

# The Equidox Guide to PDF Accessibility

Learn why and how  
to make PDFs accessible





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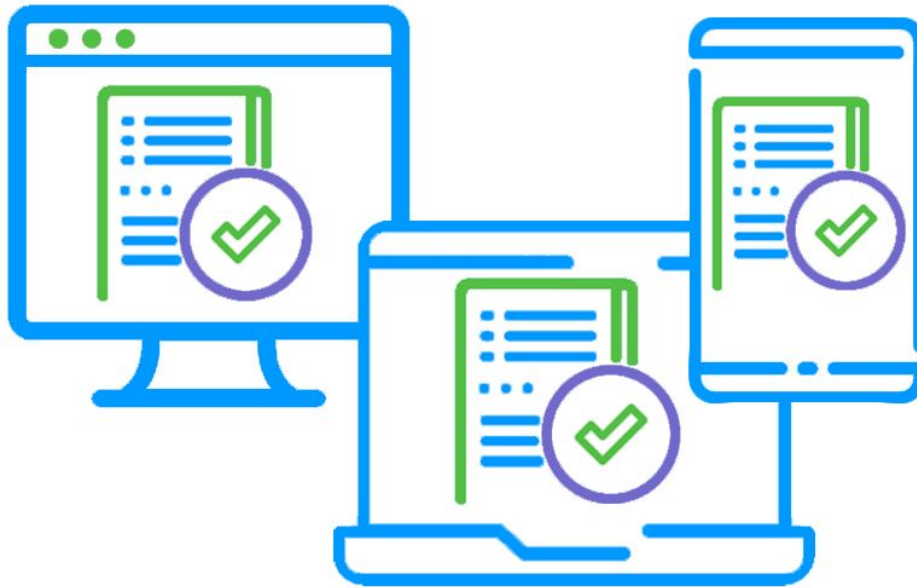
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# What is a PDF?



- PDF = Portable Document Format
- Preserves formatting
- Opens and looks identical
  - on any device
  - on any browser
  - or any operating system

Hundreds or even thousands of PDFs may be stored on a website or sent via email. A single inaccessible PDF file can cause a complaint or even a lawsuit.



# Why make PDFs Accessible?

It's the law, it increases your market,  
and it improves revenue

## Avoid Lawsuits

Digital accessibility lawsuits have increased over 200% since 2017. There were 4.055 accessibility lawsuits in 2021.

## Expand Your Market

Accessibility can improve SEO and boost your organization's reputation.

90% of consumers value companies that show corporate social responsibility and purchase products because the company supports issues they care about.

## Do the Right Thing

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# Accessibility Lawsuits are Increasing

Trends in Digital Accessibility Lawsuits by Year



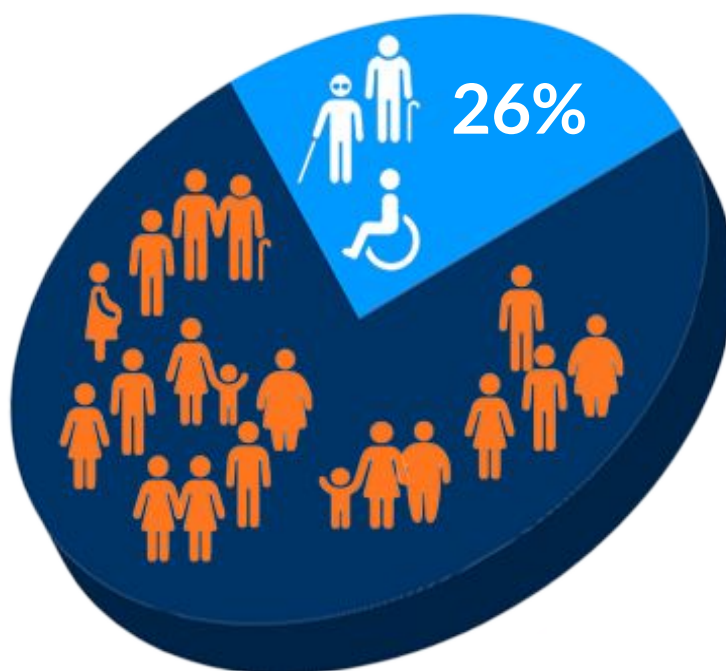
Digital accessibility lawsuits are an increasing concern for many businesses and organizations. Government agencies and organizations that receive government funding are subject to Section 508 of the Rehabilitation Act, which requires them to meet [WCAG 2.0 guidelines](#). But even organizations not subject to Section 508 are still bound by the Americans with Disabilities Act (ADA), and Federal Circuit Courts have mandated that [websites are subject to ADA regulations](#).

Canada, the EU, The United Kingdom and Australia all have mandated accessibility legislation.

MORE THAN [400 lawsuits](#) were filed in 2021 in the US against companies using widgets or overlays as an accessibility solution. This is more than one per day in 2021.



## People with disabilities make up 26% of the US market



- Disposable income for US adults with disabilities is \$490 billion
- Disposable income for friends and families of US adults with disabilities is as much as \$8 trillion
- Disposable income for the disability market is comparable to the Hispanic (\$582 billion) and African American (\$501 billion) markets.
- Discretionary income (after taxes and essentials like food and housing) for working-age people with disabilities is about \$21 billion, which is greater than that of the African-American (\$3 billion) and Hispanic (\$16 billion) market segments, combined.



# Corporate Social Responsibility Pays

Today's consumers are more attuned to Corporate Social Responsibility (CSR), including disability inclusion, than any previous generation.

- More than 90% of shoppers worldwide are likely to switch to brands supporting a good cause.
- 90% of consumers surveyed are more likely to trust and be loyal to socially responsible businesses compared to companies that don't show these traits.
- 90% of shoppers surveyed would boycott companies if they found the firms engaged in irresponsible business practices, with 55% of the respondents having already done so in the past year.
- 85% of consumers have a more positive image of a product or company when it supports a cause they care about.

Source: [What Millennials and Gen Z Think of Your Brand's CSR Efforts, and What You Can Do About It](#)



# How PWD Access Digital Information



- Enlarged print
- High Contrast Mode
- Screen Readers
- Connected Braille Displays

People with disabilities (PWD), especially people who are blind or have low vision, or people who cannot use a mouse due to motor function issues, require alternative methods to access digital information.

Some will use a screen magnifier, some will require a high contrast mode, others will use screen readers or connected Braille displays. (Connected Braille displays rely on screen reading technology to convert the digital information into Braille, so both tools are used.)

For screen readers and Braille displays, **digital tags** are required to fully understand information presented in PDF documents.







# About Screen Readers

Screen readers read aloud text on a digital screen. They also provide data to connected Braille displays for conversion to Braille.

Digital Tags are required for:

- Text content
  - Headings
  - Reading Order
- Non-text Content
  - Images (including charts and graphs)
  - Links
  - Form fields
- Complex content
  - Lists
  - Tables



Screen Reader Video

## Commonly Used Screen Readers

- [NVDA](#)
- [JAWS](#)
- [ZoomText Fusion](#)
- [Alexa Voice Assistant](#)
- [Narrator](#)
- [VoiceOver](#)
- [Talkback](#)



# Facts about PDF Accessibility

Even if the source document is accessible, “Save as PDF” will not necessarily result in an accessible PDF.

“Print to PDF” is almost **NEVER** accessible

Screen readers read everything tagged element on the page, even if it is repetitive or unnecessary

- Page numbers (screen readers speak page numbers - these do not always need tags)
- Repetitive headers
- Repetitive footers

The most common issues with PDF accessibility are:

- Incorrect reading order
- Missing image descriptions (alt text)
- Untagged headings
- Untagged lists
- Untagged tables
- Non-functional links





# WCAG and PDF Remediation

**WCAG** = Web Content Accessibility Guidelines

It is an international **standard** developed in collaboration between many experts from countries worldwide.

WCAG is accepted by Australia, Canada, France, Germany, Hong Kong, India, Italy, Ireland, Israel, Japan, Netherlands, New Zealand, Norway, Spain, UK, and in some cases, the US, as the legal standard by which to measure digital accessibility. While US Federal law does not refer to WCAG, using this standard meets ADA digital accessibility requirements.



WCAG Consists of 4 Pillars.

These tenets state that all digital content must be:

**Perceivable, Operable, Understandable and Robust.**



## Perceivable

Users must be able to perceive all informational and interactive elements.

This means that all information and functionality cannot be invisible or inaccessible to all of an individual's senses. Users must be able to see or hear or feel the information being provided. If content cannot be seen, it must be able to be heard or felt (for example, by using a connected Braille display). All content must be able to be perceived and read by users, regardless of how they access the information (mouse, keyboard, screen reader, etc.).

There should be a text alternative for all non-text content. Some examples of "perceivable" include alt text for images and captions and transcripts on videos or poor color contrast practices that make text hard to see against the background. Content should be easy to see or hear or feel with a connected Braille display, and it should be easy to locate.





## Operable

Users must be able to operate elements.

This means the website should be functionally usable no matter how it is accessed. Buttons should work regardless of whether someone is using a keyboard, a mouse, a touchscreen, a joystick, or any other input mechanism. Users should be able to navigate through the content.

The content should not produce seizures (for example from flashing lights or content) and should allow enough time for users to react to the information presented, even if their level of mobility makes them slow to respond. There should be no “keyboard traps” (examples include website pop-ups that allow users to tab onto an element but not to tab back out - keyboard traps are rare in PDFs).

Try turning off your mouse and navigating a web page or document without it.





# The 4 Pillars of WCAG

## Understandable

Users must be able to understand the information and operations.

Content must be understandable by the intended users. It should not be so complex or difficult to read that users cannot use the information, or overly technical. However, content like a medical textbook is not expected to be understood by kindergarteners.

Example: forms should be clear and easy to fill in – terminology should be as clear as possible. Keep the names of objects (such as buttons, links, or other interactive elements) consistent when used in multiple locations. Don't use “buy” in one place and “add to cart” in another—use one label for all identical functions. The language presented visually should be the same as the language coded into the website so that the screen reader is reading it in the correct language.





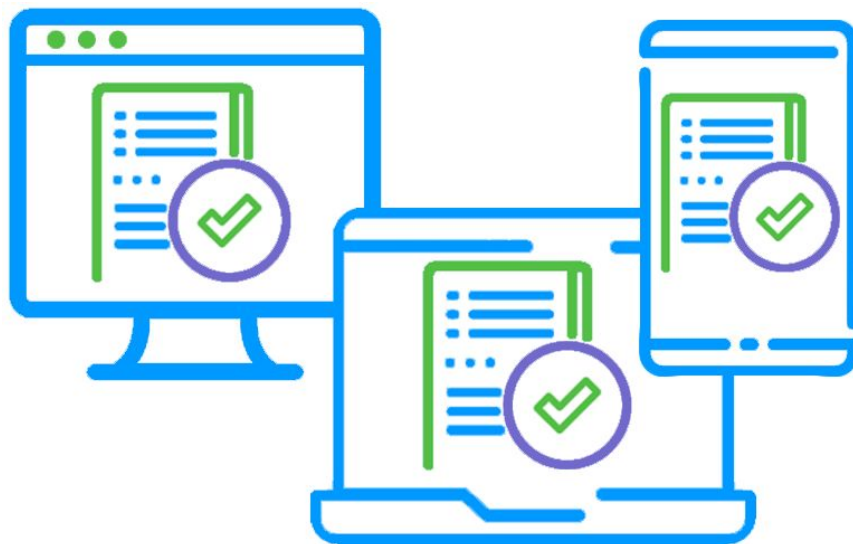
# The 4 Pillars of WCAG

## Robust

Content must be robust enough to be used with a variety of technology.

The content should be usable with a variety of technologies, assistive and otherwise, and remain usable as technology changes. For example, a video should work regardless of the browser or device on which you are trying to watch it.

Documents and web pages should be accessible regardless of the browser, device or operating system with which the user is interacting.







# Elements of a PDF

**PDF Sample Document**

**EQUIDOX**  
PDF Accessibility Solutions

**Heading Level 1**  
Use Equidox PDF Remediation software and decrease conversion time and costs by 85%. Equidox is a solution that uses smart detection tools to easily convert inaccessible PDFs into WCAG 2.0 AA-compliant HTML and accessible PDF and EPUB 2 content.

**Heading Level 2**  
Your organization can now outsource the cumbersome task of remediating inaccessible PDFs to Equidox experts, saving time and money.

**List**

- Equidox Software
  - Smart detection tools
    - Smart detector
    - Table detector
    - List detector
  - Administration features
    - Document labels
    - Remediation progress bar
- Equidox Services
  - PDF remediation services
  - Batch processing
  - Accessibility consulting
    - Training
    - Testing / auditing / reporting
    - Accessibility policy development
    - VPAT completion

**Text**

**Decorative Element**

**Table**

	2017				2018			
Department	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Human Resources	\$25,000	\$50,000	\$100,000	\$25,000	\$25,000	\$50,000	\$100,000	\$25,000
Accounting	\$50,000	\$100,000	\$200,000	\$50,000	\$50,000	\$100,000	\$200,000	\$50,000
Legal	\$75,000	\$150,000	\$300,000	\$75,000	\$75,000	\$150,000	\$300,000	\$75,000
Sales	\$100,000	\$200,000	\$400,000	\$100,000	\$100,000	\$200,000	\$400,000	\$100,000
Marketing	\$125,000	\$250,000	\$500,000	\$125,000	\$125,000	\$250,000	\$500,000	\$125,000
Purchasing	\$200,000	\$400,000	\$800,000	\$200,000	\$200,000	\$400,000	\$800,000	\$200,000

For more information visit [www.equidox.co](http://www.equidox.co). Or contact us at [EquidoxSales@onixnet.com](mailto:EquidoxSales@onixnet.com)!

**Images**

**Headings**

**List**

**Table**

**Link**

**Email Link**





# What are PDF “Tags?”

## TAGS

- Tags are bits of digital code embedded in PDFs
- Tags tell assistive technology how to read the content to the user.
- Tags include images, headings, text, lists, tables and form fields.

## What are “Tags?”

“Tags” are bits of digital code attached to elements of a document, file, or website that convey additional information to assistive technology users (and also to other programs such as artificial intelligence or adjunct applications). These digital “tags” may contain a small amount of information such as a label that tells the user “this element is a clickable button” or a lot of information such as detailed alternative text to describe a complex diagram. Most often they are to identify the element and used to denote what the content is intended to do.



# What are PDF “Tags?”

## What kinds of “tags” are there?

A tagged PDF contains many different types of tags, but those most commonly used are text, images or figures (alt-text is added to the image tags), and headings. There are also more complex sets of tags such as those contained in tables, lists, and form fields.

## How do tags work?

For the most part, tags tell the assistive technology (AT) user what is on the page. They communicate both structure and relationships. Some tags, like headings and links, allow the assistive technology user to navigate the document. A person using assistive technology uses heading tags to jump through the PDF. Additionally, with a correctly tagged PDF, assistive technology users will be told that a list contains, for example, 10 items and that there are 3 child list items under item #4. A correctly tagged PDF will allow AT users to access a table and understand that it contains 4 columns and 3 rows and which cells correspond to each row and column.



# What are PDF “Tags?”

How do assistive technology users make use of tags?

Tags communicate structure and relationships. Assistive technology (AT) tools can be set to navigate a document in a few ways. One is simply to read through every piece of content on the page. But this can be time-consuming if you are looking for a specific piece of information (such as your “amount due” on a billing statement, or the terms and conditions on a software license agreement, or trying to read a calendar that would read “Monday Tuesday Wednesday Thursday Friday Saturday Sunday 9 open, open open open meeting 1 meeting” instead of using proper table structure) Assistive technology has settings that allow the user to read only the headings or only the links on a page. This equates to a sighted person skimming down the bolded headings to skip to the information they need.



# PDF Remediation Walkthrough

## How to Remediate

There are as many different ways to make a PDF accessible as there are different ways to create a document. This walkthrough is intended as a PDF remediation general guide. It is not required that these steps be followed in this specific order.

Whether your document is created in MSWord, Google Sheets, InDesign, or other programs, you should include accessibility features such as alt text, headings, and descriptive links. But once that document is “saved as PDF” (never, ever use “print to PDF”), you will still need to review the document and make sure all the necessary digital tags are applied and functional. For this, you need remediation software.

Following will be a description of each element that requires tagging, best practices for doing so, and a quick summary of how Equidox software handles it.





## Headings

- Headings are used to navigate documents
- There can be only one heading level 1
- Headings are an outline

## Headings

One of the most useful items for navigating PDF documents (or any document) are headings. Headings help the reader find the information they need in a document, quickly and easily. Users of assistive technology can set their screen readers or connected Braille displays to search through headings, just as sighted people skim headings to find content.



In order for people using assistive technology to be able to use headings within your PDF documents, headings must be indicated by actual “heading” formatting and a heading tag for PDFs. Formatting text in bold, italics or with underlining or a different font will not indicate to assistive technology users that the element is a heading, as they cannot see that formatting.



There can be only one

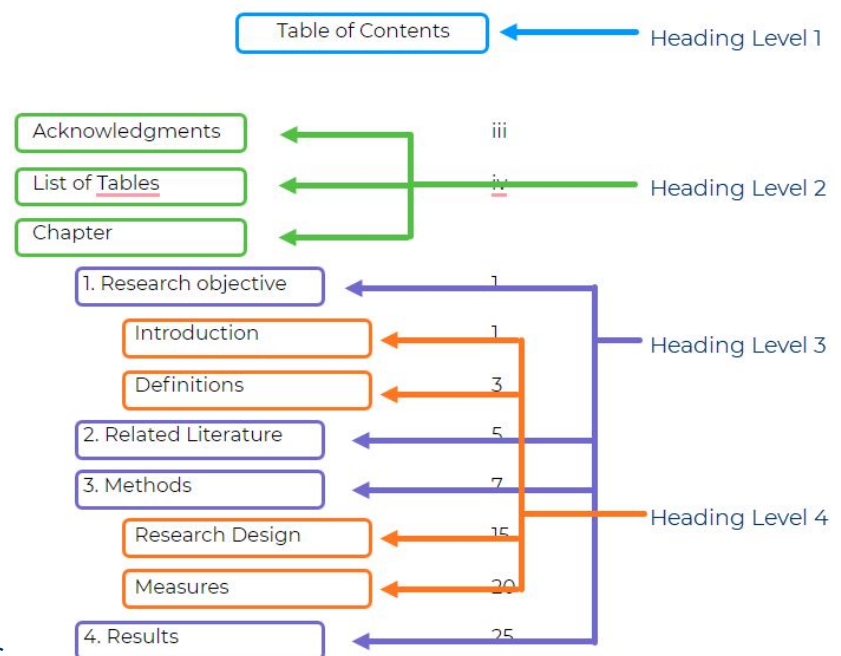
There should only ever be ONE heading level 1 in any document. Having multiple headings level 1 will cause your document to fail compliance testing. Do not set a heading as a “title” if it’s available. Assistive technology doesn’t recognize “title” as a heading and using “title” can make your document headings inaccessible. MSWord, for example, sets the “title” as a heading level 4 when saved as PDF.

Headings are an outline

Heading structure should be hierarchical and look like an outline. You should not skip any heading levels (there should not be headings level 4 without any headings level 3). Headings are not going to be numbered consecutively like a list, but are nested according to the level of information being provided.

Observe how headings used in a Table of Contents have multiple levels, and how they are set correctly in this example:

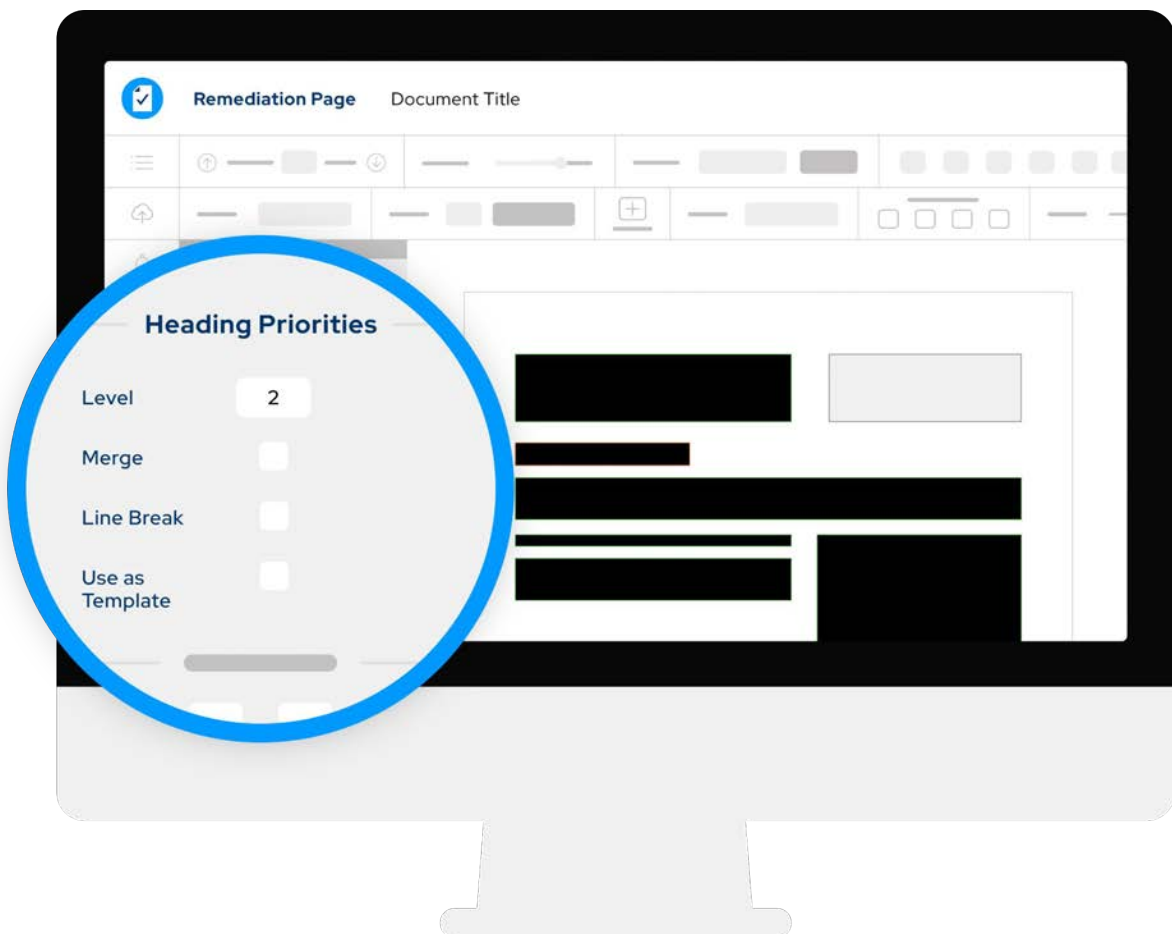
There is a single Heading level 1. Headings level 2 are next, across the page. Headings level 3, and 4 are nested under one another, as shown.





## Headings using Equidox Software

If you are using Equidox PDF Remediation software to remediate your PDF documents, setting headings could not be simpler. Select the zone you wish to tag as a heading and choose the heading level by pressing the number of your keyboard for the correct level. So, to set heading level 1 in your document, you simply select the title and press the “1” key.





# Text and Reading Order

## Text and Reading Order

- Set the correct language attribute
- Reading order must be set and checked manually

## Language matters

The first thing you should check when remediating a document is that the language attributes are set correctly. Someone who is expecting English shouldn't get their information relayed to them in Swedish.

## Logical reading order

One of the biggest problems in remediating documents for assistive technology users is setting the reading order in PDFs. All elements in a PDF document must be correctly tagged, in the correct order, so that assistive technology like screen readers and connected Braille displays can read the document in a logical order. The last and most important step in remediation is to set the reading order in PDFs.

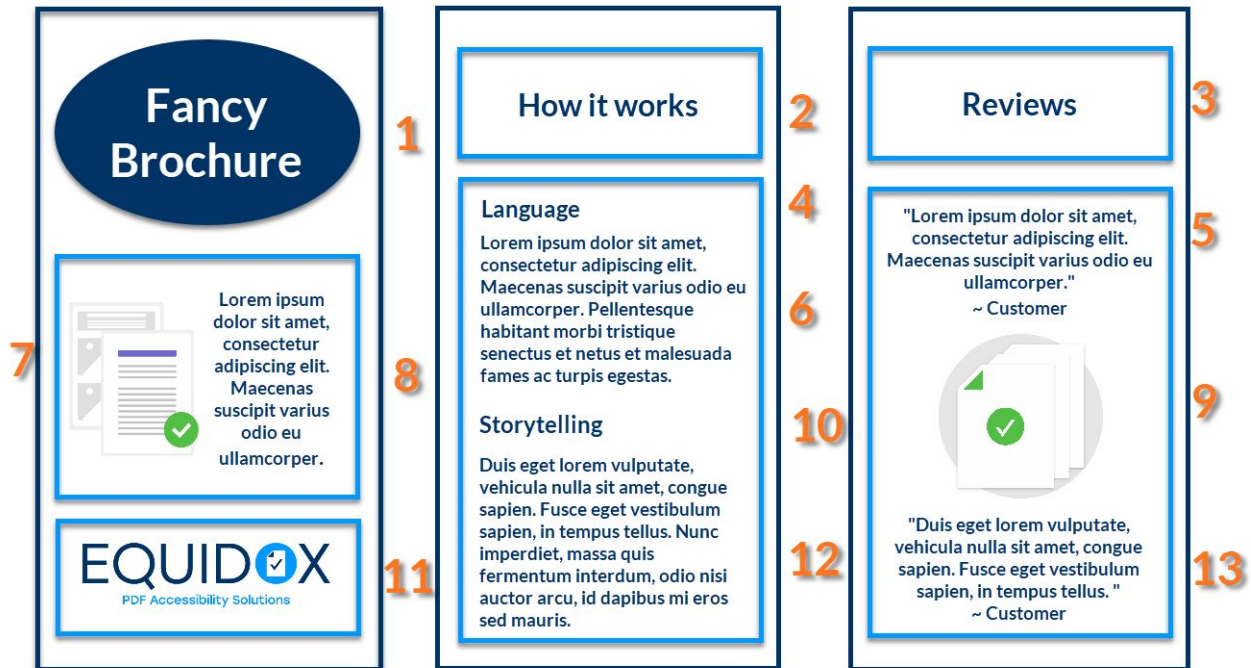
## Top-to-bottom and left-to-right are not always correct

The default reading order for a PDF document is top to bottom, left to right. If a document is designed with multiple columns of text (like a magazine page or brochure), assistive technology can mistakenly read the text across the page without following the correct flow of information, as shown in this sample brochure below.





# Text and Reading Order



The brochure must have all its elements “tagged” with the correct reading order so that the content will be read in the order intended, as shown in this corrected version below.





# Text and Reading Order

## Make reading order your last step

Often when editing, a content creator will add something to the document later in the editing process. When this happens, sometimes the digital reading order (the sequence in which the computer interprets the elements should be read) is not the same as the visual reading order. So it is important to check reading order as the very last step, even if it visibly appears that all is correct.

## Beware of “Save to PDF”

Even content created with the correct reading order in non-PDF formats can have that reading order disrupted if “saved to PDF.” Use assistive technology to check that the reading order has been preserved. Never ever use “Print to PDF.” It will result in a completely inaccessible document that is simply an image with no text available for assistive technology.

## Don’t rely on checkers

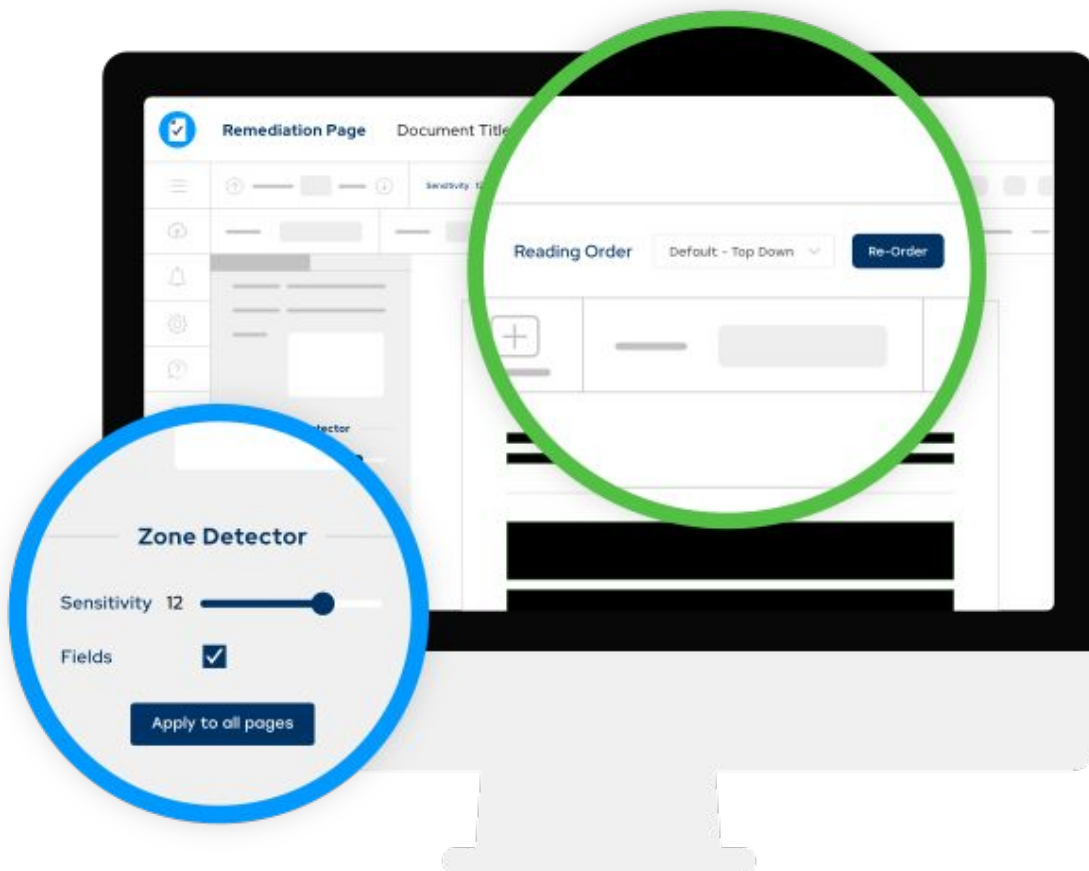
A document can technically pass an accessibility checker but be completely unusable by assistive technology if the reading order is not accurate. Accessibility checkers can tell you if elements are tagged, or if headings and lists are nested correctly, but they cannot tell you whether the reading order is accurate for any given document. That requires human intervention.



# Text and Reading Order

## One-click Reading Order with Equidox

If you are using Equidox to remediate PDFs, setting the reading order can be done in a single click, whether the order is top-down or multiple columns. Additionally, you can insert an item into the reading order by using decimal places without having to reorder every element on the page.





## Image Alt Text

- Images need a text alternative description to be accessible for assistive technology users
- Alt-text should be specific and useful
- Not every image should be described. Some are merely decorative.

## What is alt-text?

Alt text is a text alternative to the image depicted. Without alt-text assistive technology like screen readers and connected Braille displays will simply read “image” or “graphic.” Each image description should give the information intended to be conveyed within that document. That is the important bit: when providing alt text, you must ask yourself “What is the image adding to this document?”

In this partial image of a document, you can see the Equidox logo in the upper right corner. But how should it be described for assistive technology users?

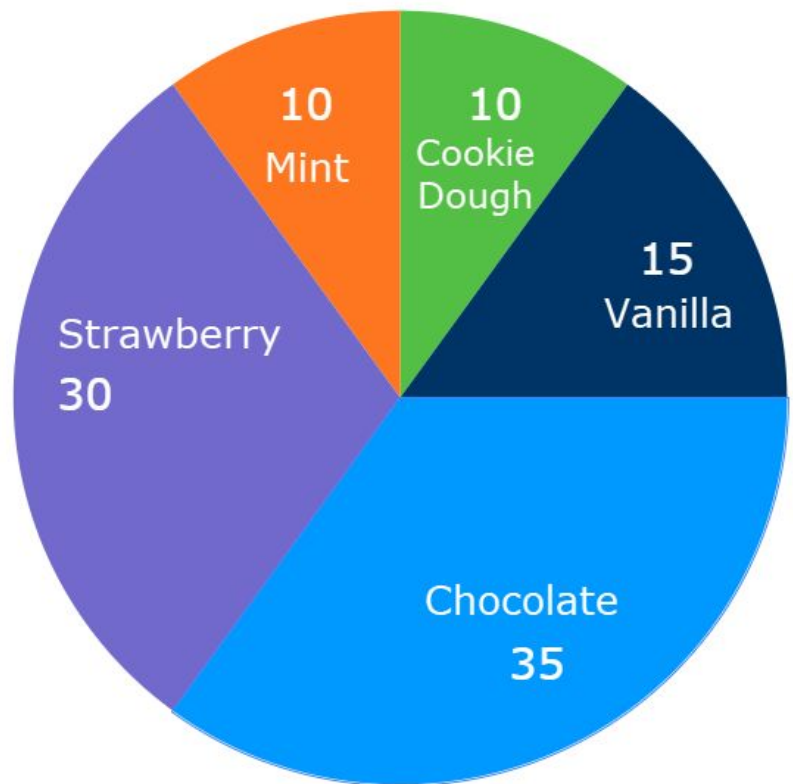




What information should the logo provide? Should the “Circle with a document and a checkmark” be described in the Equidox icon above? All the words? What needs to be included? In truth, all an assistive technology user needs to know for this particular image in this particular document is that the image is “Equidox icon.” That conveys the information intended by the icon or logo’s inclusion in the document.

However, this next image is a pie chart. Simply using the alt-text “pie chart” doesn’t convey the information being shared by this image. It will require a description of the division of data, and what that data represents.

You must provide the data points and the value for each section of this pie chart. So, your alt text would read, “Pie chart of ice cream flavor preference. Chocolate 35, Strawberry 30, Vanilla 15, Cookie Dough 10, Mint 10.”





## Not all that glitters is gold

Determining how much information to provide for alt-text for images depends on what information the image is providing in addition to the textual content.

Ignore (or tag as “artifact”) any decorative items that provide no information or no value added to the text content. For example, this menu to the right has a large decorative scroll at the top, and second one below the word “Menu.” While they are aesthetically pleasing, they add no information to the document and can be “artifacted” so that assistive technology ignores them.

## Isn't there an app for that?

There is now some artificial intelligence (AI) that can recognize and assign alt text for images. Some of the AI for text is fairly accurate. However, the recognition of objects and people in images is still very inaccurate, and rarely conveys the context for which the image is relevant to the rest of the document.. It is still necessary for a human to assign alt text for most images.

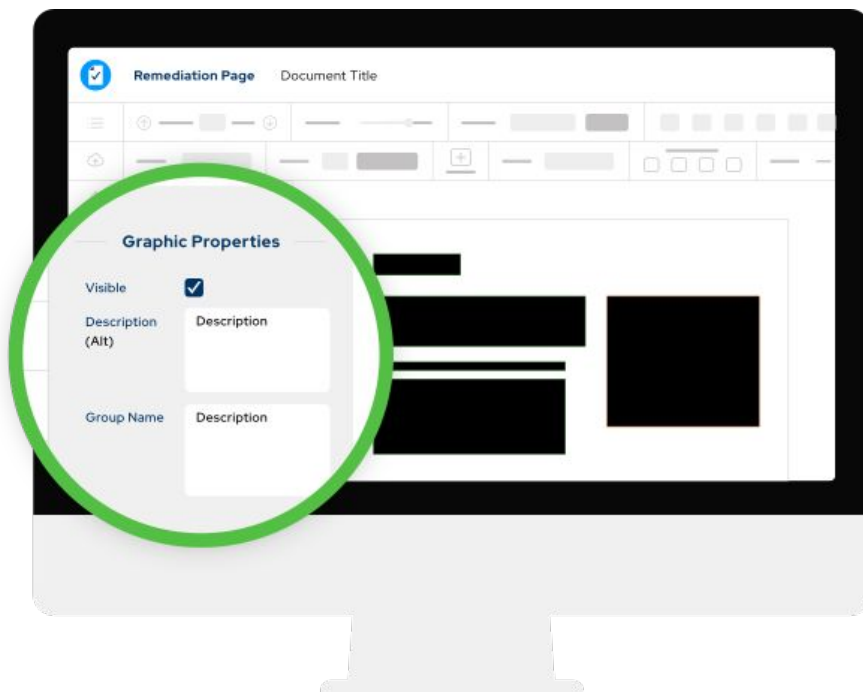






## Equidox makes alt-text easy

If you are using Equidox to set alt text for images, you can do so quickly and easily on each page, or you can add alt-text for every single image in one place from the images tab. The images tab provides a thumbnail list of all images in your document and a field to provide alt text. This is a great time-saver, particularly if it's being provided by someone other than the remediator.



For more information about adding alt text to complex images such as charts, graphs, and infographics, check out this blog article:

[Beyond Basic Alt Text](#)



## Lists

- All elements of the list need to be tagged
- This includes the parent list, the bullet points or numbers, and the list items
- Nested lists are tagged as part of the parent list

## Lists require relationships to be defined

Lists are one of the more complex features of digital documents. A person using assistive technology won't know that items are part of a list without correct list tags. They also can't tell where the items fall in the list order (an issue if the list is very long), or if they are nested.

### What you see isn't what is heard

Visually, a list appears to have delimiters (bullets or numbers/letters) and items as part of its whole. Without correct list tags, this example list pictured is read as "Fruit bananas apples green red pears vegetables meat."

- Fruit
  - Bananas
  - Apples
    - Green
    - Red
  - Pears
- Vegetables
- Meat

Without accurate tags there is no way to know that green and red are a subset (or "child" items) of apples and that bananas, apples, and pears are a "child items" of the list item fruit.





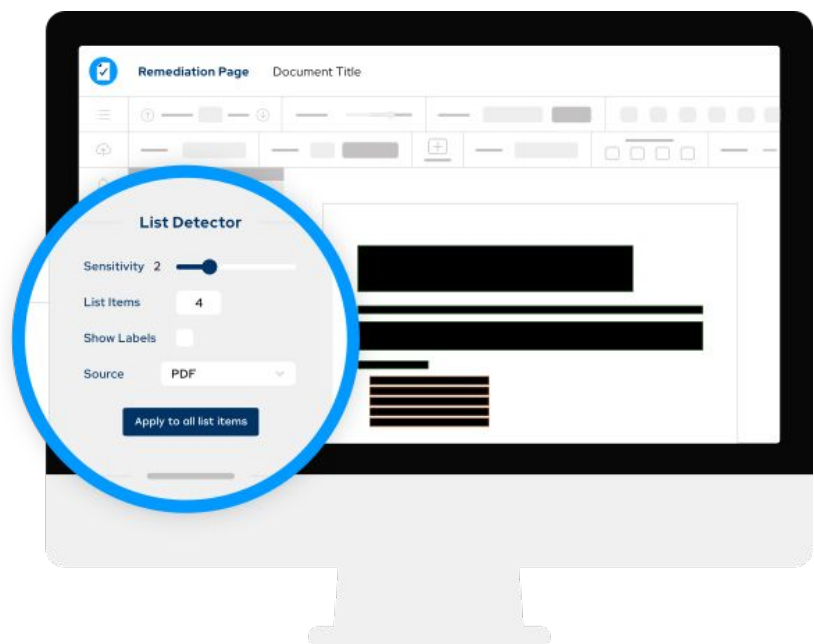
Correctly tagged lists define the list itself, its delimiters, the items within the list, and any nested (or child) items and how they related to their “parent” items. Additionally, the delimiters must be defined as bullets, numbers, letters, roman numerals, etc. and correctly nested and ordered.

Assistive technology provides this necessary information to the user via the tags associated with each list element. Further, it explains whether the list is ordered or not, the number of items, and how the list items are related. It will read a list as “list containing 4 items...” List item one “Fruit...”

## Auto-detect lists with Equidox in 2 Steps!

If you are using Equidox to remediate PDFs, you can auto-detect lists and list items.

Equidox uses a proprietary artificial intelligence to tag list items and delimiters automatically, usually with a single click. No need to separately tag each element of the list.





## Tables

- Tables need row and column headers tagged
- Indicate any merged cells
- Avoid blank cells
- Include a table summary listing multiple headers or merged cells.

Untagged tables are a stream of incomprehensible data

Tables are one of the most complex elements found in any PDF.

Properly tagging tables allows assistive technology user to understand the relationship between the rows, columns, and cells. Without this, the content will be presented as a stream of numbers and words with no indicating of how they fit together.

### Row and Column Headers are a Must

Row and column headings, particularly if there are more than one in a given table, must be identified so that users can understand what the cell data represents.



## Include a table summary

Table summaries provide the reader with information about how the table is organized. Spanned (merged) rows or columns and multiple headings within the table should be pointed out, as well as any blank cells or other oddities.

## Beware the blanks

Blank spaces in a table can be confusing. Assistive technology users can misunderstand the table or assume the table is faulty if they hear “blank” “blank” “blank” too many times when reading through the table. Correct this by inserting “intentionally blank” or “no data” in the cell, and mention it in the table summary. Example: “Table with blank cells in rows 3, 4, and 5.”

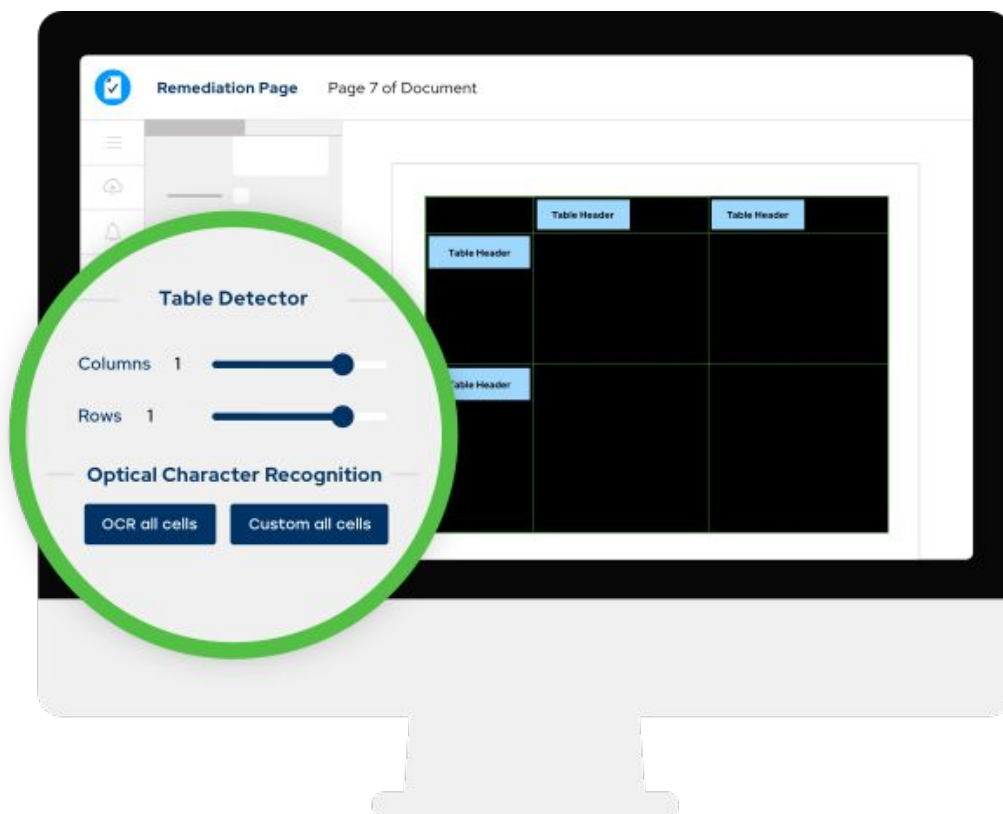
**Visitors by Day**

Week One							
Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Morning	215		255		195	298	305
Afternoon	220	193	253		300	280	274
Evening	227		230		199	301	269



## Equidox uses AI to tag tables

If you are using Equidox to remediate PDFs, the Equidox Table Editor uses artificial intelligence (AI) to detect table elements. Equidox also provides a table preview from the table editor so you can check your work. Tagging tables can be done in a fraction of the time it takes with other tools.





## Links

- Use descriptive links, not URLs or “click here”
- Make sure links work and go where they say
- Make sure buttons and the amount of text are large enough to be usable, especially on mobile

Users need to know the destination

Links appear in nearly every online document. It’s important to tag links properly for assistive technology users, so they know where they are going.

## Use Descriptive Text

When including a link in your content in a digital document, use descriptive text. For example, the link should say “Equidox Software,” rather than, “click here.” If the URL assigned is not descriptive, the reader will have no idea where they are being taken if they click the link. Seeing a link that reads “[https://drive.google.com/open?id=1-nJPFUYXE1NDFs-UGe3U\\_4MXv93-X\\_9-HWAIYGKDiQYU](https://drive.google.com/open?id=1-nJPFUYXE1NDFs-UGe3U_4MXv93-X_9-HWAIYGKDiQYU)” tells the user nothing about where the link is going, whether they are an assistive technology user or not. Additionally, you should ensure that the link matches the description provided. “Equidox software” should not take you to the main Equidox page, but rather directly to the software page.



## Size does matter

Your links should not be attached to tiny objects or only a few letters. Be sure the area that is clickable is large enough for someone with mobility issues, hand tremors, or low vision to perceive and successfully click on both desktop and mobile.

## Keep it simple

It is helpful to define links visually with a blue font and an underline. This is an expected format and helps users quickly find and use links in large areas of content. The underline defines links for those who are colorblind.

### Auto-detect links with Equidox

If you are using Equidox to remediate PDFs, links will often be auto-detected and the URL assigned. If not, simply set the zone type to Link and type in the URL.

For Tables of Contents (TOC), select the table of contents and choose the TOC zone type. Use the TOC Detector to set the number of items. Then select each TOC item and type in the page to which it should be linked.



# Validation of Remediated PDFs

## Checking your work... how to Validate?

Documents can be extremely complex and may have creative formatting and element placement. Remediating tag structure is a big component of remediation, but it's only half the battle. The information also has to make sense. It's not enough that the elements are correctly tagged. Once remediation is completed, validate the content to ensure that all errors have been corrected and that appropriate contextual information is provided. That process should include both a checker to catch technical problems like missing tags and a screen reader to identify context issues.

## Context Matters

While acronyms are helpful to condense lengthy terms and make them more memorable, they can cause confusion. Writing out the Division of Emergency Response Plan is probably going to provide more information than its acronym, "DERP."

A second example would be discerning the difference between Accessibilities and AcCeSSIBiLiTiEs. A screen reader will have difficulty with these two completely different collections of letters. The first of course is a topic near and dear to the user's hearts, the second is a complicated chemical compound:

Ac – Actinium	I Iodine	Ti Titanium
Ce Cerium	Bi Bismuth	Es Einsteinium
S Sulfur	Li Lithium	



# Validation of Remediated PDFs

## The Difference between Compliant and Usable

Just because the document is “compliant” and will pass an accessibility checker does not mean the document is usable for someone using a screen reader. Validation goes beyond compliance to include usability. Many of the guidelines in accessibility standards are “how-to” instructions. Technical directions about assigning headings, alt text, structure for lists and tables are helpful, but not the whole solution. Automatic accessibility checkers have some serious limitations. For example, a telephone number such as 555-123-4567 may be read by a screen reader as “five billion, five hundred and fifty-one million, two hundred and thirty-four thousand, five hundred and sixty-seven.”

Another example we see fairly often is the use of graphics, icons or symbols to convey information, such as these commonly used travel icons.



These may appear in tables or within text in a document and would need a clear explanation beyond “icon of a coffee cup.”

The amount of information that these symbols are intended to convey can vary dramatically.

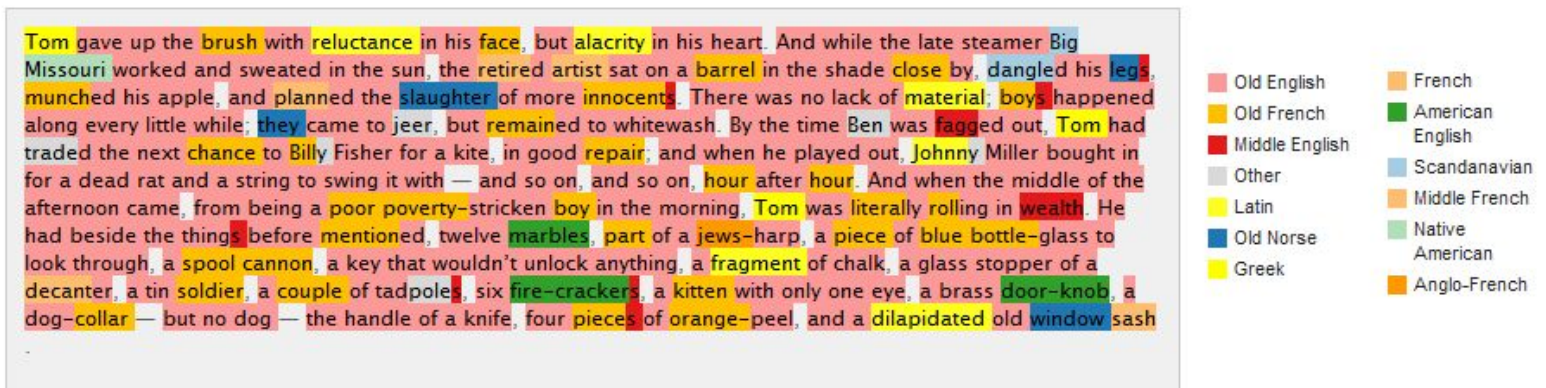




# Validation of Remediated PDFs

Explaining those symbols in isolation is easy: “coffee icon,” “icon with car and key.” In the context though, a better explanation would be to clearly explain them as “serves coffee,” and “locksmith service.” But the longer or more complex the information a symbol represents, or the larger the quantity, the more cumbersome the experience becomes; they are after all intended as a shorthand. In some cases, the best course of action for usability is to create links directly to the key.

Additionally, many documents offer mechanics such as color-coding to identify categories, such as this example:



There are various ways to convey this information, and it's important when validating to ensure that it has been conveyed correctly, and in a way that is both understandable and operable.



# Validation of Remediated PDFs


Relying on checkers doesn't guarantee compliance


Even beyond these examples, there are some documents that can pass checkers while being INCREDIBLY broken.

This is a screenshot taken of a file run through the PAC checker, a cursory glance says that it is PDF UA compliant, it even has the large green checkmark.

However, note that there are an awful lot of zeros in the summary of checks. It's pretty alarming that there is apparently zero content in this document.


PAC 3 - PDF Accessibility Checker 3












 **PDF Accessibility Checker 3** Version: 3.0.7.0







Title: **pn-curriculum-pathway-3-laurel-pn-lotation**  
Filename: **WTF.pdf**  
Language: **en-US**      Tags: **100**      Pages: **1**      Size: **134 KB**


Summary Report

 **The PDF/UA requirements checked by PAC are fulfilled.**

Checkpoint	Passed	Warned	Failed
 PDF Syntax	0	0	0
 Fonts	0	0	0
 Content	0	0	0
 Embedded Files	0	0	0
 Natural Language	0	0	0
 Structure Elements	0	0	0
 Structure Tree	0	0	0
 Role Mapping	0	0	0
 Alternate Descriptions	0	0	0
 Metadata	6	0	0
 Document Settings	6	0	0

 Results in Detail       Summary Report as PDF

 Screen Reader Preview       Logical Structure

 Document Statistics



# Validation of Remediated PDFs

Adobe's checker also gives that same document a clean bill of health.

**Accessibility**

Accessibility Checker

Page Thumbnails: Go to specific pages using thumbnail images

- Document
  - Accessibility permission flag - Passed
  - Image-only PDF - Passed
  - Tagged PDF - Passed
  - Logical Reading Order - Passed manually
  - Primary language - Passed
  - Title - Passed
  - Bookmarks - Passed
  - Color contrast - Passed manually
- Page Content
  - Forms
    - Tagged form fields - Passed
    - Field descriptions - Passed
  - Alternate Text
    - Figures alternate text - Passed
    - Nested alternate text - Passed
    - Associated with content - Passed
    - Hides annotation - Passed

**Practical Nursing Program Curriculum Requirements**  
Practical Nurse – Pathway 3 – Modular  
Laurel PN Program Rotation

CATALOG NUMBER	COURSE TITLE	CREDIT
Pre-requisites to the Practical Nursing Program		
117 BIO	Anatomy & Physiology I	4
110 PSY	General Psychology	3
115 AHS	Medical Terminology	3
100 NAA	State Certified Nurse Assistant or take NAA 100-pass certification exam	0-3
101 ENG	Writing I	3
Totals		13-16
First Semester (Spring)		
106 NPN	Nursing Fundamentals	6
108 NPN	Pharmacology	3
125 NPN	Mental Health	3
119 BIO	Anatomy & Physiology II	(4)
Semester Totals		12-16
Second Semester (Summer)		
140 NPN	Nursing Care I	3
201 NPN	Child Bearing Family	3
Semester Totals		6
Third Semester (Fall)		
108 NPN	Nursing Care II	10
210 NPN	Practicum	4
213 NPN	Nursing Trends and Issues	1
105 CIT	Introduction to Computers	3
Semester Totals		18
PROGRAM TOTALS		48-66

\* Computer literacy must be demonstrated either by competency exam or by completing a computer literacy course prior to graduation. CIT 105 will fulfill this requirement.

And why wouldn't it? If we expand the tag tree we can see that it does indeed have tags.

**Tags**

- Tags
  - <Document>
    - <Sect> Title Page
      - <H1>
      - <Table>
        - <L>

**Practical Nursing Program Curriculum Requirements**  
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Semester Totals		12-16
Second Semester (Summer)		
140 NPN	Nursing Care I	3
201 NPN	Child Bearing Family	3
Semester Totals		6
Third Semester (Fall)		
108 NPN	Nursing Care II	10
210 NPN	Practicum	4
213 NPN	Nursing Trends and Issues	1
105 CIT	Introduction to Computers	3
Semester Totals		18
PROGRAM TOTALS		48-66

\* Computer literacy must be demonstrated either by competency exam or by completing a computer literacy course prior to graduation. CIT 105 will fulfill this requirement.



# Validation of Remediated PDFs

NVDA, a commonly used free open source screen reader, says something very different is going on with this document. You can see it lists every cell in the table and NONE of the content. It simply doesn't see it and would not read anything but the cell rows and column headings, as you see in the red box showing the NVDA Speech Viewer pane.

Practical Nursing Program Curriculum Requirements  
Practical Nurse - Pathway 3 - Modular  
Laurel PN Program Rotation

CATALOG NUMBER	COURSE TITLE	CREDIT
Pre-requisites to the Practical Nursing Program		
137 BIO	Anatomy & Physiology I	4
110 PSY	General Psychology	3
113 AHS	Medical Terminology	3
100 NAA	Have Certified Nurse Assistant or take NAA 100 pass certification exam	0-3
101 ENG	Writing I	3
Totals		13-16
First Semester (Spring)		
106 NPN	Nursing Fundamentals	6
108 NPN	Pharmacology	3
125 NPN	Mental Health	3
139 BIO	Anatomy & Physiology II	(4)
Semester Totals		12-16
Second Semester (Summer)		
140 NPN	Nursing Case I	3
201 NPN	Child Bearing Family	3
Semester Totals		6
Third Semester (Fall)		
208 NPN	Nursing Case II	10
210 NPN	Practicum	4
215 NPN	Nursing Trends and Issues	1
105 CTT	Introduction to Computers	3
Semester Totals		18
PROGRAM TOTALS		49-56

\* Computer literacy must be demonstrated either by competency exam or by completing a computer literacy course prior to graduation. CTT 105 will fulfill this requirement.

NVDA Speech Viewer  
heading level 1  
1  
table with 25 rows and 3 columns  
row 1 column 1  
column 2  
column 3  
row 2 column 1 through 3  
row 3 column 1  
column 2  
column 3  
row 4 column 1  
column 2  
column 3  
row 5 column 1  
column 2  
column 3  
row 6 column 1  
column 2  
column 3  
Show Speech viewer on Startup

This document is an extreme case in which the Contents Pane is corrupted, but the pre-existing tag structure remains. So it can pass automated checks while containing no readable information at all for a screen reader user. This is where validation needs to be stepped up. Only by using a screen reader can you ensure this document is accessible.



## Validation with Equidox Software

Equidox software provides a few tools to help with validating your remediated documents to ensure they are accessible. The first is an HTML preview of each page. This preview allows you to visually check headings, links, lists, tables, and reading order. You can check this preview as you remediate, and even run automated accessibility checkers over the HTML page to ensure your elements are accessible.

Additionally, Equidox features Output Warnings that catch machine-definable elements such as missing alt text for images, incorrect heading structure, broken or missing URLs for links, missing tooltips for form fields, missing table summaries, and untagged pages.

Equidox strongly recommends additional validation of all documents using a screen reader after remediation to ensure full usability.





# PDF Remediation Workflow

There are as many ways to remediate a PDF document as there are to build one. This is just one recommended workflow. .

1) Set all headings. There should be only 1 heading level 1

2) Add alt-text and artifact unneeded images

3) Tag lists, setting correct bullets/numbers

4) Tag tables. Include headers, merged cells & table summary

5) Ensure all links have the correct URL

6) Set the reading order on each page

7) Validate your work to be sure it is accessible





## Where do I start?

When you begin to address your inaccessible PDF documents, it can be tough to know where to start, especially when each document is so different. Here are some techniques and workflows for evaluating and prioritizing elements of documents before even beginning remediation.

## First things first

How many pages are there? How complex is the content? If you are a novice remediator, a complex document will take a bit longer and may require some assistance from someone with more experience. Even pros may require a bit more time to complete a complex document. It's useful to have an idea of the timeframe required to complete these documents.



## Formatting and existing tags

Is the design and/or formatting consistent throughout the document? If so, this can mean you are able to learn while remediating what to expect on each page, and your workflow will be faster. Is there an existing tag structure?

If the existing tag structure is usable, that will save some time remediating the entire document.



## OCR and form fields

If your document requires Optical Character Recognition (OCR), this can add some time because you need to check the accuracy of the OCR. If there are form fields, you will need to add tooltips and these should be specific and include necessary formatting (such as MM/DD/YYYY for a date field).

## Images and alt text

Are there images? How many? Are they informative or decorative? Will you need a subject matter expert to help fill in alt text (for example, if the document contains technical diagrams, infographics, or charts and graphs)?

## Collaboration ideas – how to work together

Some tools allow multiple remediators to work on the same document simultaneously. This means that tight deadlines can be met with many hands contributing to the work. Here are a few ways this can work:

### Divide and conquer

Some software remediation tools allow you to divide up pages amongst several remediators, having each person do 100 pages of a 1000 page document, for example. Or each person can be assigned a chapter of a textbook. Or one person can tag all the text on a page and another can set all the headings while the first person works on lists, tables, and other elements.





## Eliminating Repetition

Often documents have similar formatting throughout, and there are software tools that allow a number of elements to be programmatically applied to the entire document.

## Keeping a rhythm and finding your pace

Once you begin remediating a document, especially a large document, you'll start to notice similarities in formatting and structure and develop an understanding of what to expect on each new page.

## Check your work – validating

Some tools allow you to validate by page as you go, others require you to validate the entire document after remediation.

No matter what tool you use, you will still need to validate your remediation manually using a screen reader to ensure your document is accessible AND usable.

## Refining your workflow

As you gain experience remediating, you will develop a process that is most efficient for you and your team. Your remediation workflow will evolve and refine the way in which you approach each document to make it accessible.



# PDF Document Remediation Plan

1) Assign team or individual to oversee the project

2) Remove unnecessary documents

3) Post an accessibility notice

4) Start remediating the most used and visible PDFs

5) Follow with easiest documents

6) Work steadily through the remainder

7) Train content creators to handle future remediation

[Read full blog post](#)

Facts

Remediation

Software

Resources



## 10 Criteria for Choosing a PDF Remediation Solution

- 1) Is it designed for accessibility not just design?
- 2) Automation can be unreliable. Is it accurate?
- 3) Is there a reliable checker?
- 4) Is it easy to learn and use?
- 5) What is the license structure?
- 6) Does it allow collaboration for streamlined workflow?
- 7) What is the cost? Does it provide ROI in man hours?
- 8) Is training included or is it an extra cost?
- 9) Is support included or is it an additional cost?
- 10) What procurement and security options are available?

[Read full blog post](#)



# PDF Remediation Software Comparison

Features	Equidox	Adobe	Commonlook
Smart Zone Detector for text, heading, image, link, and existing tag detection		No	No
One-click reading order (including multi-columns)		No	No
No tag-tree		No	No
AI Table Detector		No	No
AI List Detector one click, including nested lists)		No	No
HTML preview (check for accuracy as you go)		No	No
Image alt text pane for all images		No	Yes
Collaboration and Project Management		No	No
HTML, PDF or ePub2 Output		No	No
Bulk import		N/A	N/A
Free training and free support		No	No

[Facts](#)[Remediation](#)[Software](#)[Resources](#)



## Why Equidox Software?

- Remediate simple pages in seconds!
- Auto-detect elements with Smart Detection Tools
  - Smart Zone Detector
  - Smart List Detector
  - Smart Table Detector
- Set headings and heading levels with a keystroke
- Alt text for images all in one screen
- Easily remediate fillable forms
- Free training and support



Watch Videos



## Equidox expert remediation services

Professional, accurate, guaranteed

- **Analysis**  
Scan for structural issues and complex elements
- **Preparation**  
Address issues from analysis
- **Equidox**  
Remediate using Equidox best-in-class software
- **Validation**  
Ensure accessibility and usability with screen readers and automated checkers.
- **Error Resolution**  
Fix any errors
- **Delivery**  
Per clients processes



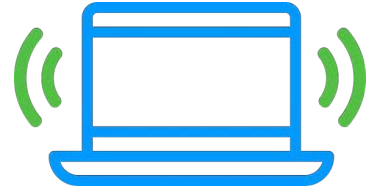


## Additional Resources

[Web Content Accessibility Guidelines](#)



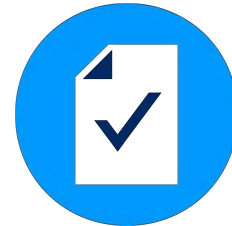
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[Legislation Guide](#)



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