



PDF Scanned & Optical Character Recognition (OCR)



Adobe Creative Cloud for Faculty & Staff



- Adobe Creative Cloud software is now available for use (at no additional charge) on all faculty and staff university-owned computers, labs and classroom devices, and for all students.
- Please note that this deployment of Adobe software is not available for use on personally-owned faculty and staff devices at this time.
- Learn more about [Adobe Creative Cloud for Faculty & Staff](#)
- ***Adobe Reader*** is for viewing, printing, signing, sharing, and annotating PDFs. *Adobe Reader doesn't have Accessibility checking tool.*

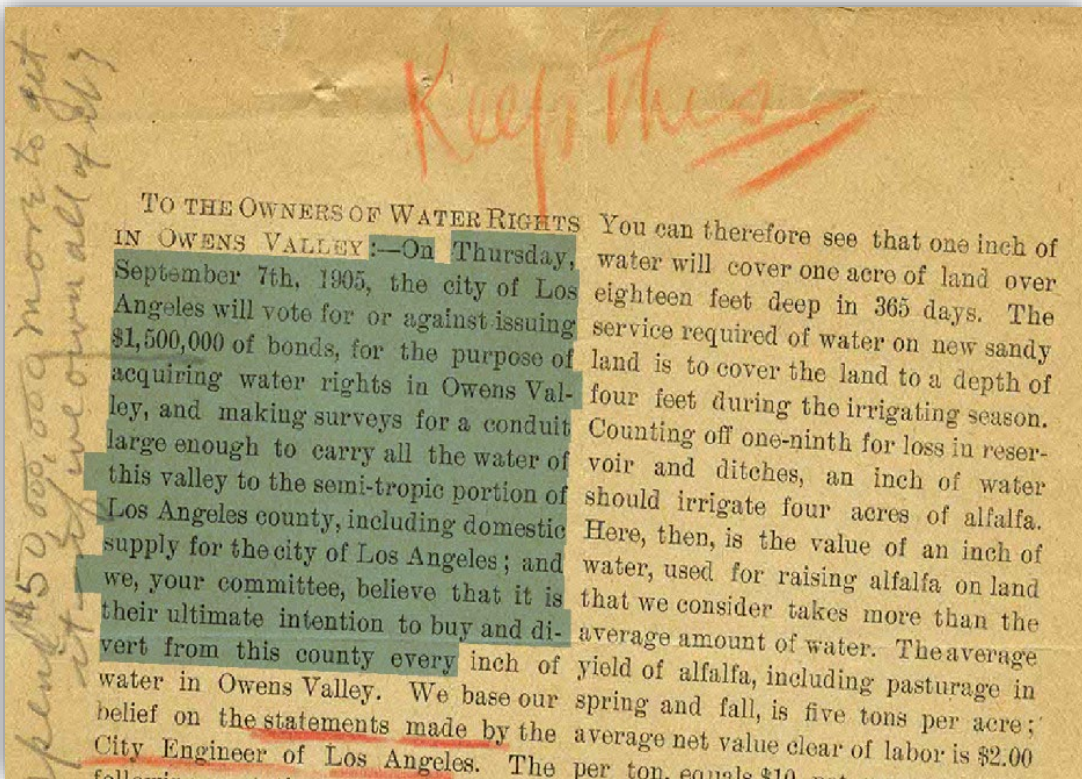


Adobe Acrobat DC



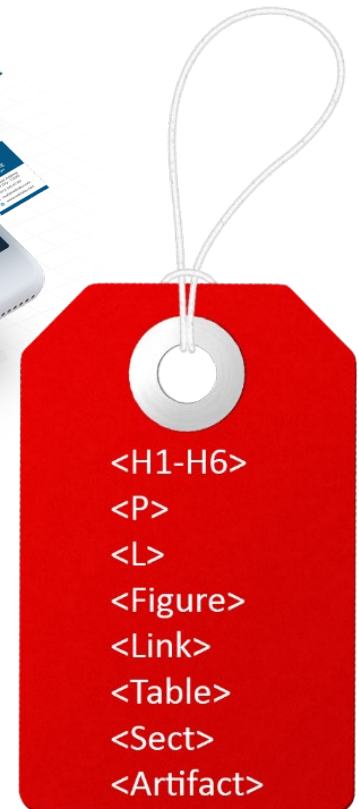
Scanned Documents

- Screen readers or other assistive technology are unable to convert images scanned into text.
- Scanned documents, especially poor quality scans or handwriting, can be difficult to read for everyone.
- Scanned documents should be **avoided** as much as possible.
- If the document can be found in the library, a reference to the library item can be provided.
- Benefits of having digital copy
 - Can be searched
 - Can copy and paste text



Scanned Documents - OCR

- Success is highly dependent upon:
 - The **quality of the scan** depends on the device
 - The **quality of the OCR engine**
- Some Gotchas
 - Colored backgrounds
 - Handwritten text
 - Poor quality scan depends on the device
- After improving the quality of the scan document, next step is tagging **PDF accessibility markup**.



Live or Real Text

- To check if the text is “live” or “real,” try to select the text with your cursor. If you’re unable to highlight/select it then it is not real text, and therefore **not accessible** for all users.
- **Live text** is **searchable**; this allows users to use search functions like **CTRL + F** to look for specific terms and find what they need quickly or to copy/paste text.

Universal Design Center

Accessibility ensures everyone can perceive, understand, engage, navigate, and interact with technology regardless of device, software, or product without barriers.

Accessibility is not about disability it’s actually about ability. It’s about making easy for everyone.

- Easy to get
- Easy to understand
- Easy to use

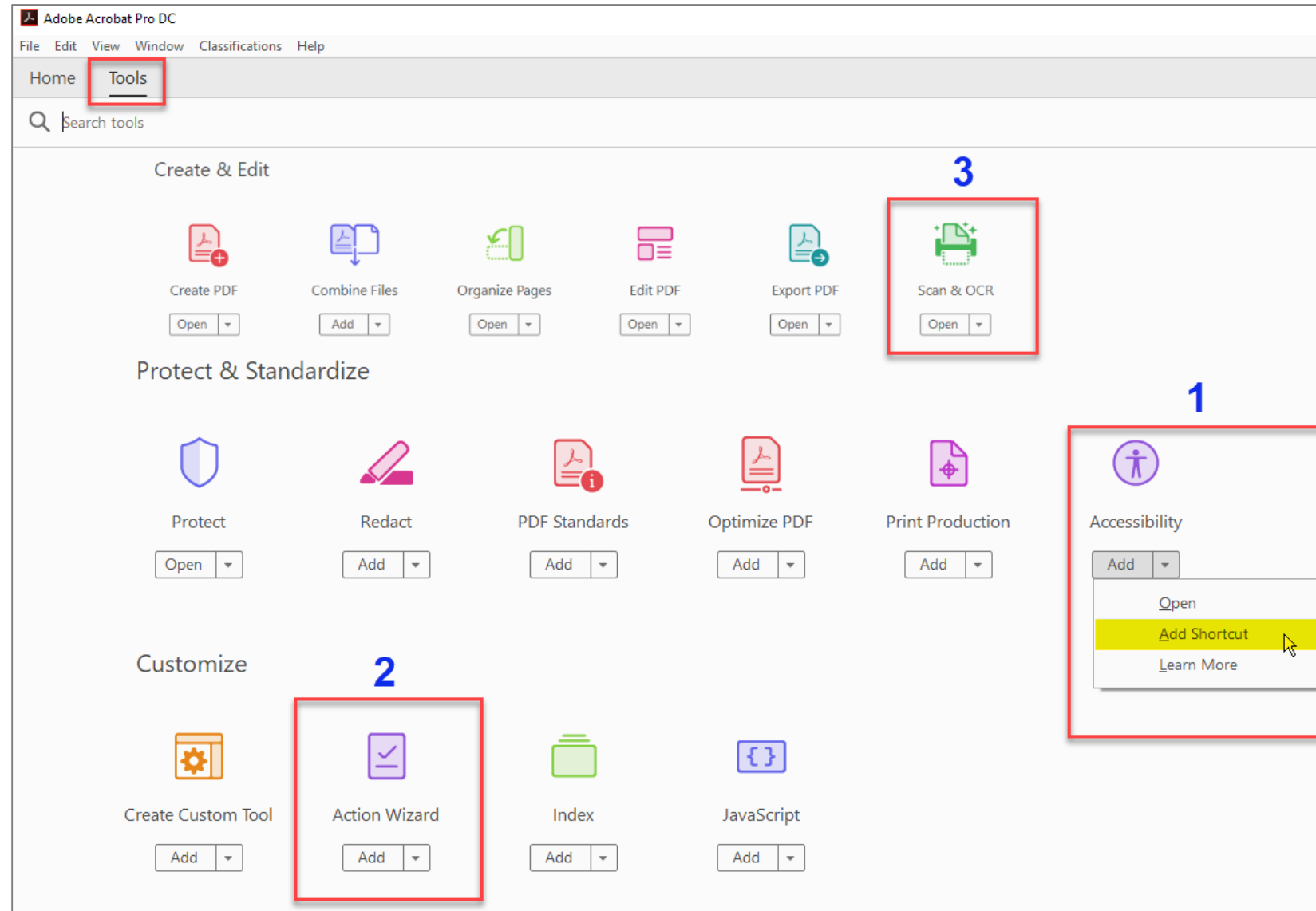
Accessibility is for everyone.

Tools Pane Set Up

If this is your **first time** setting up Adobe Acrobat software...

Select **Tools** Tab and Add Shortcut to the right pane

- **Accessibility**
- **Action Wizard**
- **Scan & OCR**



PDF Tagging Phase – Accessibility Check

First run the Accessibility **Full Check** at the beginning and at the end

- Autotag Document
- Autotag Form Fields
- Reading Options
- Full Check**
- Accessibility Report
- Identify Form Fields
- Set Alternate Text
- Setup Assistant
- Reading Order



Accessibility Checker Options

Report Options

Create accessibility report Folder: C:\Users\sem72178\Documents Choose...

Attach report to document

Page Range

All pages in document Pages from 2 to 2

Checking Options (31 of 32 in all categories)

Category: Document

Accessibility permission flag is set

Document is not image-only PDF

Document is tagged PDF

Document structure provides a logical reading order

Text language is specified

Document title is showing in title bar

Bookmarks are present in large documents

Document has appropriate color contrast

Select All Clear All

Show this dialog when the Checker starts

Help Start Checking Cancel



Accessibility Checker

Document (4 issues)

- Accessibility permission flag - Passed
- Image-only PDF - Passed
- Tagged PDF - Failed
- Logical Reading Order - Needs manual check
- Primary language - Passed
- Title - Failed
- Bookmarks - Passed
- Color contrast - Needs manual check

Page Content (2 issues)

Forms

Alternate Text (5 issues)

- Figures alternate text - Failed
- Nested alternate text - Failed
- Associated with content - Failed
- Hides annotation - Failed
- Other elements alternate text - Failed

Tables (4 issues)

Lists (2 issues)

Headings (1 issue)

- Appropriate nesting - Failed



Accessibility Checker

Document (2 issues)

- Accessibility permission flag - Passed
- Image-only PDF - Passed
- Tagged PDF - Passed
- Logical Reading Order - Needs manual check
- Primary language - Passed
- Title - Passed
- Bookmarks - Passed
- Color contrast - Needs manual check

Page Content

- Tagged content - Passed
- Tagged annotations - Passed
- Tab order - Passed
- Character encoding - Passed
- Tagged multimedia - Passed
- Screen flicker - Passed
- Scripts - Passed
- Timed responses - Passed
- Navigation links - Passed

Forms

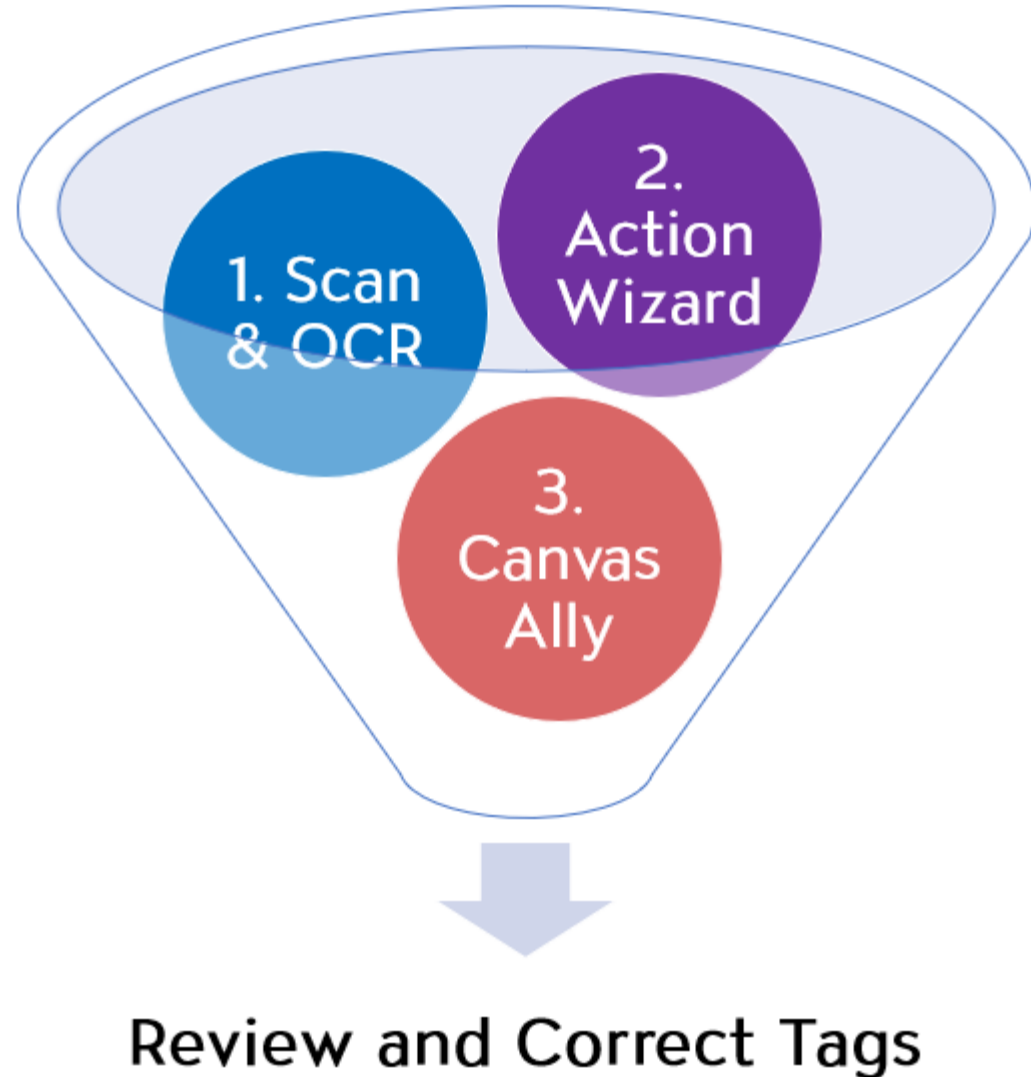
Alternate Text

Tables

Lists

Headings

THREE ways to convert scan document to OCR



Review and Correct Tags

Make sure all items have appropriate tags

- **Run Initial Accessibility Check**

- **Regular Text:** Text/Paragraph
- **Headers:** Heading 1 – 6
- **Images:** Figure
- **Links:** Link + OBJR
- **Form Fields:** Form
- **Decorative Content** (e.g. Lines, text boxes, etc.): Background/Artifact

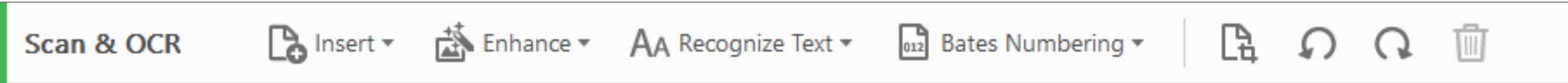
- **Add Document Title and Language**

- **Verify Reading Order**

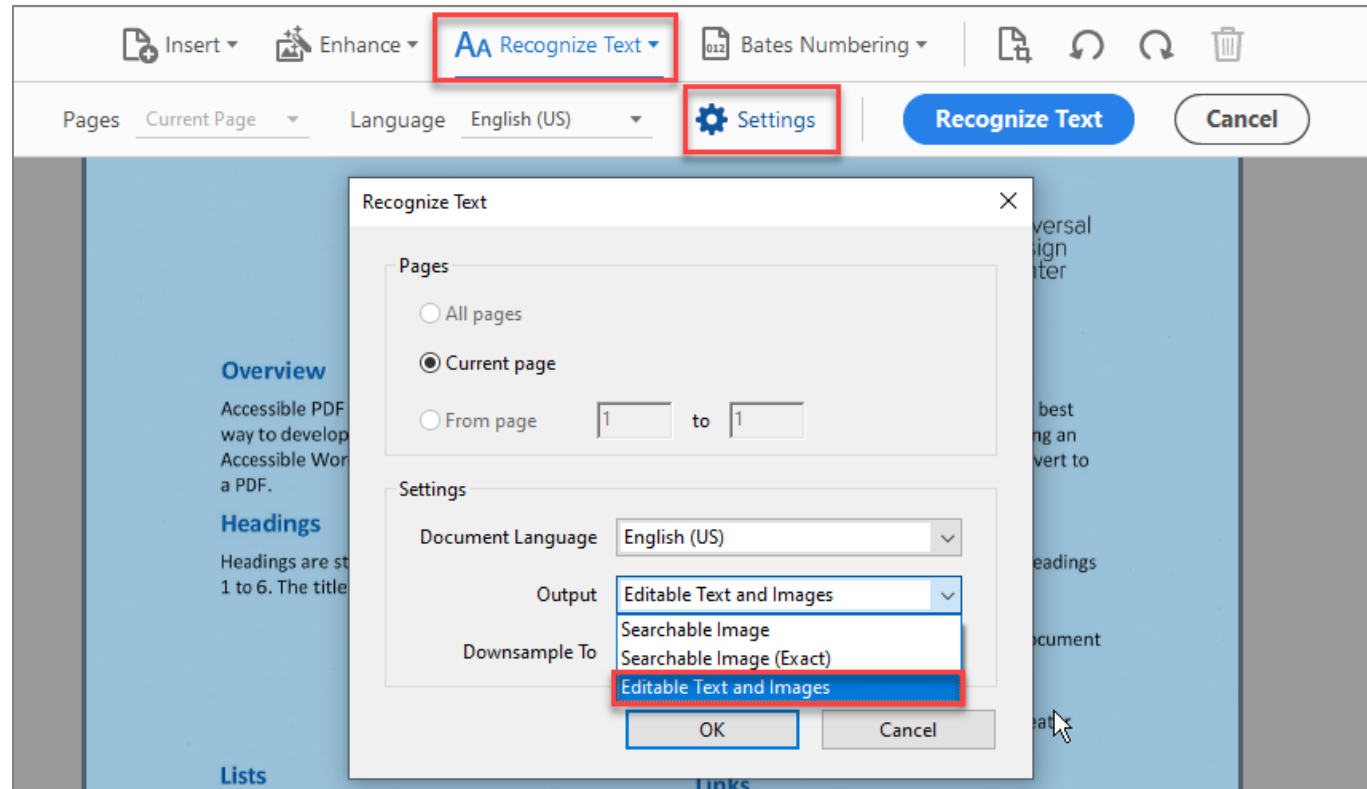
- **Verify Color Contrast**

- **Run Final Accessibility Check**

Text Recognition

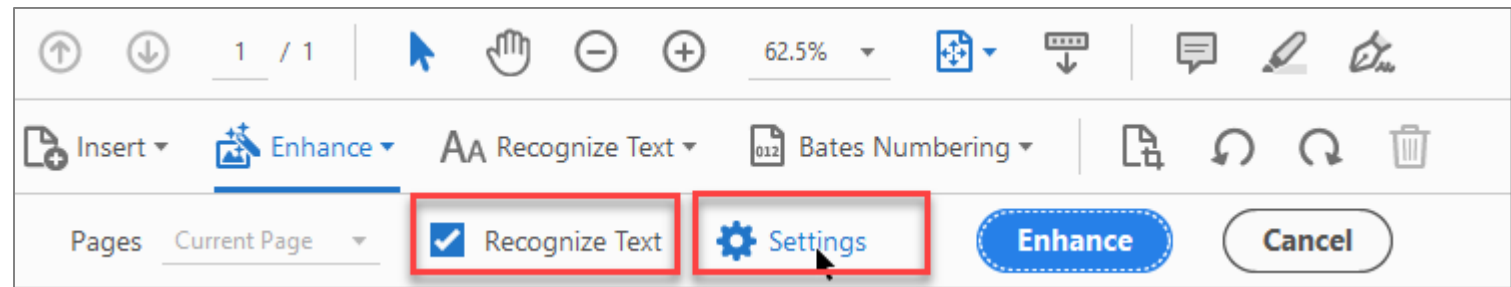
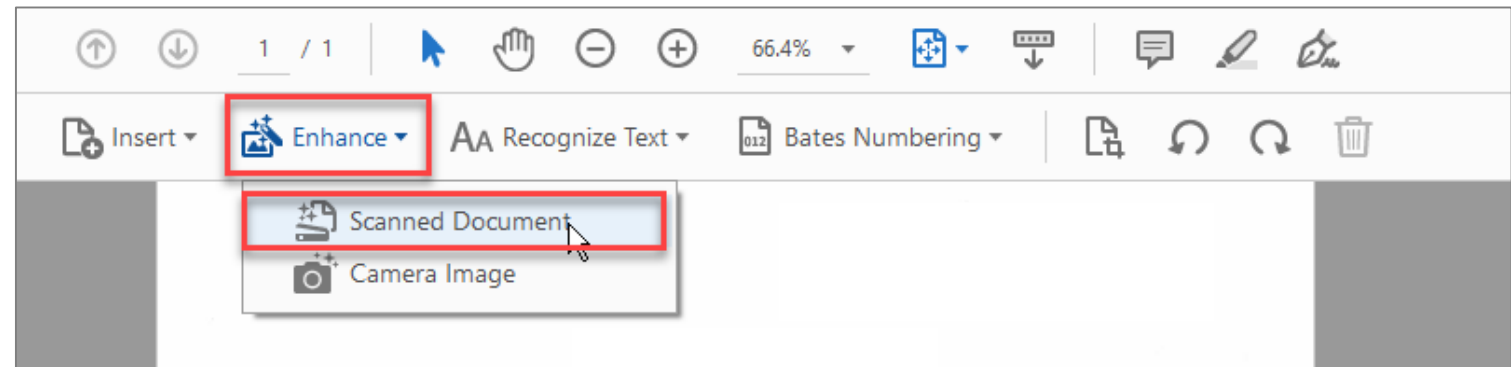
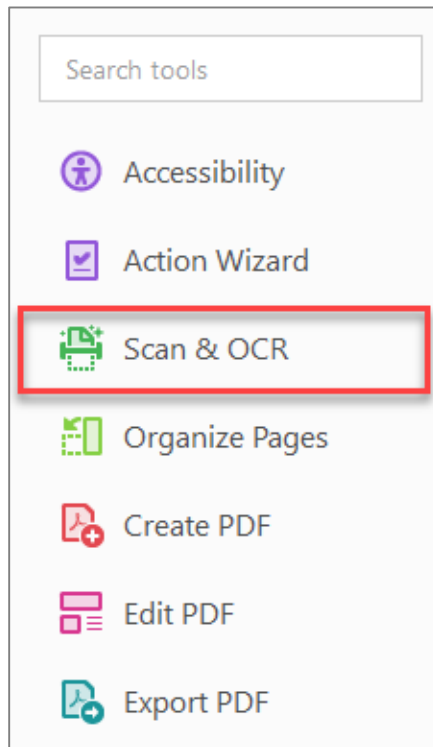


- Need to conduct **Optical Character Recognition (OCR)**
- Text Recognition Types:
 - Searchable Image
 - Searchable Image (exact)
 - **Editable Text and Images**

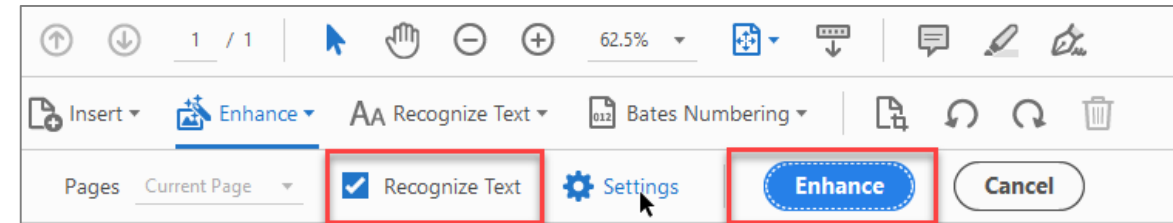
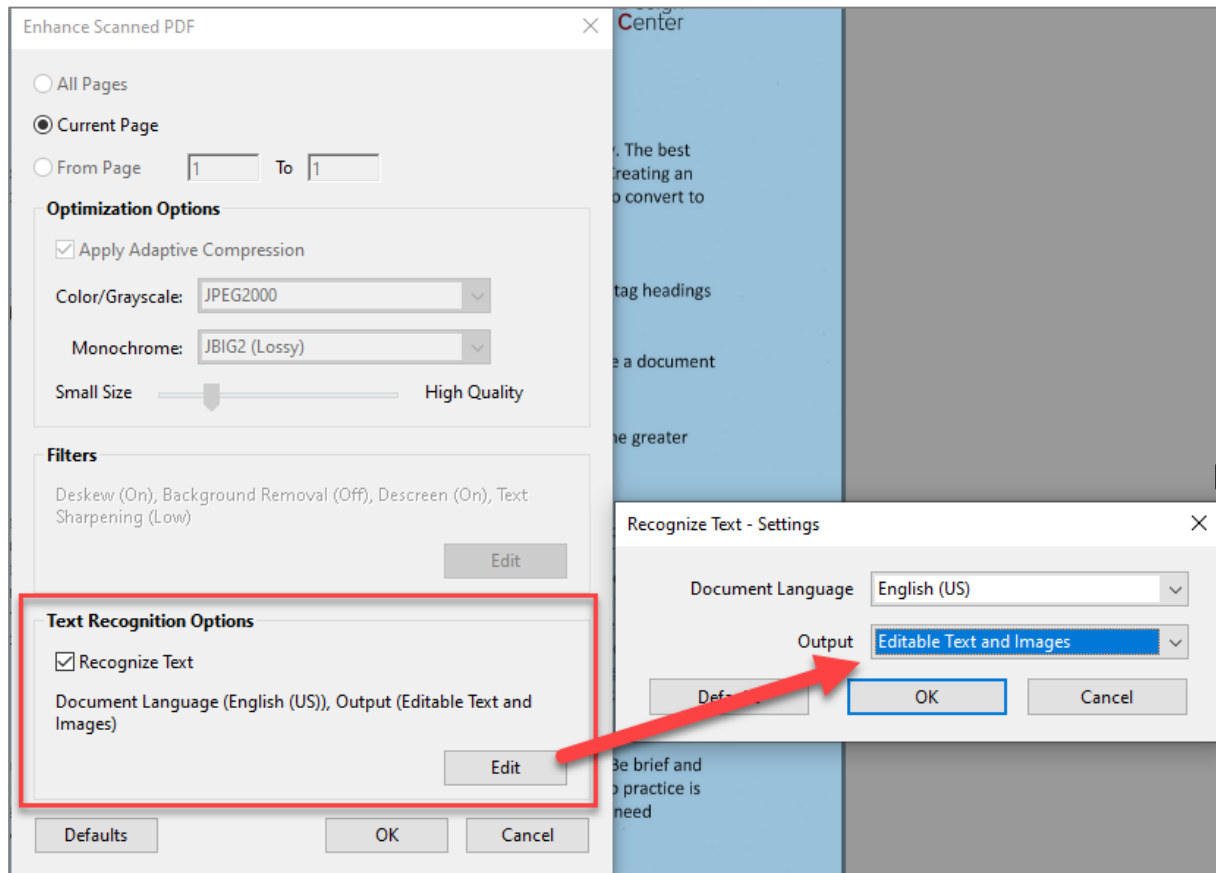


Option 1: Scan & OCR Steps, 1 of 2

1. Open Scanned PDF
2. Run **Scan & OCR** Tool
3. **Enhance** “Scanned Document” (Recognize Text Checked)
4. Multiple runs of **Enhance** to improve the quality of the scan

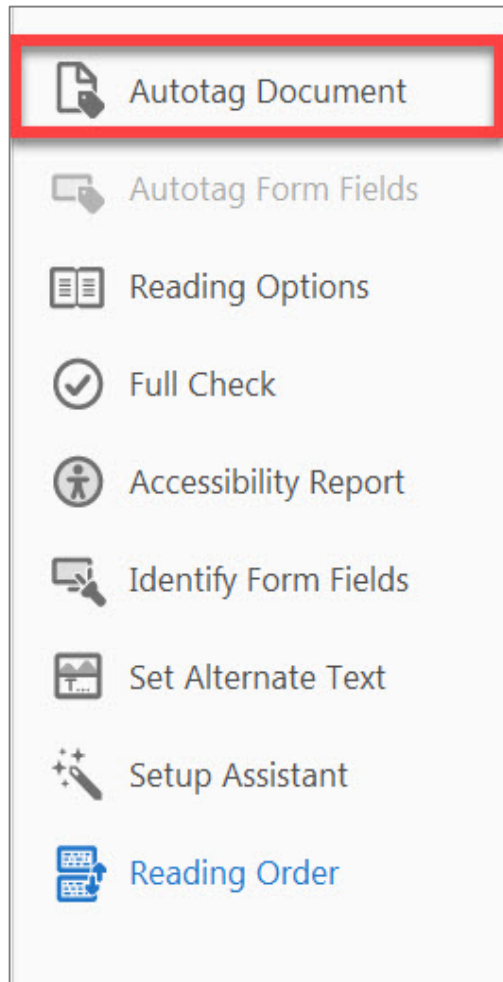


Scan & OCR Steps, 2 of 2



Now **Live text** should be **searchable**; this allows users to use search functions like **CTRL + F** to look for specific terms and find what they need quickly or to copy/paste text.

Scan & OCR Steps - Tagging Phase: Autotag Document



Review and Correct Tags

Make sure all items have appropriate tags

- **Run Initial Accessibility Check**
 - **Regular Text:** Text/Paragraph
 - **Headers:** Heading 1 – 6
 - **Images:** Figure
 - **Links:** Link + OBJR
 - **Form Fields:** Form
 - **Decorative Content** (e.g. Lines, text boxes, etc.): Background/Artifact
- **Add Document Title and Language**
- **Verify Reading Order**
- **Verify Color Contrast**
- **Run Final Accessibility Check**

Option 2: Action Wizard Steps, 1 of 5

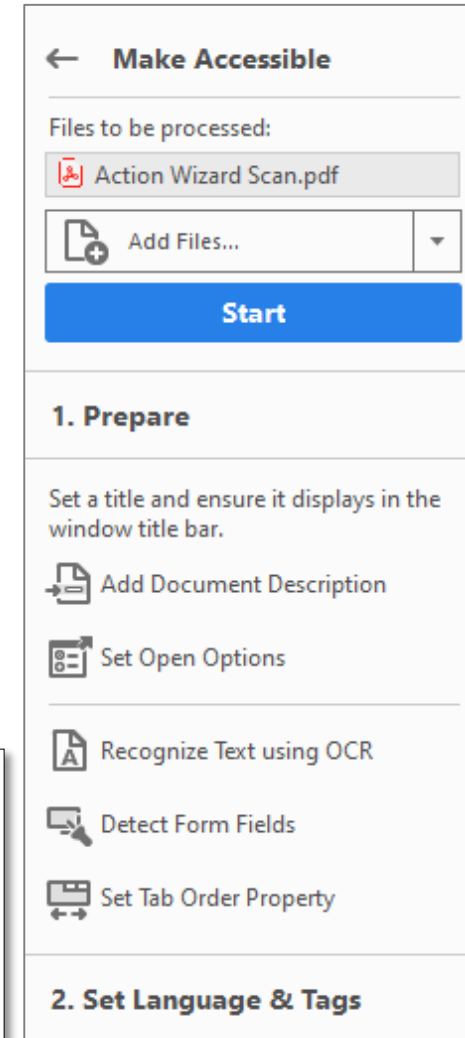
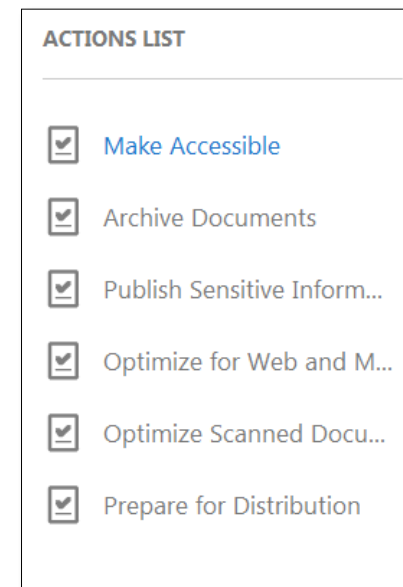
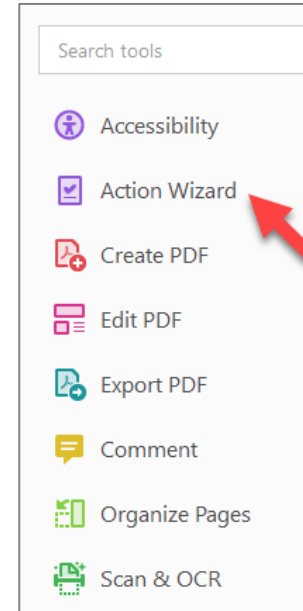
- The **Make Accessible** feature of the Action Wizard is designed to crawl through a PDF to detect headings, images, tags, reading order, etc.
- The easy prompts will guide a user through the process of making the PDF accessible.
- It **should not** be the only tool used to check a PDF's accessibility. User still need to go through **Full Check** for accessibility mark up.

Step 1: Open Scanned Document

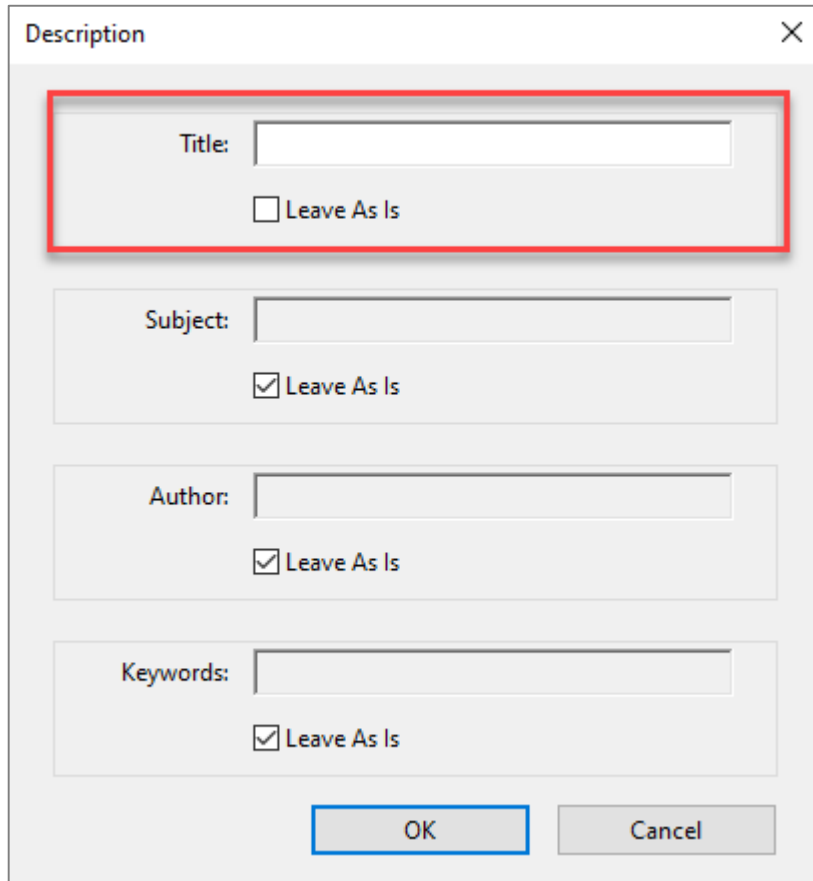
Step 2: Select **Action Wizard** Tool

Step 3: Select **Make Accessible**

Step 4: **Start** button



Action Wizard Steps, 2 of 5



Description

Title:

Leave As Is

Subject:

Leave As Is

Author:

Leave As Is

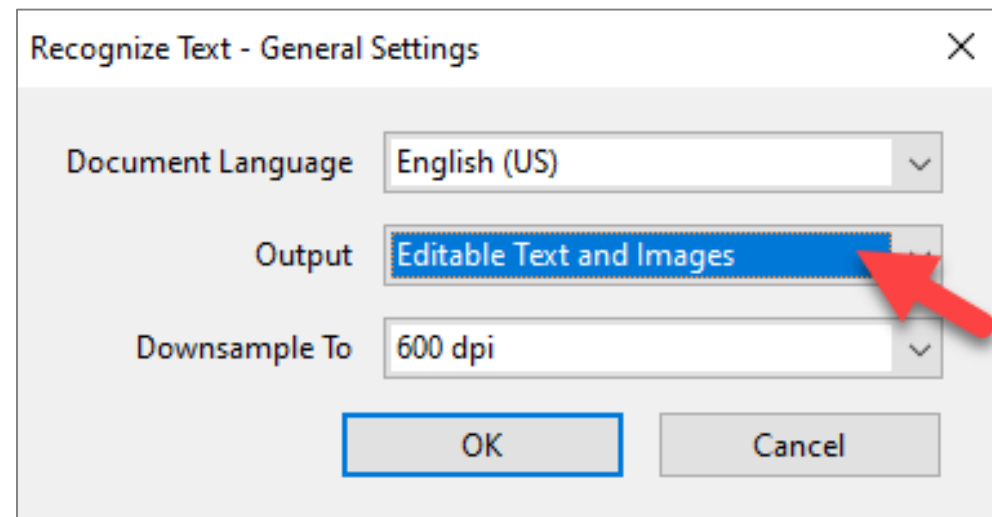
Keywords:

Leave As Is

OK Cancel

Step 5: The document description gives the document a proper title to be recognized by assistive technology. Uncheck the **Leave As Is** box and provide a title to the document.

Step 6: The recognized text option will scan the document using the selected language. Select the desired **Language** and Output **Editable Text and Images**.



Recognize Text - General Settings

Document Language: English (US)

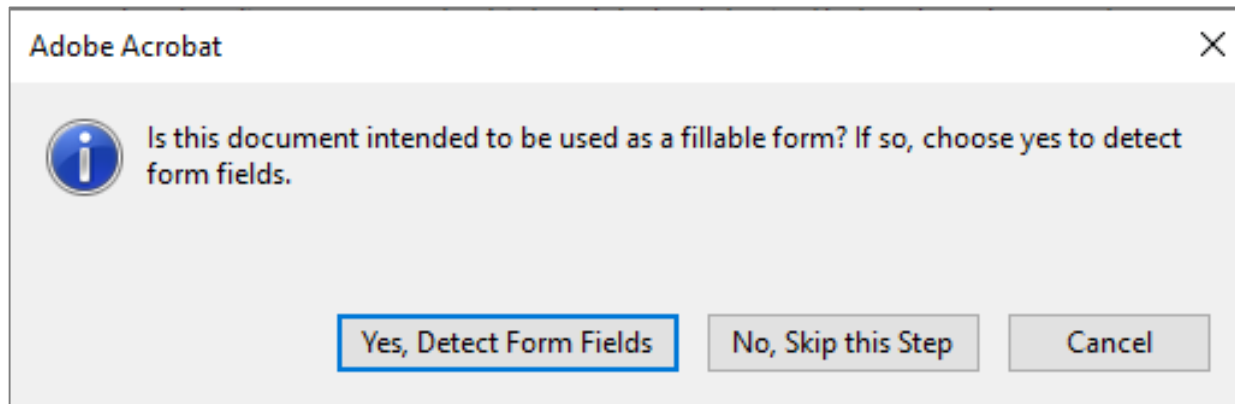
Output: Editable Text and Images

Downsample To: 600 dpi

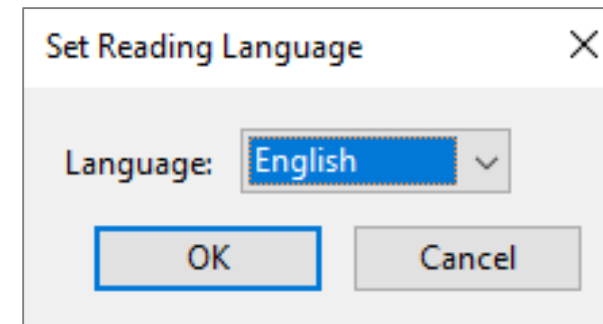
OK Cancel

Action Wizard, 3 of 5

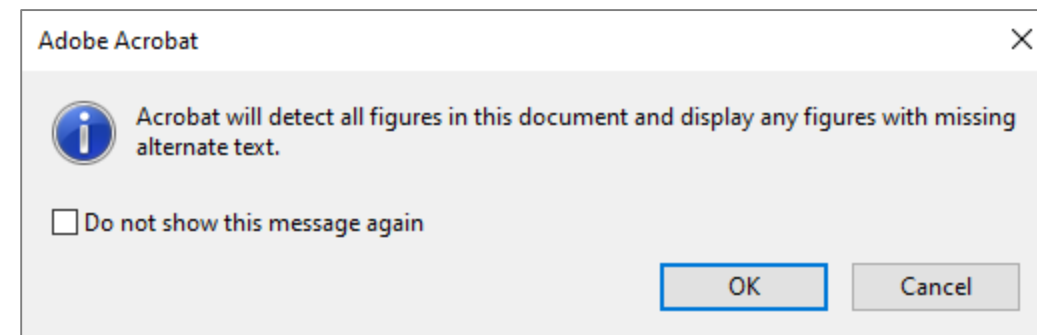
Step 7: Detect Form Fields. The Wizard will automatically detect form fields on the PDF. If the document has space boxes for form fields, select **Yes, Detect Form Fields**. If not, select **No, Skip this Step**.



Step 8: Click the desired **Reading Language** and select **OK**.

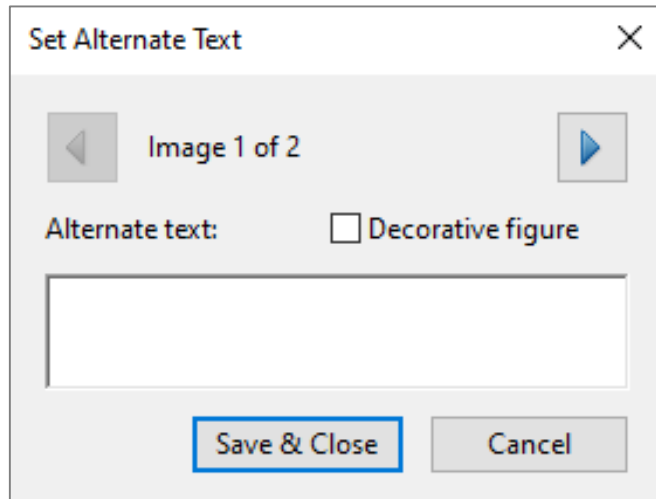


Step 9: The Action Wizard can be set up to always detect for any image present in the document. Select **OK** to scan the PDF for missing alternate texts.

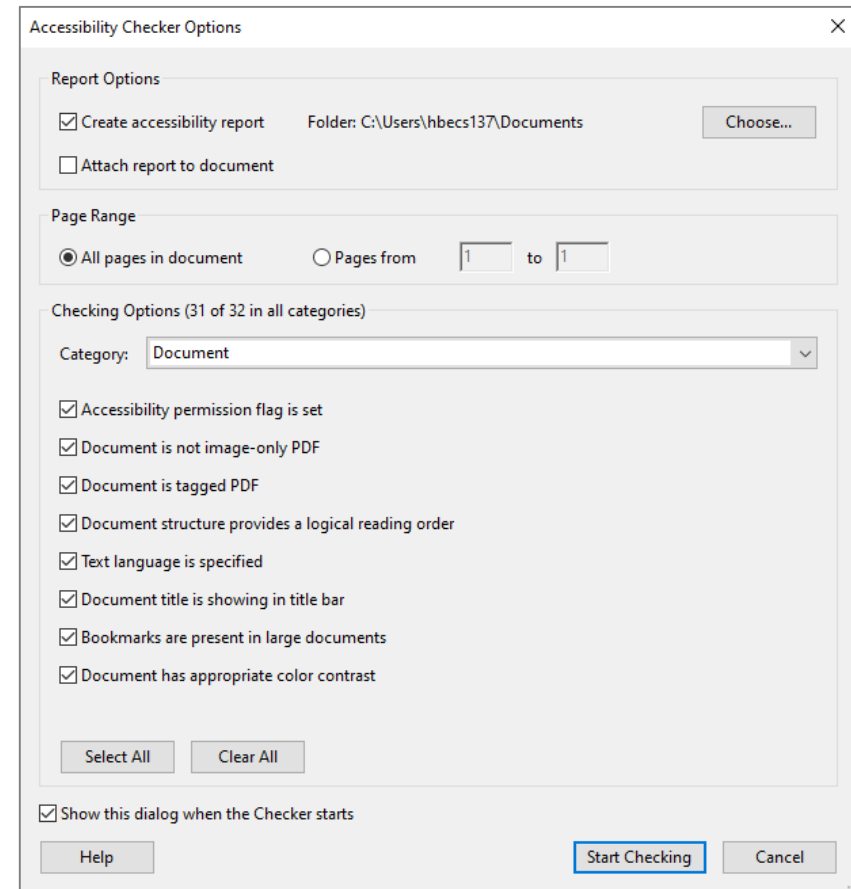


Action Wizard, 4 of 5

Step 10: If alternative text is missing, a window will appear to set the alternative text for each image. Type the description of each image in the box and toggle between images using the right and left arrow buttons. Select **Save & Close** when all images have proper descriptions.



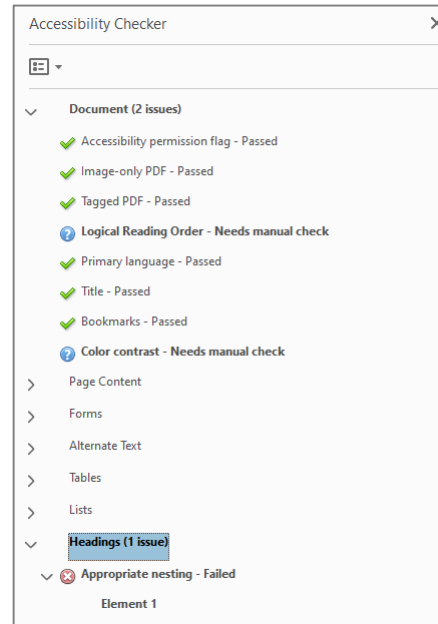
Step 11: Run Accessibility Full Check. The Accessibility Full Checker will run a full scan for accessibility. Select **Start Checking** to complete the scan. The results will display on the screen.



Action Wizard, 5 of 5

Step 12: Accessibility Issues

After running the final step in the **Action Wizard** with the **Accessibility Checker**, the results are prompted on screen for review. The **Accessibility Checker** will detect and prompt any remaining issues. These issues are identified using specific icons to represent each type of issue: **Passed** (green check mark), **Needs Manual Check** (question mark), and **Failed** (X).



- *Important:* any issue with a **Needs Manual Check** or **Failed** will need to be fixed before the document can be considered accessible.
- Select the **X** in the right-hand pane to close the **Action Wizard**.

Review and Correct Tags

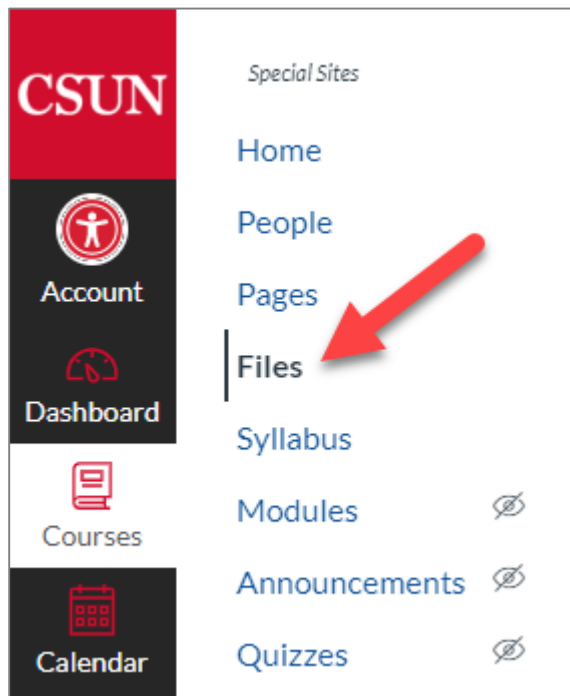
Make sure all items have appropriate tags








- **Run Initial Accessibility Check**
 - **Regular Text:** Text/Paragraph
 - **Headers:** Heading 1 – 6
 - **Images:** Figure
 - **Links:** Link + OBJR
 - **Form Fields:** Form
 - **Decorative Content** (e.g. Lines, text boxes, etc.): Background/Artifact
- **Add Document Title and Language**
- **Verify Reading Order**
- **Verify Color Contrast**
- **Run Final Accessibility Check**

Option 3: Canvas Ally Course Steps, 1 of 2

Upload your image scanned document (without OCR) in Canvas Ally Course **Files** folder

Select three vertical dots icon menu
Select **Alternative Formats**



Name ▲	Date Created	Date Modified	Modified By	Size	Accessibility
 Action Wizard Worksheet.pdf	Monday	Monday	Van Nguyen	176 KB	 
 UDC Documents.pdf	Monday	Monday	Van Nguyen	1.1 MB	  

Download

Alternative formats

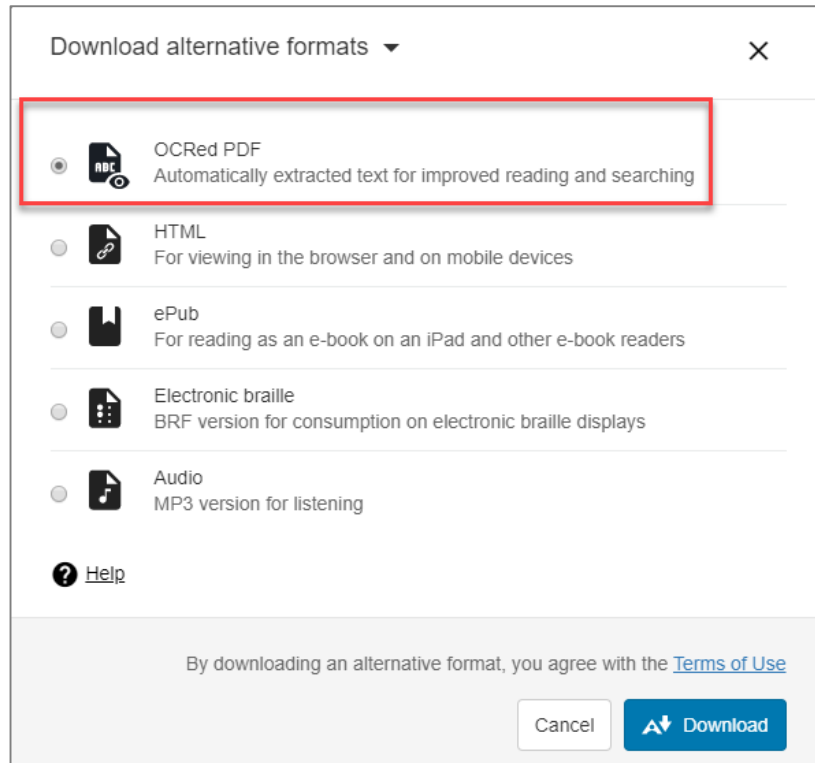
Rename

Move

Delete

Share to Commons

Canvas Ally Course Steps, 2 of 2



Ally Attempts To

- Improve the quality of the scan
- OCRed PDF with Searchable Text
- Tag it

Review and Correct Tags

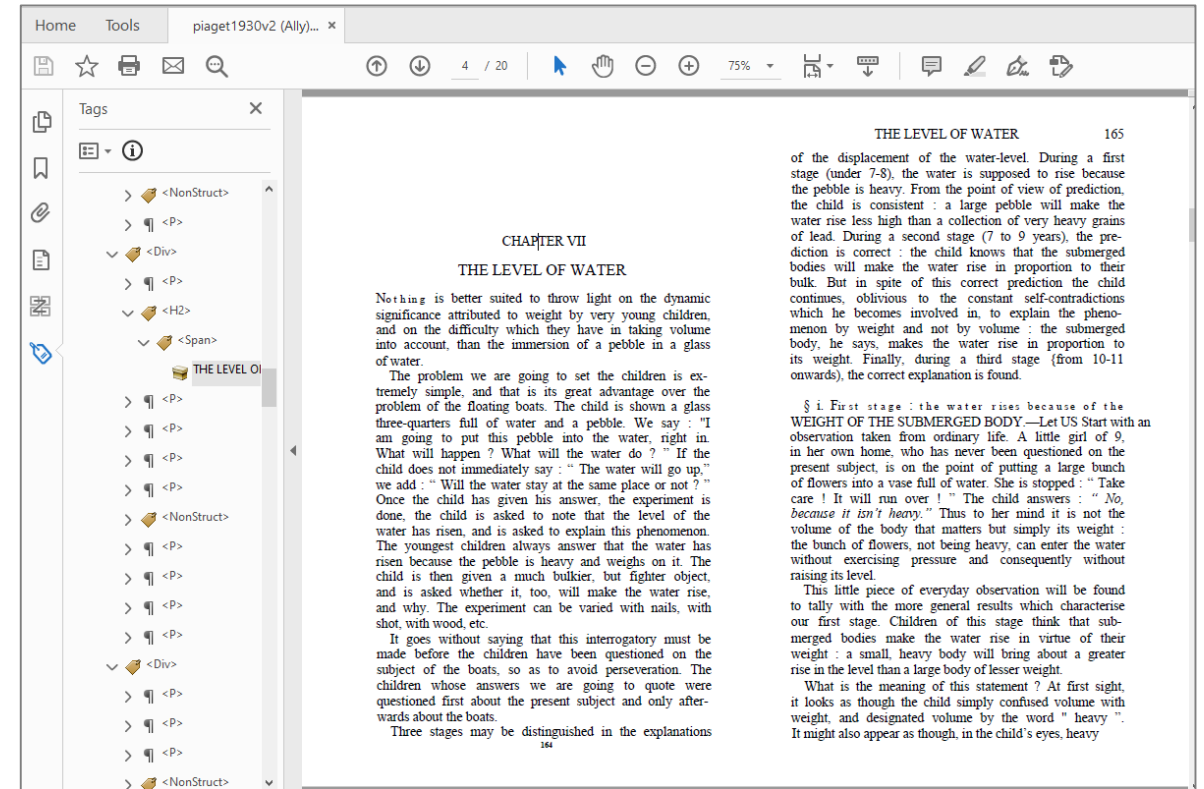
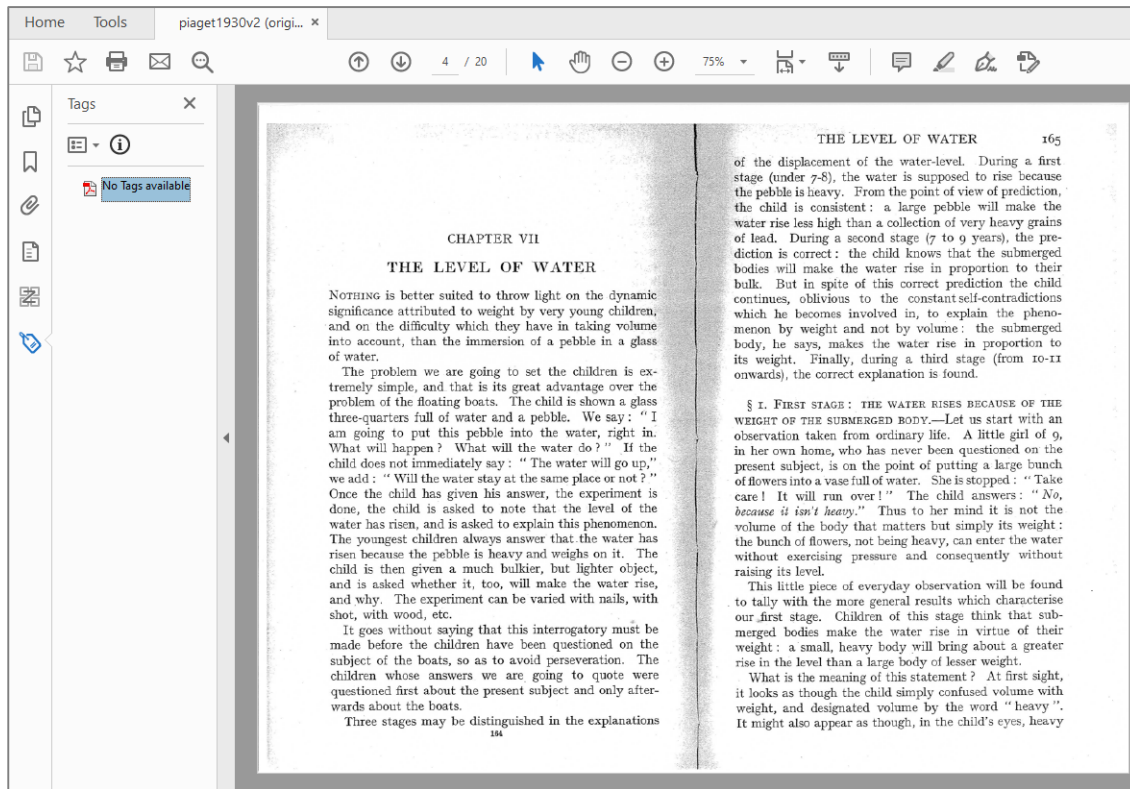
Make sure all items have appropriate tags

- **Run Initial Accessibility Check**
 - **Regular Text:** Text/Paragraph
 - **Headers:** Heading 1 – 6
 - **Images:** Figure
 - **Links:** Link + OBJR
 - **Form Fields:** Form
 - **Decorative Content** (e.g. Lines, text boxes, etc.): Background/Artifact
- **Add Document Title and Language**
- **Verify Reading Order**
- **Verify Color Contrast**
- **Run Final Accessibility Check**

Canvas Ally Course - Scanned Comparison

Original Quality – No tags available

Ally Quality – Improved and tags



Adobe Scan on Mobile App

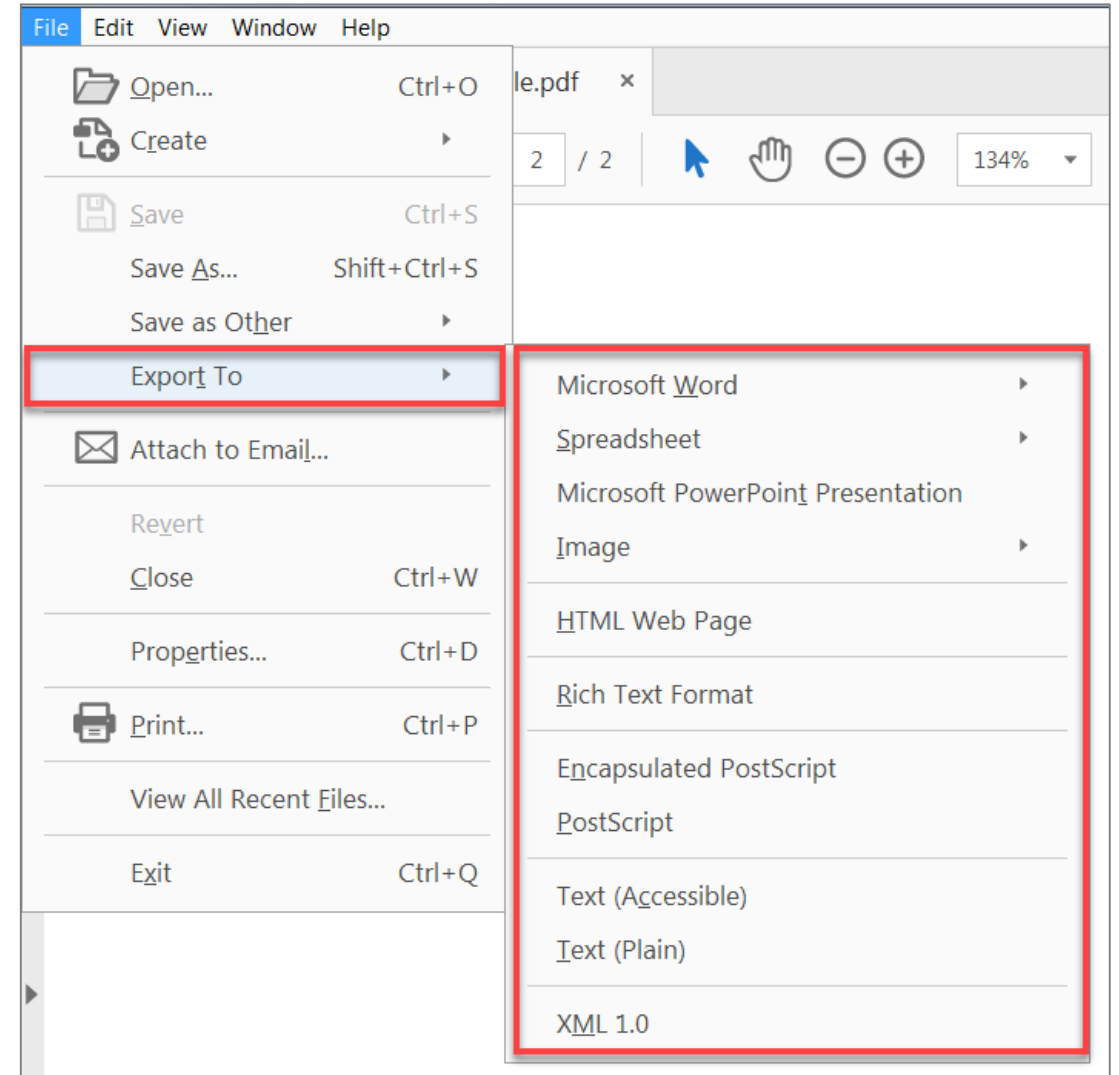
- Free **Adobe Scan** on iOS or Android
- Scans Documents into PDFs
- Automatically Recognizes Text
- See [Adobe Scan Mobile App in action](#)



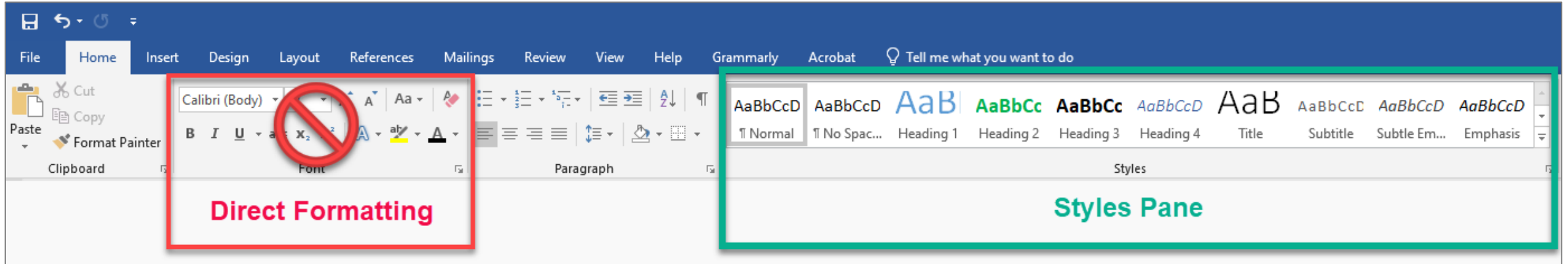
Option A: No Source Document? Export Options

In case you can't find the source documents, you can export PDFs to different file formats, including Microsoft Word, Excel, PowerPoint, etc.

Note: Need to verify format, alignment, unrecognized characters, punctuation, spelling, etc.



Apply Word Document using Styles Pane Formatting



Direct Formatting

- Not accessible to any assistive technology such as screen readers
- Can't create a Table of Contents
- Can't create navigation to different sections in a document
- **Huge barriers!**

Styles Pane Formatting

- Provide structure and make document accessible
- Easier to modify existing formatting
- Accessible to screen readers
- Create and update a Table of Contents
- Quicker navigation to different sections in a document
- Retain document structure when export to PDF
- **Save time and save lives!**

Option B: Edit Original PDF Documents

- Allows you to add and edit text and content within your PDF
- Benefits
 - Saves Time
 - Helpful if you converted from inaccessible files
- Drawback
 - If you have extensive edits, may need to retag your document.

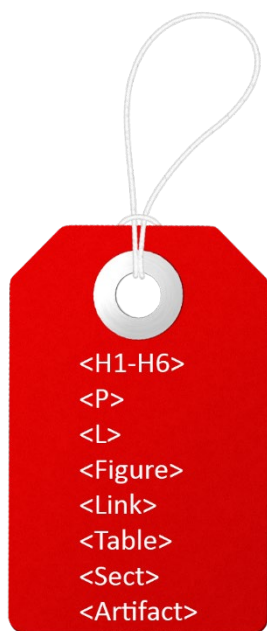


Review from PDF Tools Training

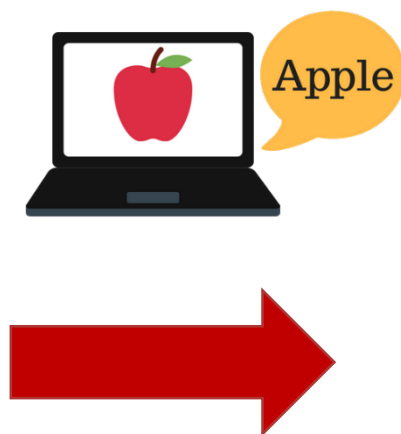


What are PDF Tags?

TAGS are the HTML accessibility markup all of the document text, images, etc. Tags are invisible identifiers that will tell **screen readers and other assistive technology (AT)** an object is an image <figure>, header <H1-H6>, paragraph <P>, table data cell <TD>, list item , and so forth.



- Autotag Document
- Autotag Form Fields
- Reading Options
- Full Check
- Accessibility Report
- Identify Form Fields
- Set Alternate Text
- Setup Assistant
- Reading Order**



H2erview

Pis is a training document to demonstrate the conversion between Word and PDF. This overview displays the various construction tools and features in Word. This document can be used to see the behavior of each feature when it is converted to a PDF document. When Adobe Acrobat opens, continue editing to ensure the PDF is accessible.

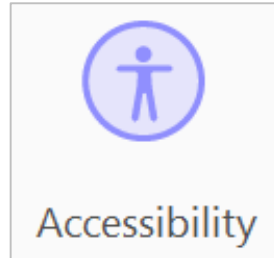
H2lums

P lums are a visual way to separate information within a page or section. Columns ensure the information remains accessible, unlike using table to only separate information. To create a column within a section of	the document, move the cursor to the desired column starting point. First, click the Layout tab and click Breaks -a dropdown will appear and select Continuous . Second, still in the Layout tab, click the Columns icon and select	the desired amount of columns. Finally, to close the columns under the Layout tab, click Breaks and select Continuous . If columns are needed throughout the remainder of the page, do not complete the last step.
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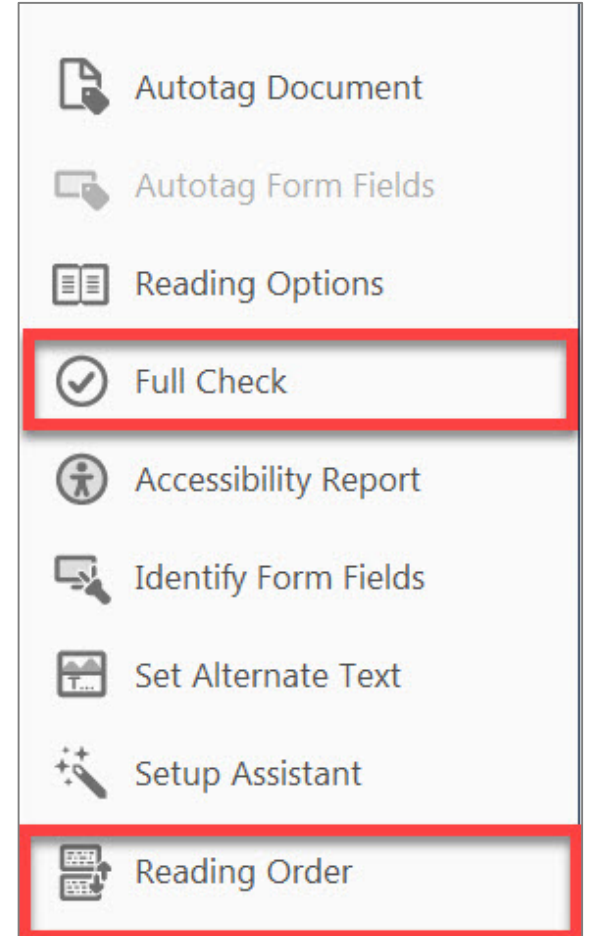
H2ks

Pntact the **l p k**rsal Design Center for reservations






Accessibility Tool



Contains settings to build accessible PDFs and to support the reading of accessible PDFs



Accessibility Tools

TOOLS / FEATURES	PURPOSE	ICON
ACCESSIBILITY	Encompasses all tools and features needed to create accessible documents	 Accessibility
FULL CHECK	Acrobat Built-in Accessibility Checker	 Full Check
TAGS	Accessibility markup and structure to document	
ORDER	Defines logical reading order of the document	
CONTENT	List of all content in your PDF	

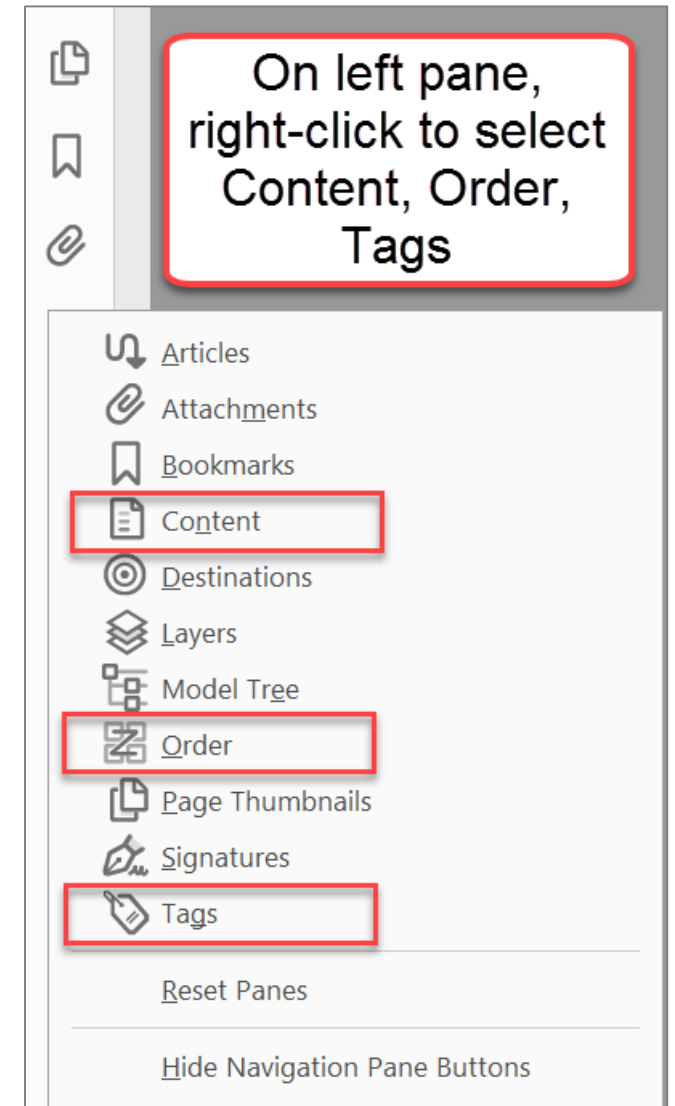
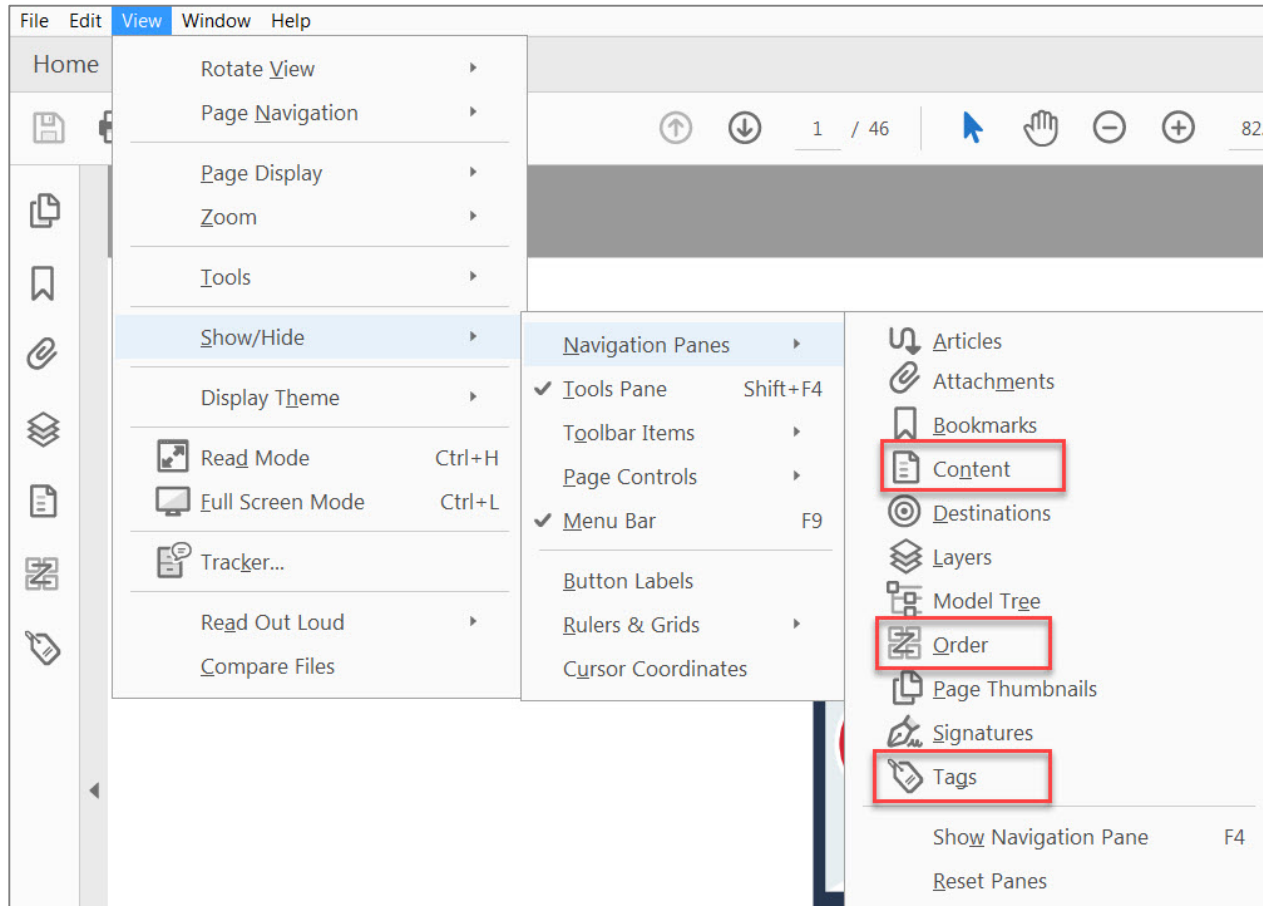


Navigation Pane

These are the primary tools needed to create an accessible PDF

View > Show/Hide > Navigation

- **Tags Panel, Content Panel, Order Panel**



Tags Panel

Why is the Tags Panel known as tag tree important?

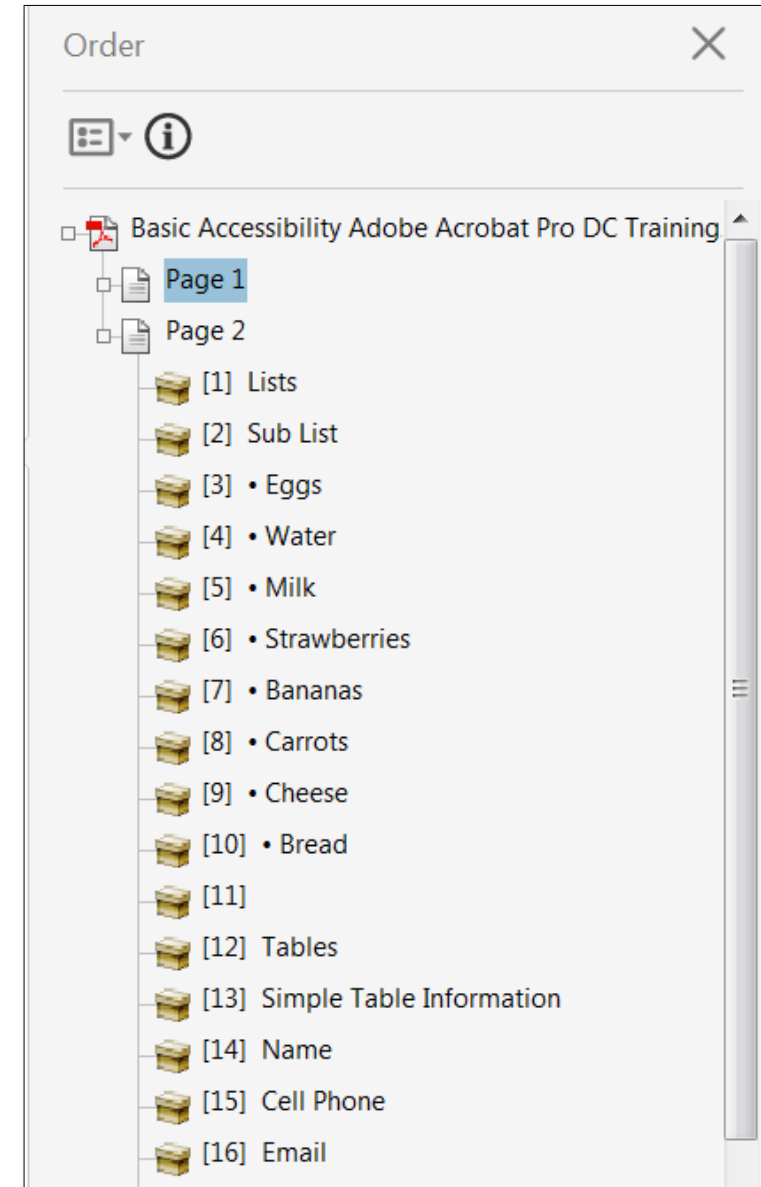
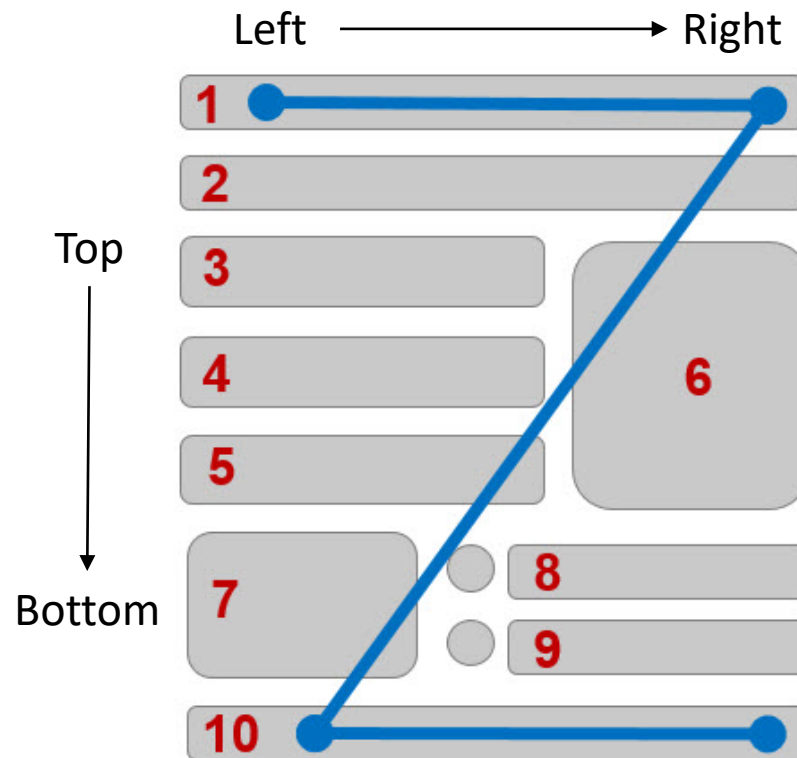
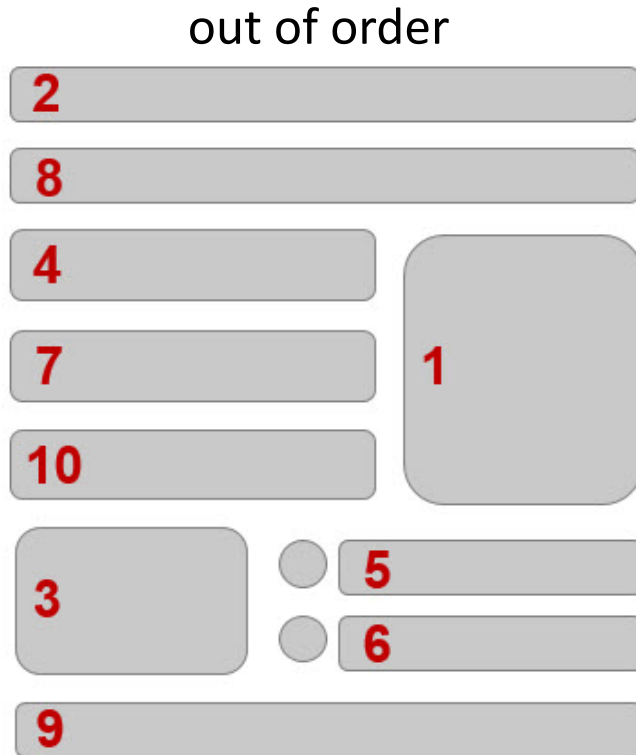
TAGS are the HTML accessibility markup all of the document text, images, etc. Tags are invisible identifiers that will tell **screen readers and other assistive technology (AT)** an object is an image <figure>, header <H1-H6>, paragraph <P>, table data cell <TD>, list item , and so forth.

Ensure the tags tree are in the correct logical order to match the document.



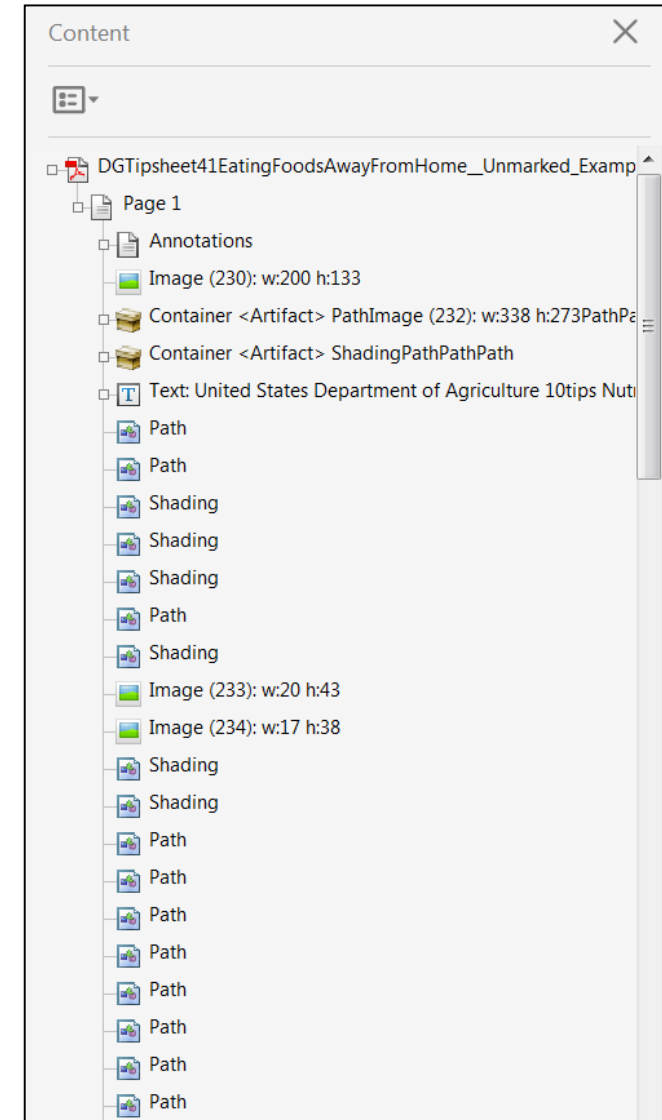
Order Panel

Screen readers read a document from left-to-right and top-to-bottom. That means reading order is important for users with visual impairments. When content, tables, images or charts are out of order or a document is poorly organized, the reader can become confused as to the meaning of the information.



Content Panel

- List of all content in your PDF
- You can add and delete information within content panel. However, the content panel can be difficult to navigate because it is not properly organized.
- Editing your contents panel is most helpful when you have PDFs with lots of graphics or overlapping information. If content is hidden in your PDF, you can go to the content panel to find it and reorganize to find the missing info.

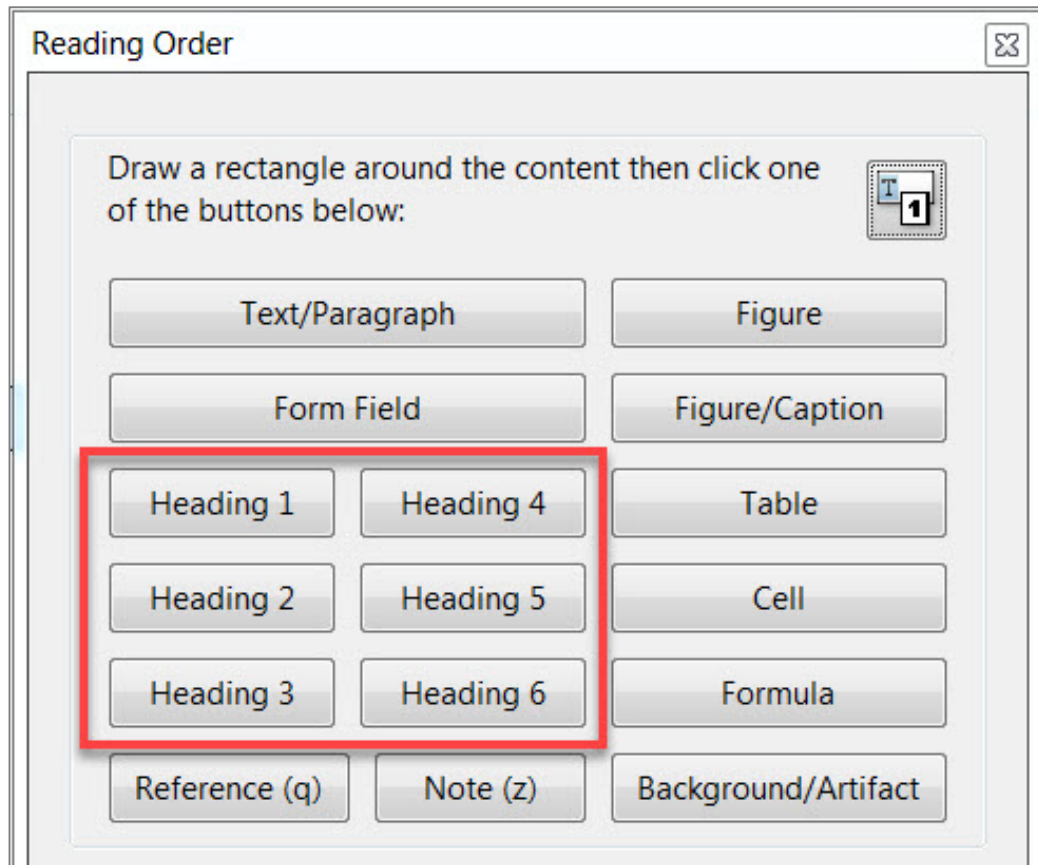


Common tags use to create an accessible document

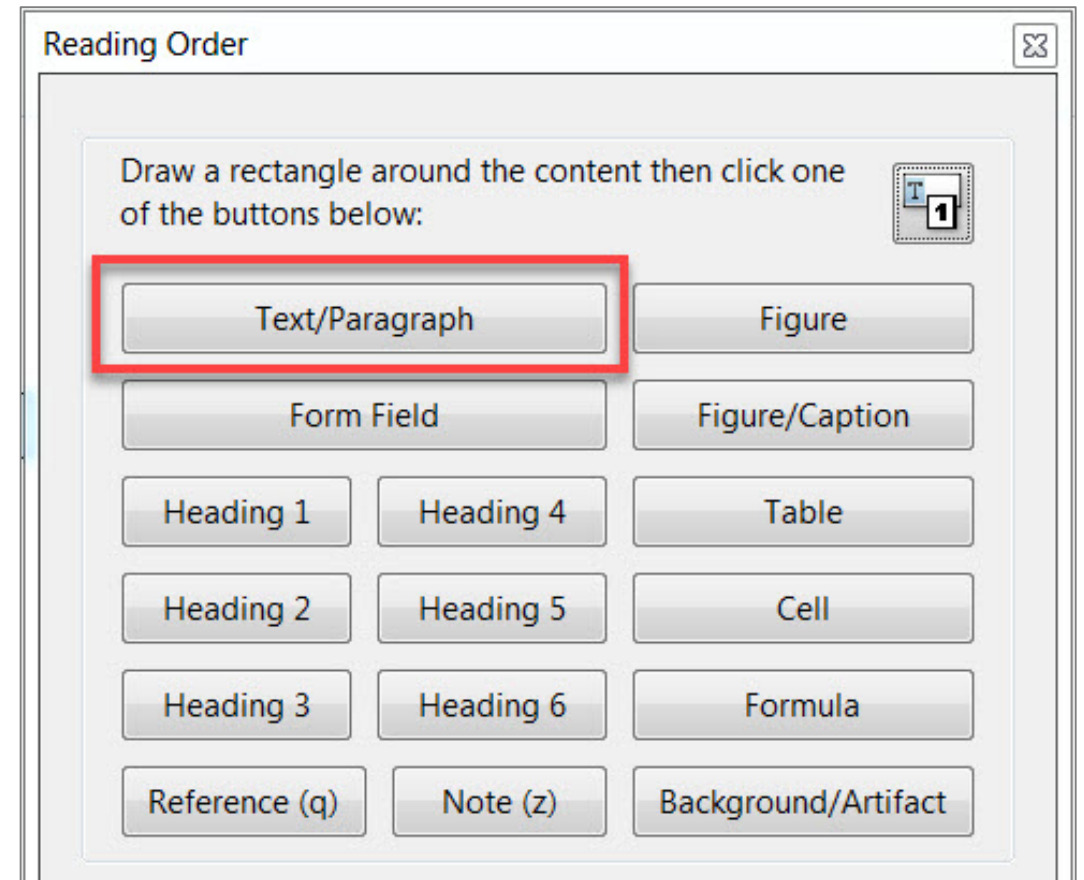
TAG	ICON	HOW TO TAG
Headers 1 - 6		Reading Order, Tag Preferences
Paragraph / Text		Reading Order, Tag Preferences
Images		Reading Order, Tag Preferences
Tables		Reading Order, Tag Preferences
Links		Reading Order, Tags Panel, right-click Properties, dropdown list "Type" to change tag preferences
List		Reading Order, Tags Panel, right-click Properties, dropdown list "Type" to change tag preferences
Background/Artifact		Reading Order, Tag Preferences
Section		Reading Order, Tags Panel, right-click Properties, dropdown list "Type" to change tag preferences

Adding Tags (1)

Headers

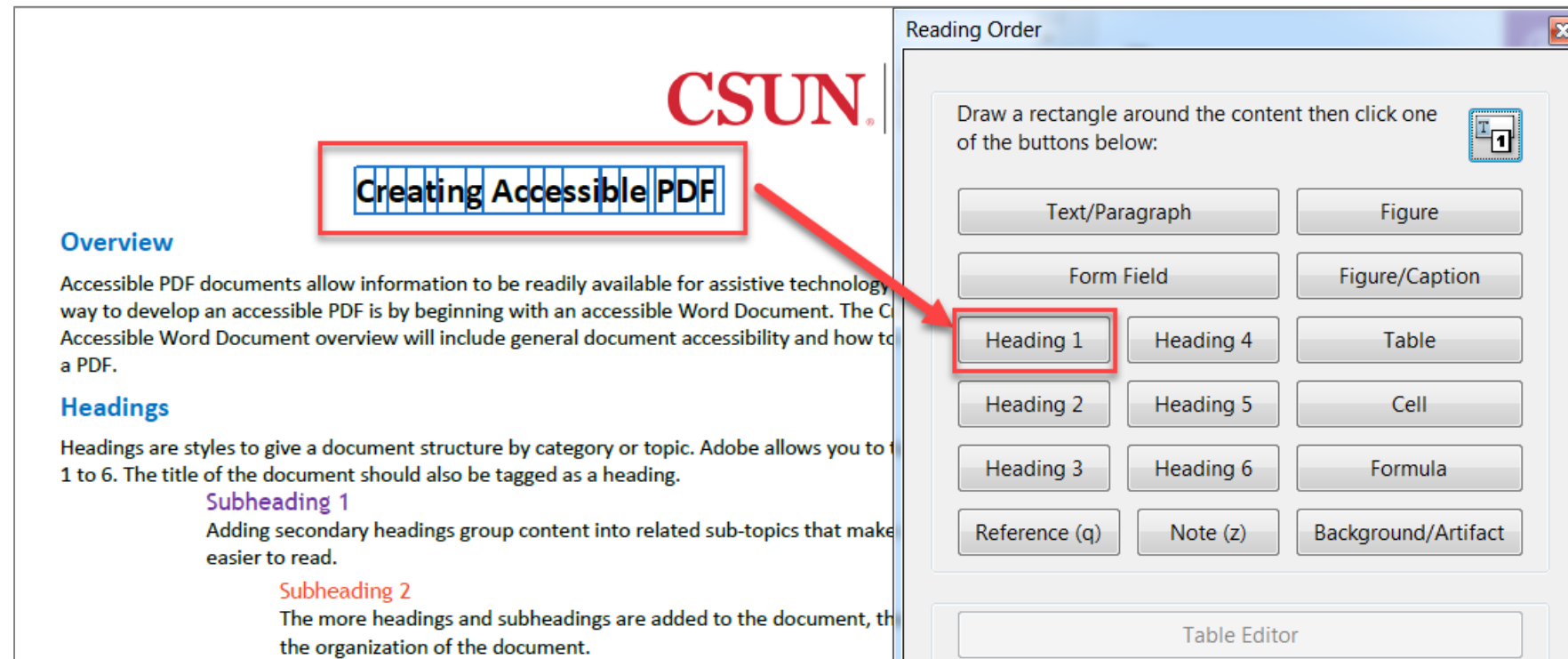
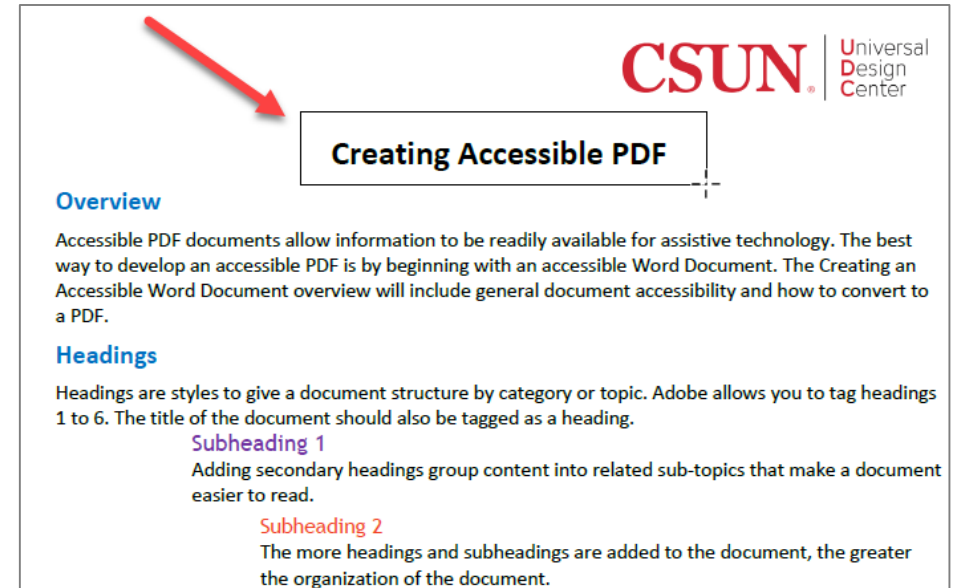


Text (regular text / paragraph)

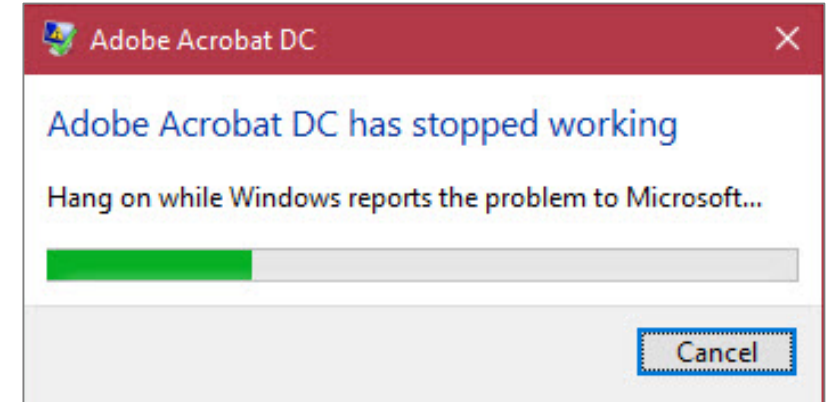


How to tag document?

1. Open Accessibility, Reading Order Tool
2. Draw a rectangle around the content or double-click the content then click one of Reading Order buttons
3. Proceed step #2 to tag the rest of the content



Always **SAVE** your PDF as you add TAGS accessibility markup

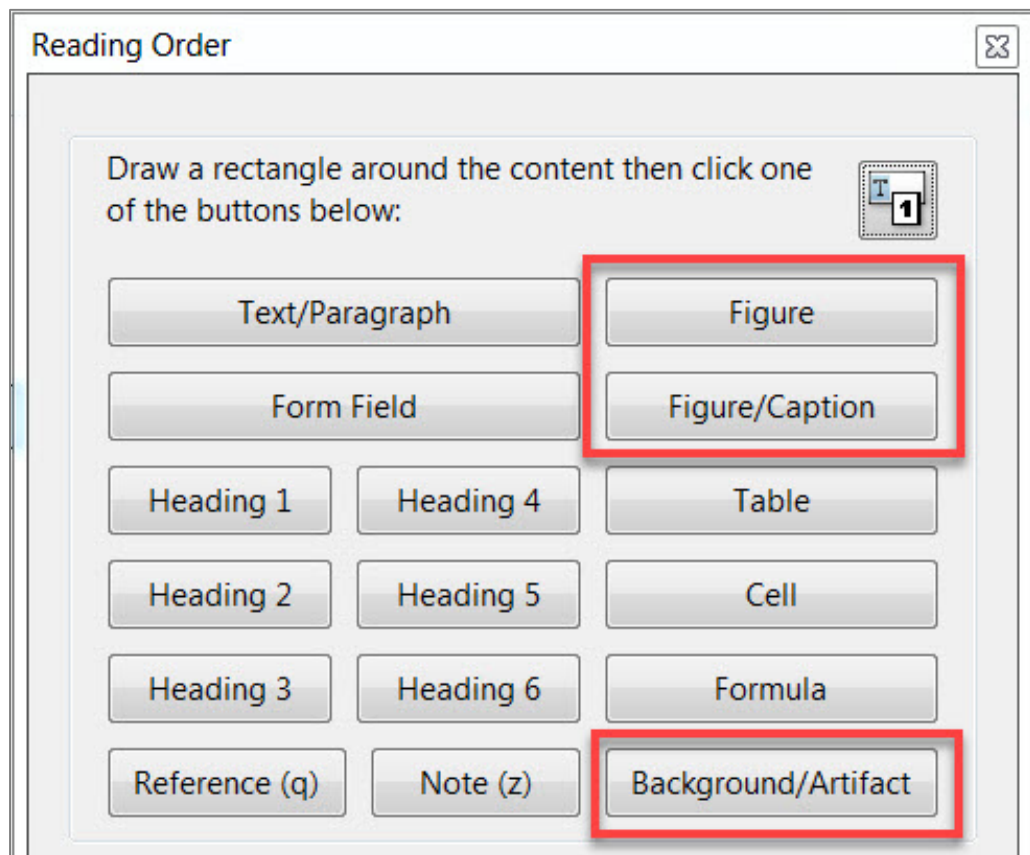


Save it **OFTEN** to avoid Adobe **unpredictable crashes!**



Adding Tags (2)

Images

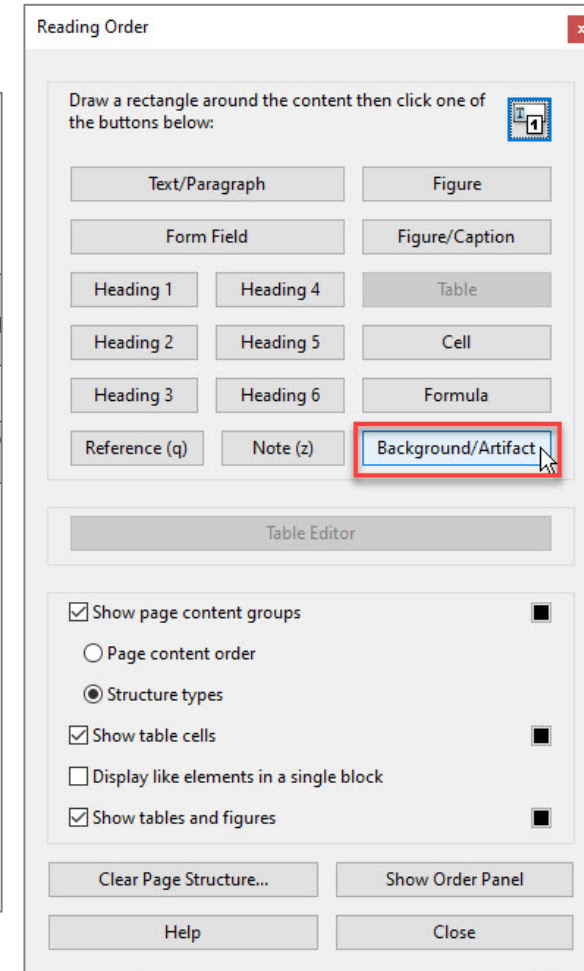
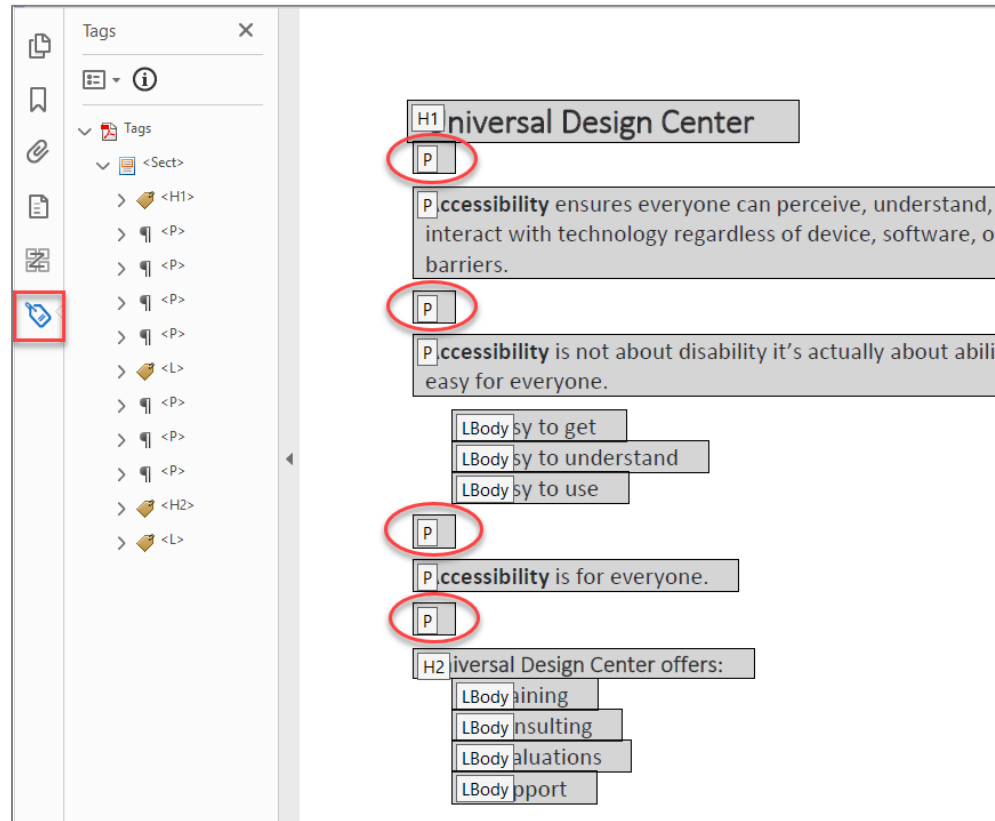


- Images are tagged as “**Figure**”
- Or images with short text underneath as “**Figure/Caption**”
- Decorative images, lines or shapes can be tagged as “**Background/Artifact**”. This will ignore by assistive technology.

Background/Artifact

An artifact is content that does not provide meaningful information such as **decorative images, lines, or shapes**. Artifacts should not be present in the Tag Tree. <Artifact> list in Content Panel ignore by assistive technology.

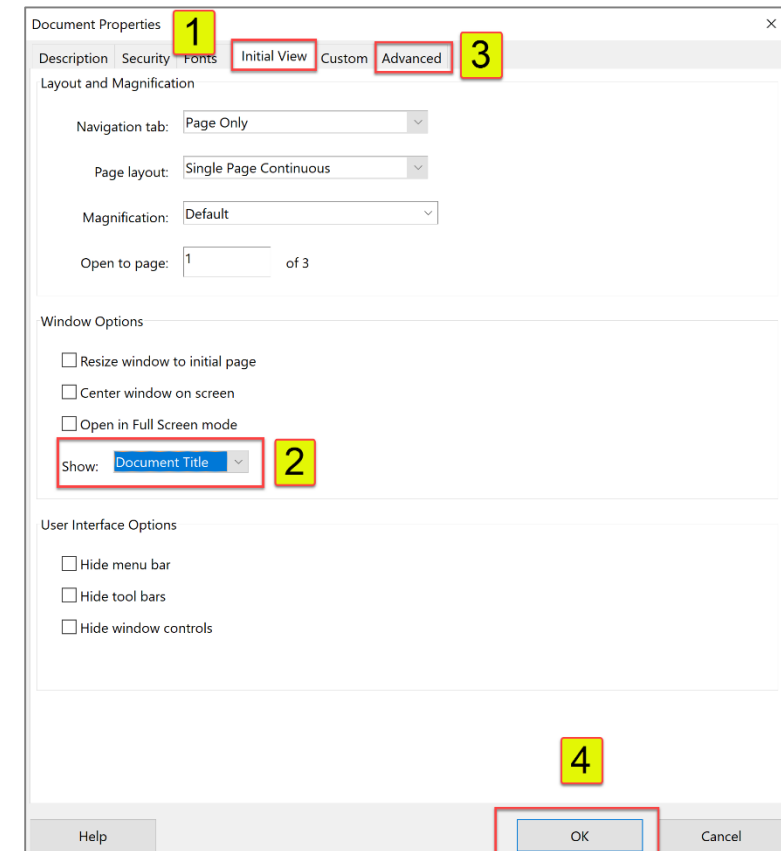
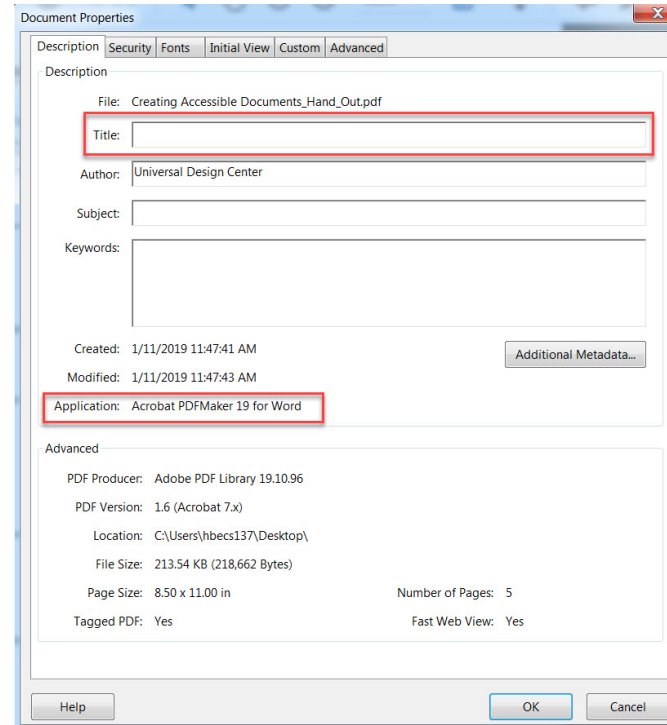
- Select the empty <P> tag
- Select **Background/Artifact** button from Reading Order tool.
- Empty <P> tag is now gone
- OR you can delete empty tags.



Document Properties: Title & Language

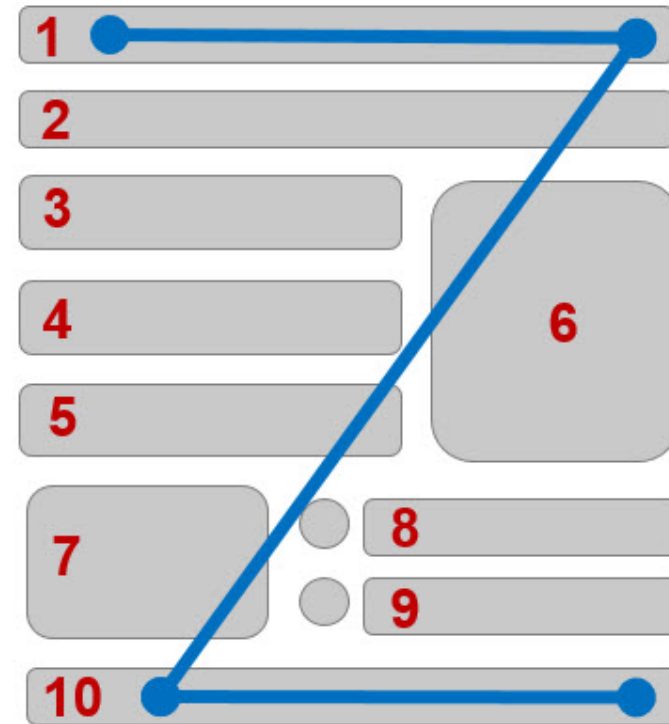
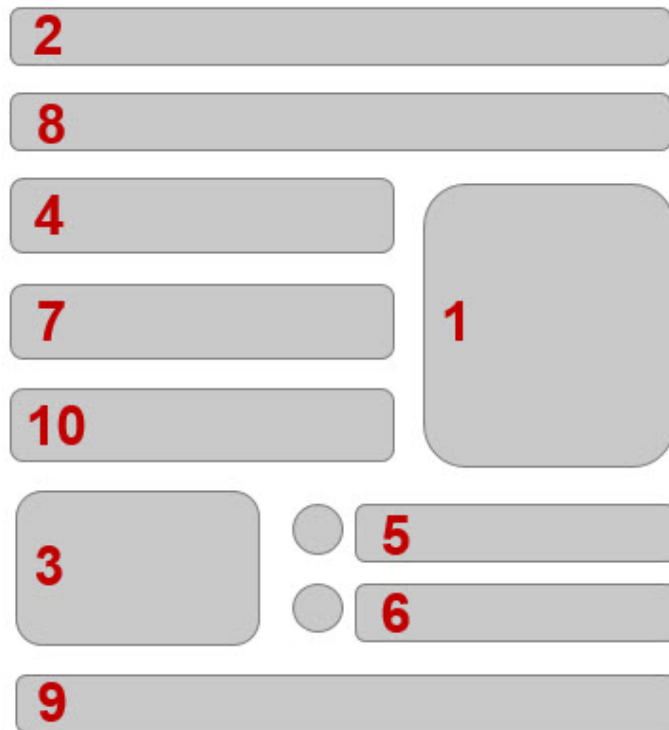
The document description gives the document a proper title and language to be recognized by assistive technology.

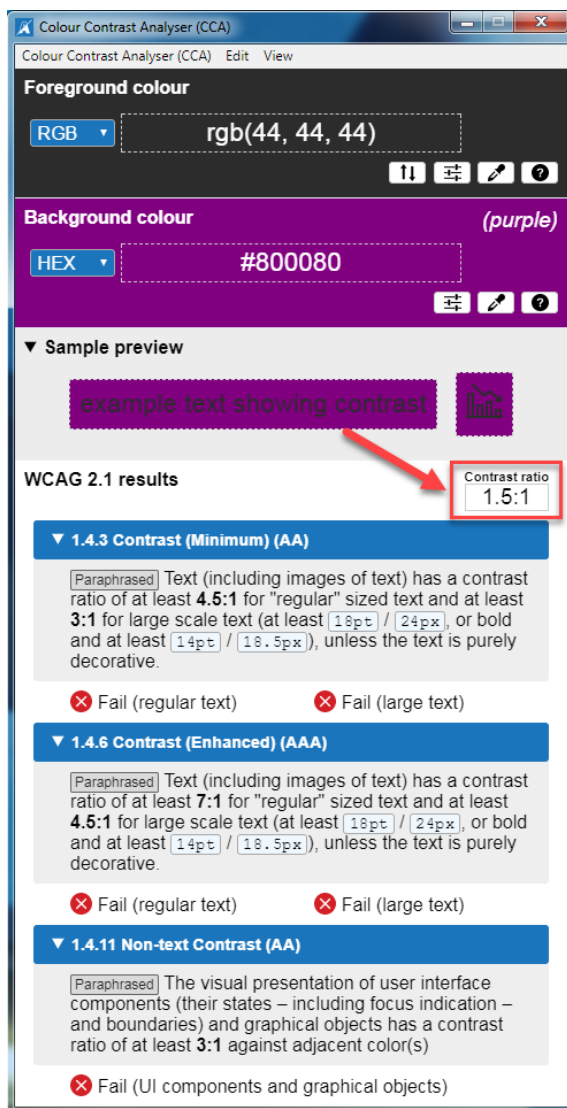
- **Select File menu > Properties**
- **Description** tab, enter **Title** box is document title or main content heading/title.
 - **Application** box showing the source document created from Word to PDF.
- **Initial View** tab, **Window Options** to select **Document Title** instead of File name.
- **Advanced** tab, select a language from the **Language** menu in the Reading Options.



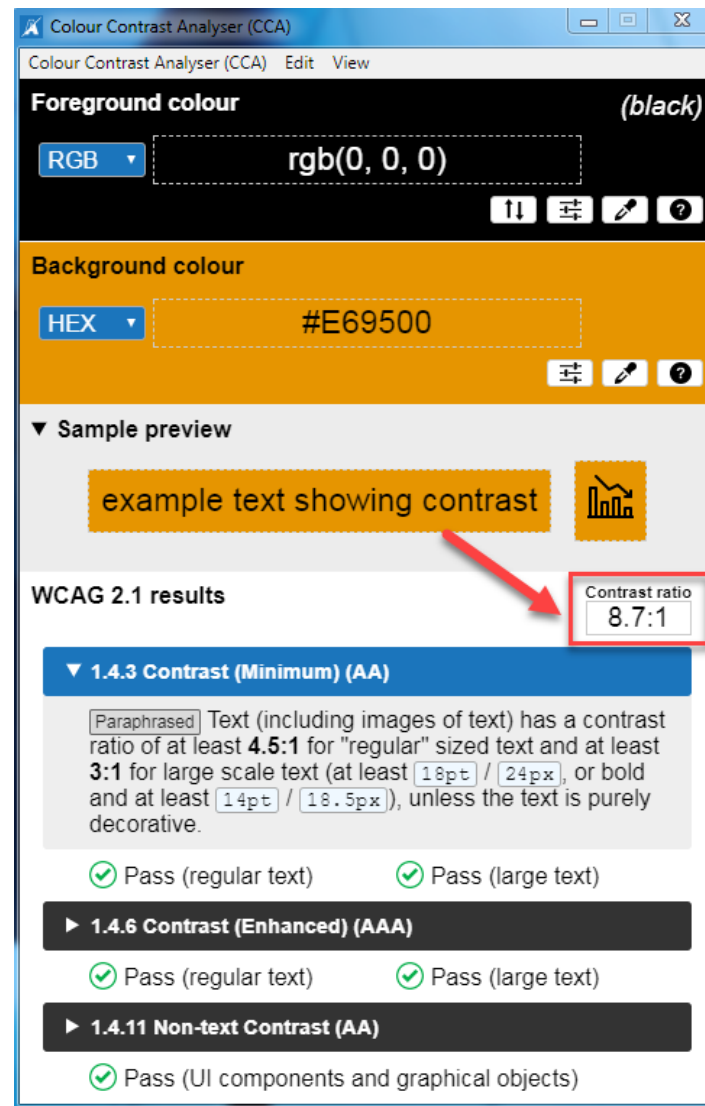
Verify Logical Reading Order

Ensure the tags tree are in the correct logical order to match the document. Manual rearrange tags as needed in the TAGS panel. After making these adjustments, start from the top of the tags tree and move through the tags panel sequentially using the down arrow key. A logical reading order start from left to right, top to bottom as illustrated.





People who have low vision or colorblind could encounter some difficulty distinguishing text color from a background color if the contrast is insufficient contrast ratio 1.5:1.



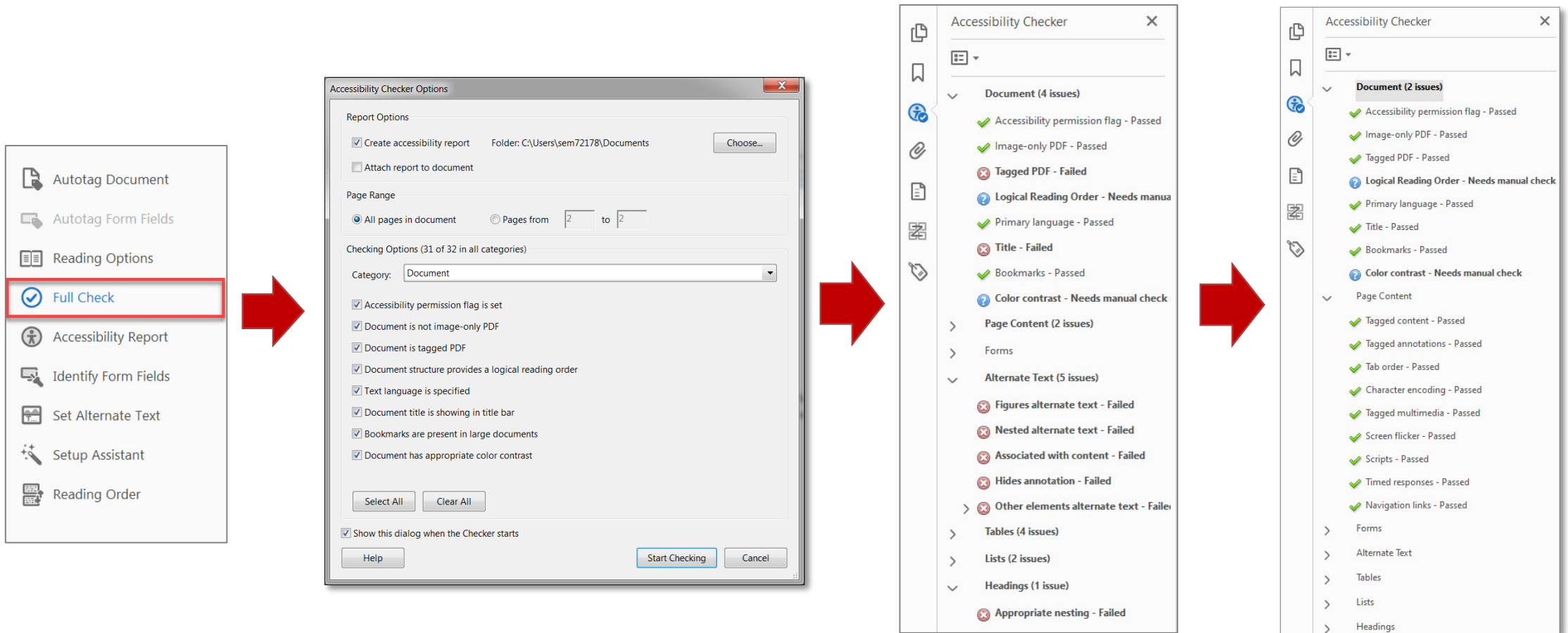
This example has a great color contrast ratio of 8.7:1. The contrast is sufficient for those who have color deficiencies


Verify Color Contrast

Bad Examples	Good Examples
Red on black is bad	Yellow on black is good
Blue on orange is bad	Black on orange is ok
Red on green is bad	White on green is good
Grey on purple is bad	Aqua on purple is ok

- Download [Colour Contrast Analyser](#) onto your computer (PC/Mac) to ensure accessible contrast or use an online contrast checker from [WebAIM](#).
- WCAG Level AA requires a contrast ratio of at least **4.5:1** for regular sized text (12 or 14 pt. font) and **3:1** for large text (18 pt. font).
- [Coblis Color Blindness Simulator](#)

Final Accessibility Check



- Conduct manual or visual checks on **Logical Reading Order** and **Color Contrast**.
- Two question marks  will always stay in **Document (2 issues)** section even if you right-click and select **Pass**. It just there as a reminder to conduct manual check.

Use screen reader to finalize your document accessibility features

Do not use Adobe Acrobat's built-in 'Read Out Loud' tool as a screen reader. This tool is NOT a screen reader and will not capture the same information as screen readers below.



Microsoft Windows NVDA screen reader that allows blind and visually impaired users to read the screen either with a text-to-speech output or by a refreshable Braille display. NVDA can be **downloaded free of charge** by anyone.

nvaccess.org

Apple VoiceOver built-in provides auditory descriptions of each onscreen element using gestures, a keyboard, or a braille display.

Accessibility Tips

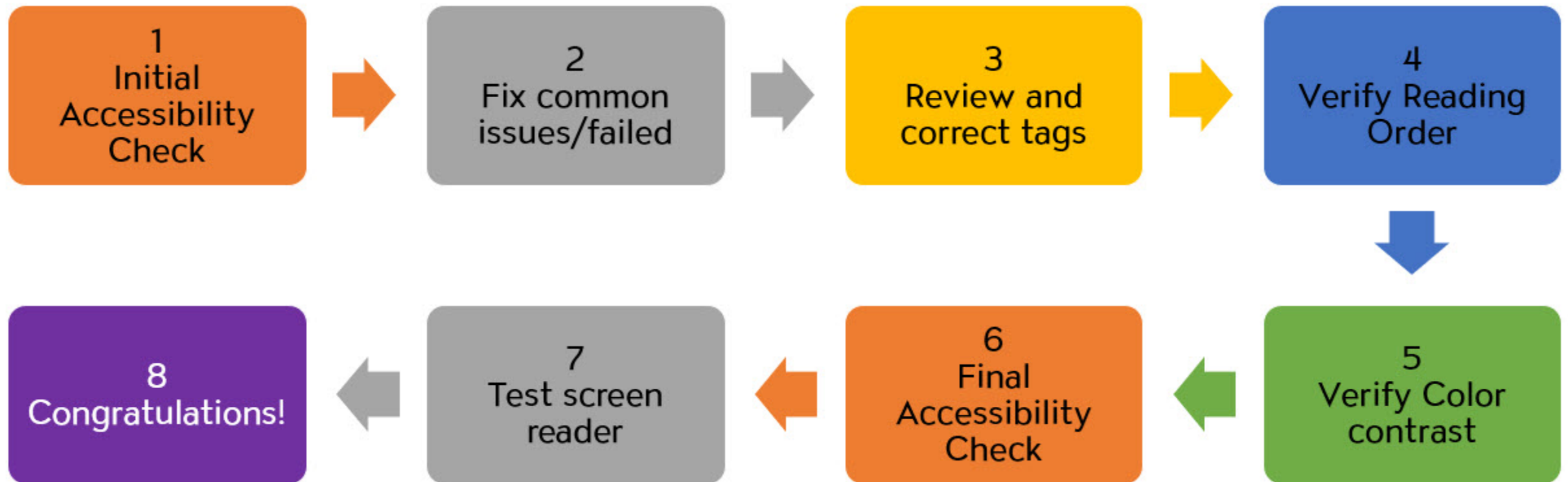


- Always save your PDF as you add accessibility markup
- When modifying extensive content in reading order, drag content down not up
- Remove empty tags
- Header, footer, and page numbers, decorative lines or shapes tag as “Background/artifact”

Accessibility Tips



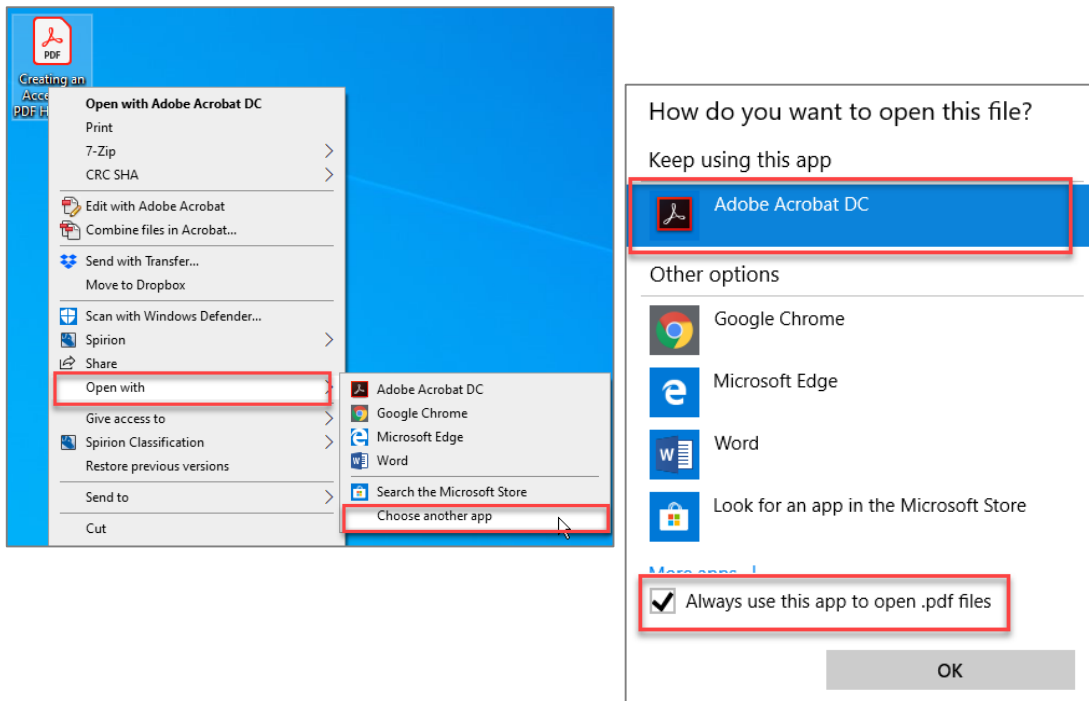
PDF Accessibility Iterative Process



Open PDF files from Adobe Acrobat not Web Browser by default

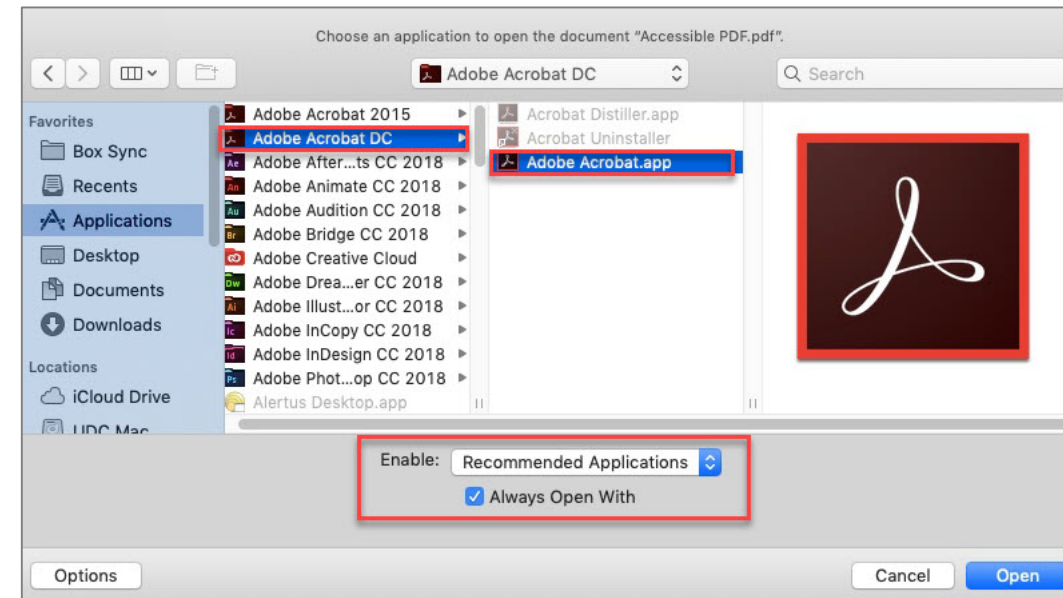
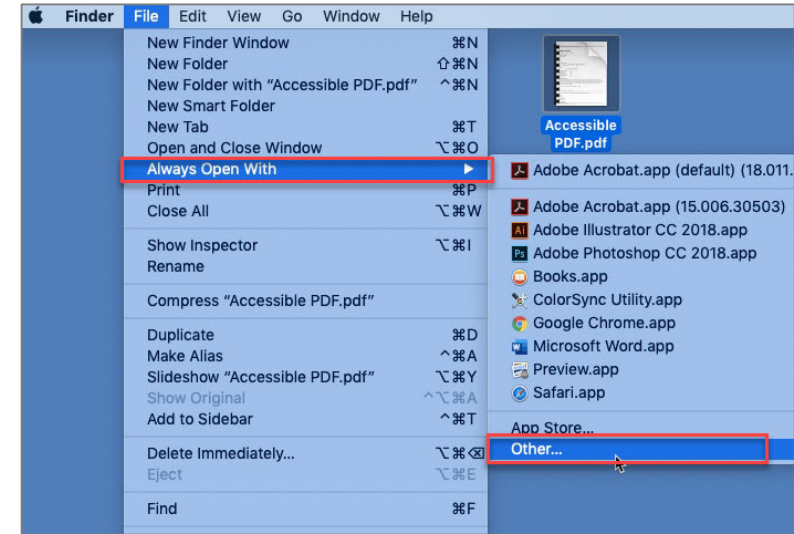
Windows

- Save PDF files on desktop
- Right-click on PDF file, select Open with, Choose another app



Mac

- Save PDF files on Desktop
- Select PDF (not double click)
- File tab, Always Open with, Other
- File tab, Always Open with, Other



How can we help you make a **difference**?



*Universal Design means design for **everyone***



Universal Design Center Offers

- Online, self-paced training
- In-person training each semester
- Consultations
- Tools and Services

