# Siteimprove

## Creating
## Accessible PDFs

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# How to create accessible PDFs

Recently updated accessibility regulations will soon require accessibility compliance for documents your organization posts online. Developing a more inclusive document strategy will become not only a major piece of your digital strategy, but a legal requirement to which you are held accountable. In this guide, we will discuss best practices for creating accessible PDFs and checking existing PDFs for their compliance to accessibility standards.

## Overview

The accessibility level of a document can depend on a variety of factors. Two major questions to ask when evaluating a document for accessibility are:

1. What was the original format of the document?
2. How was the document converted to a PDF?

One of the most critical aspects of accessibility is the way page elements and text are defined in a document. Assistive technologies interpret tags in a document and render content to the user accordingly. A well-tagged document enhances accessibility whereas a poorly tagged document introduces major accessibility problems.

Always remember to check your document templates for accessibility. The following are some of the most important aspects to consider during your check:

## Language

For screen readers and other assistive technologies to correctly read the document, there should be an overall designation of the language in which the document is written. Furthermore, if lines or blocks of text within the document change language, that text should be tagged separately.

## Title

At minimum, documents should include basic information like a title. It is also a good idea to provide the name of the author, a description, and a few relevant keywords.

## Tagging Text

All text in a document should be tagged. Whether it is paragraph text, a heading, a list, or similar it should be labeled as such. This not only makes a visual distinction between various text types, but

also clarifies your site for all users by providing the correct tagging for assistive technologies to use.

## Images

An image can have different purposes depending on how it is used in the document. Many images are purely decorative, which should be conveyed with alternative text. It is important to define such images as ''artifact', described further on. Other images may have some sort of function or convey important information and, therefore, need a different kind of description in the "alt" text.

## Tables

When data tables are used, it is important to tag their structure. At minimum make sure you define which are the column and row headings. Keep your table structure as simple as possible; try not to merge rows and columns as it complicates navigation for assistive technology users.

## Reading Order

Assistive technologies rely on logical reading sequences to present content to users. During a document's creation, it is extremely important to ensure there is a sensible reading order.

## Bookmarks

For many users, the easiest and most accessible way organize a table of contents is to provide bookmarks based on document headings. This gives users the ability to navigate the PDF using bookmarked headings, rather than having to read through the entire document to find what they need.

## Exporting

There are a variety of ways to create PDFs from different editing programs. The document's accessibility can vary greatly depending on the way it is exported, converted, or saved. Later on, we will discuss the proper process for exporting a PDF to increase its accessibility.

## Security Settings

Lock settings on documents can make it more difficult, or ultimately impossible, for assistive technologies to extract content and render it to the user. Make sure your final document is not locked, allowing it to be accessed by screen readers and more. Locking a PDF is not the same as password protecting it.

## Checking the Document

Creating accessible documents is not always as simple as it seems. It's always advised that you perform a final accessibility check on the PDF to make sure there are no issues that need to be resolved.

## Further Resources

There are many credible information sources for more information on PDF accessibility. The International Organization for Standardization offers a standard for creating accessible PDFs, titled ISO 14289-1:2014 (PDF/UA-1)[1]. Additionally, the official international guidelines for creating accessible web content, WCAG 2.0[2], also include many of these. A way to test conformance to accessibility standards, is included in the Matterhorn Protocol[3].

## MS Word

In MS Word, creating accessible documents is largely a matter of using the tool as intended. The layout of features in Word will depend upon which version of MS Office you use, but you'll generally find a version of the features we discuss across most versions of the program.

## Language

In MS Word, you can define the language of your document in the options menu. Additionally, you can change the language of individual sentences if the natural language for part of a document changes. In most cases, you will be able to see the selected document language at the bottom of the window.

## Document Information

Document information like title, author, and keywords can also be added. For instance, in MS Word 2010 this feature is available in 'Document properties,' found in the file menu.

## Tagging Text

Text that is not actively tagged by the author will automatically be tagged as paragraph text. If the text is a heading, make sure you select a level of heading (Heading 1, Heading 2, etc.), rather than just changing font size, color, or format. The most efficient way to tag the various elements of content is by using the "Styles" feature in the "Home" menu of MS Word toolbar. Simply highlight text and select the style needed to tag each section appropriately. After structuring your content, you can then change the font types and colors of these headings by modifying the heading style within the "Styles" menu.

## Tables

When using tables, make sure to define table headings. In MS Word, simply label the top row as column headings. Then, in table properties, use the setting 'Repeat as header row at the top of each page' to tag these table headings, making them recognizable for screen readers and other user agents.

## Images

To make images accessible, you simple must provide the correct alternative text. In 'Format Picture' there is an 'Alt text' tab available. Please note that in versions of MS Word where you have

both the "title" and "description" option, to use the description. Unfortunately, it is not possible to define images as 'artifact' (decorative) in MS Word. To do this, you'll have to use a remediation tool after converting the document to a PDF.

## Columns

If you wish to present content in columns, there is a built-in "Columns" feature most often available directly through the top menu. Avoid using the tab key to move content in a position that looks like columns. This method of creating columns is not only more difficult for you, but also makes the reading order very poor for assistive technologies.

## Reading Order

A document's reading order can vary depending on software version and conversion type. If the document originates in MS Word it will often have a logical structure. However, in some cases, images are prioritized last. This means if an image with alternative text conveys information and its position in the reading order doesn't make sense, it should be moved to the correct position in the sequence. This is also possible through remediation tools.

## Bookmarks

You can create bookmarks in two ways:

1. Ticking a box in the "Options" menu when saving the document as a PDF. This option bookmarks the headings in the document.

2. Using a remediation tool after the document has been converted to a PDF.

## Conversion

When the document is complete and you are ready to turn it into a PDF, there are several options available. Depending on the method, it will create either a tagged PDF or a non-tagged PDF (the latter being less accessible). For instance, if you choose "print to PDF," you are telling the program that the document only needs to go on a piece of paper and that tagging is of no importance. Therefore, tagging is not included, and the file size is smaller. If reducing the file size is your goal, there are other ways to accomplish this without removing accessibility features. To retain tags in

the document and preserve accessibility, use the "save as PDF" or "convert to PDF" features. In later versions of MS Word this is readily available from the file menu. In older versions, there are various plugins to download for this purpose.



## Adobe InDesign

In previous versions of Adobe InDesign, it was difficult to work with accessibility. It provided limited features, most of which didn't work very well. This has changed significantly in recent years, especially in versions 5.5 and later. The newer InDesign versions provide a lot of accessibility features – most of which are well-integrated and intuitive to use. That said, ensuring accessibility in InDesign still requires a bit of extra work. The following will mainly focus on accessibility features available in InDesign 5.5 or later.

## Language

In InDesign, the overall document language can be set by default. The language for individual paragraphs can also be set through the 'Character' panel.

## Document Information

Document information like title, author, and keywords can be added via 'File Info' in the 'Description' tab.

## Tagging Text

When you tag text as a paragraph, heading, etc. it is possible to map the styles of each tag. When you decide on a style, you can select "export tagging" and define the style of each tag. For instance, a style you've named "large header" could be mapped to the H1 tag.

## Lists

When utilizing lists in a PDF, the type of list can

have a significant effect on the accessibility of the document. It's important to understand the difference between ordered and unordered lists and what each indicates to assistive technologies. An ordered list shows sequence and is usually numbered, while an unordered list is typically bullet points and does not indicate any particular order. Using the 'Bulleted and Numbered Lists' feature automatically creates tagged lists (applying bullets or numbers). If you insert special characters, like bullets, manually it will create a visual dot, but not a tagged list item. This method will require you to use a remediation tool after the PDF is created to tag the lists.

## Tables

Tables can be tagged and made accessible in InDesign if the table is in a simple data table. If this is the case, you will have the option of adding table headings using the "Convert Rows to Header" feature.

## Images

There are a few ways to ensure that every image in your PDF is accessible. If an image is purely decorative or it does not convey any important information, the image should be defined as "artifact." If the image does convey important information or links you should include alternative text to describe the image and the meaning it conveys. You define these factors through the "Object" menu. When selecting an image and choosing these options, the tabs for these option becomes available.

## Reading Order

In InDesign, you can define the reading order by dragging content into the "Articles" panel and placing it in the desired sequence. You can also drag and drop images into the desired reading order. Simply, click and drag the image by the small rectangle on the frame. Once you drop the image in its new location, the rectangle will turn into an anchor. Lastly, make sure you select, "Use for Reading Order in Tagged PDF" in the "Articles" panel.

While InDesign includes these capabilities, many prefer to define reading order later, using a remediation tool. Some tools provide the ability

to simply drag and drop the content into a desired order through a panel.

## Bookmarks

The easiest way to insert bookmarks using InDesign is to highlight the headings one by one and add them in the bookmarks panel.

## Conversion

After finalizing the document, the method you use to convert it into a PDF matters for accessibility. In the "Export" menu, choose "Create Tagged PDF" and "Use Structure for Tab Order." This process saves tags in the document and provides accessibility once the PDF is created.

## Checking the Document

There are a variety of tools available to check the accessibility of PDFs and remediate documents if necessary. Without going into detail with specific tools, the following provides a general process for checking and/or remediating PDFs to check accessibility compliance.

First, open the converted PDF and make sure that "Content Copying for Accessibility" is set to "Allowed." You can find this information in the "Security Settings" in the "Document Properties."

Most remediation tools provide the ability to check the reading order of a document. This is a critical check that needs human evaluation. The reading order helps ensure that assistive technologies can render the content in a meaningful way, making this one of the first checks you should complete. The tab order should also be confirmed, as well as the document title and language settings.

Next, tagging should be reviewed, especially headings, lists, tables, and alternative text for images. Depending on the tool you are using, this can be done in a fully automated or semi-automated way. If you created your document in InDesign, remember to check if your role mapping

is done correctly; mapping styles to tags. Some remediation tools provide this information through a menu in a tags panel.

Finally, make sure that the document opens in the desired way (on the first page in the right size). You can then compress the document to reduce its file size.

If you find any of these areas are not defined correctly, they should be fixed in the original document if possible. If this is not possible a remediation tool can be used to fix problems.

Some aspects of accessibility can be checked automatically, while others need to be reviewed manually. Siteimprove's Content Suite includes Accessibility as a component and is one example of an automated tool to check PDF accessibility. There are also several providers of remediation tools. This whitepaper does not intend to recommend any specific tools and should, instead, be used as a guide for creating accessible documents for your organization.

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## Other Things to Consider

The background color and text color should be in sufficient contrast to one another, in order to allow everyone to read text clearly. The "Web Content Accessibility Guidelines 2.0" gives guidance and recommendations for text sizes and compliance levels[4].

Additionally, avoid using references to content and information solely based on location on the page. Some users will receive the content in one long sequence, so instructions to click in a "box on the right" would not be meaningful or helpful to them. Supplement this by also including reference to a heading. For example, you could refer to "the box on the right with the heading Resources."

You should also make sure that documents can be zoomed to enlarge text without it becoming difficult to read. As users zoom in, text should not become pixelated. For this reason, avoid images of text as they don't work well for several user groups, such as those with reading difficulties.

Lastly, avoid using text in images as it can't be read by many types of assisted technologies. Text in an image can be defined as text that cannot be highlighted.

## Additional Help

For both MS Word and InDesign, the software providers have detailed guides on how to work with each program while still ensuring accessibility. There are also software providers that offer plugins for creating accessible content. As you begin checking your PDFs for accessibility, you'll find that there are several options available.
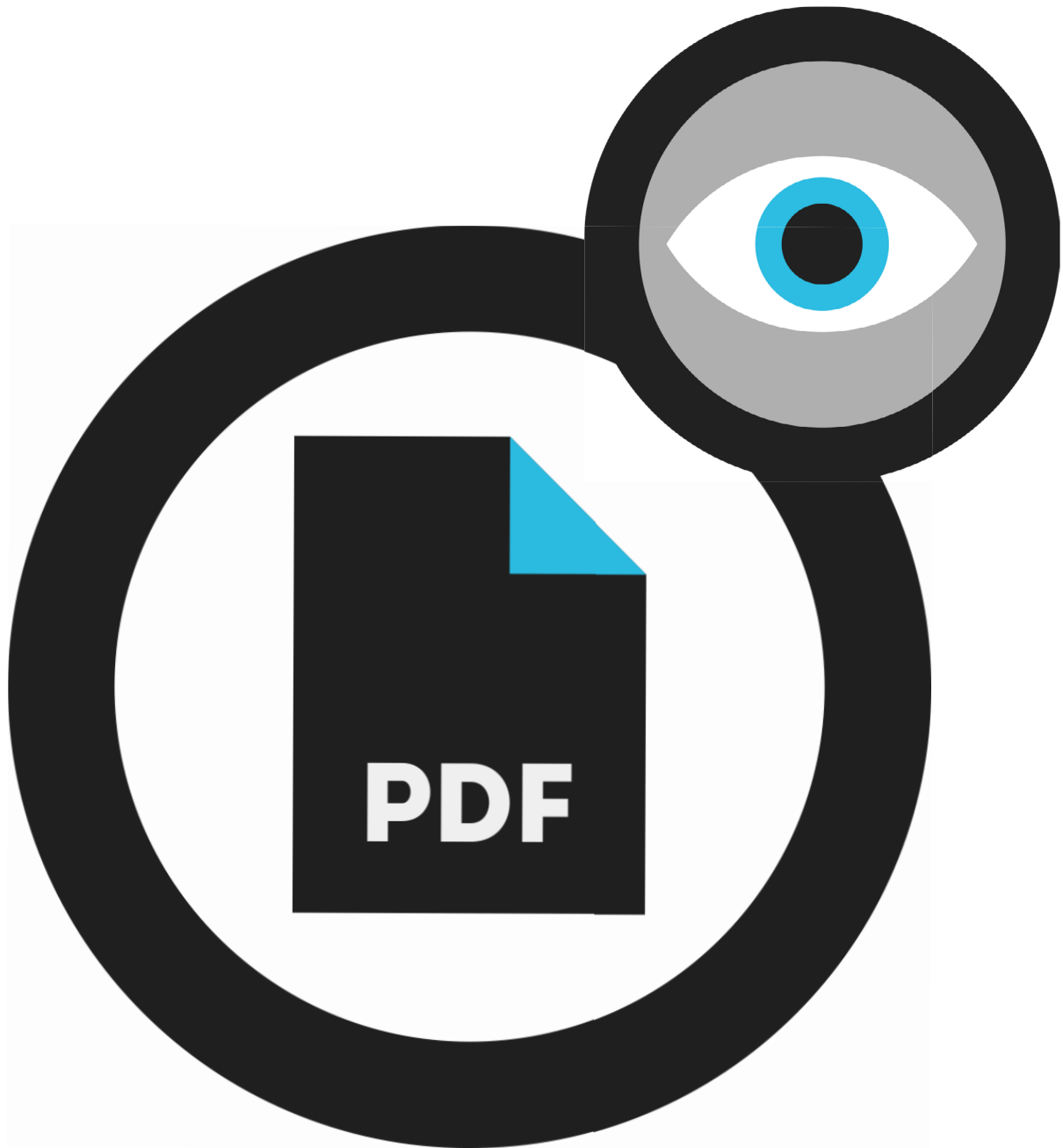
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