanced tab, in the Reading Options section, select the appropriate Language from the drop-down

		Document Prop	erties
Descri	ption Secu	rity Fonts Initial	View Custom Advanced
PDF Settings			
Base URL:			_
Search Index:			Browse Clear
Trapped:	Unknown	0	
Accessibility			
PDF/UA (Compliance:	None	•
Print Dialog Presets			
P	age Scaling:	Default 🟮	
C	uplexMode:	Simplex	•
Paper Source b			
	age Range:		
Numbe	r of Copies:	Default ᅌ	
Reading Options			
Binding:	Left Edge	8	
Language:	English		
otected Mode: On			
lelp			Cancel



True or False?

Acrobat Pro is required to fix accessibility issues in PDFs.



Where is the Tags Pane in Acrobat?

- A. In the Navigation Pane
- B. In the Document Pane
- C. In the Tasks Pane



Re-ordering content in the Order Pane can significantly rearrange the tag order in the Tags Pane

True or False?



The numbering shown in the Order Pane is:

- A. The screen reader reading order
- B. The visual stacking order of different content layers
- C. Both A and B



Tab order refers to:

The order in which

A. A screen reader will announce headingsB. A user tabs from one image to the nextC. A user tabs through links and form fields



What happens if you don't specify the document language for a PDF?

The screen reader will ...

A. Read the document using the pronunciation of its default language

- B. Automatically detect the language and read it correctly
- C. Prompt the user to select which language they'd like the PDF to be read in



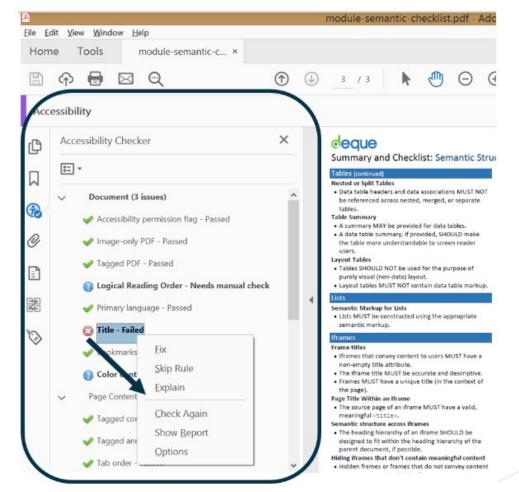
Assess Your PDF

Automated, Manual, Assistive Technology



Acrobat Pro DC Full Check

- Go Tools > Accessibility > Full Check
- Leave all Checking Options selected
- Select Start Checking
- Note: Even if the full check tool doesn't find any issues, you should still check manually.



https://helpx.adobe.com/acrobat/using/create-verify-pdf-accessibility.html



Image credit: Deque

Manual testing of a PDF is not necessary if you use a quality automatic tool.

True or False?



