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- [Links and Resources.](#)
- [Tutorials.](#)
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[Search Help](#)

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# Accessible PDF Guidelines and Standards.

Contents:

## [Required Software.](#)

### [Designing with Accessibility in mind.](#)

1. [Preparing the Document.](#)
2. [Levels of Accessible PDFs.](#)
3. [Benefits of Tagged PDF.](#)

## [Requirements for Accessible PDF.](#)

1. [Read-order.](#)
2. [Reflow.](#)
3. [Alternate Text for Images.](#)
4. [Descriptions for Tables.](#)
5. [Document Security.](#)

## [Recommended Standards.](#)

1. [Bookmarks.](#)
2. [Document Language.](#)
3. [Accessibility Checker.](#)

## [Steps to an Accessible PDF.](#)

### [PDF Accessibility Resources.](#)

### [Accessibility Information .](#)

See also: [Accessibility and PDF Documents](#) from the WAC.

## Required Software.

### Minimum Required Software.

Acrobat 5.0 with Make Accessible Plug-In installed (this plug-in is automatically installed with Acrobat 5.05 and higher).

## Recommended Software.

1. Acrobat 6.0 or higher with Accessibility Checker.
2. Create document using MS Word 2000 or later.

[Table of Contents.](#)

## Designing with Accessibility in Mind.

**It is strongly recommended that you design for accessibility as much as possible in your documents and select publishing tools that support accessibility features.**

While there are tools that allow you to modify a Tagged (accessible) PDF structure, they are currently time-consuming to use. Fixing a document's Tagged PDF can take anywhere from half an hour to an entire day, depending on the magnitude of accessibility problems that are found. In addition, it is not possible to save and reapply your fixes to a document's Tagged PDF on the next revision of the document. For example, you put in 4 hours of work fixing the Tagged PDF structure of a document. Three months later, you finish an update to that same document. You will have to redo the fixes on the revised document. Your goal is to minimize the amount of post-PDF processing that you need to do on each document.

Adobe Acrobat 5.0 and later has built-in support for documents created in Adobe FrameMaker, Adobe InDesign, and Microsoft Office 2000 and later. Using one of these software titles to create your document and properly preparing the document, as described below, will greatly reduce the time and effort it will take for you to insure full accessibility of the PDF version of your document. In particular, Microsoft Word 2000+ offers advanced integration with Adobe Acrobat 5.0+. *Using unsupported word processing programs, like WordPerfect, Lotus 1-2-3, and others may increase the time you spend to add accessibility features after conversion by many, many hours – estimated at as few as 5 hours for simple documents to as many as 30 or more hours for complex documents.*

[Table of Contents.](#)

## Preparing the Document.

Accessibility can be a relatively easy, low-effort addition to the documentation production process. Yet, for PDF, this can only be true provided that you consider accessibility during the document design phase. Much of the work in creating an accessible PDF document happens in the creation of the document itself, not in the conversion to PDF.

Users who intend to publish a document in PDF should prepare for conversion by:

1. **Adding formal structure to electronic documents** — selecting paragraph styles rather than formatting text with tabs, spaces, and carriage returns, for example.
2. **Using StyleSheets to identify hierarchy and read-order of the document** (i.e. use Header1, Header2, and Header3 instead of adjusting the font sizes individually.). Use Acrobat's Tags palette or save the file as "Text (Accessible)" to check the reading order.
3. **Including alternative text for all images.** You should seriously evaluate the information that a visual is conveying. Is the information already present in the text? Is the visual simply providing color and images that are not essential to the message conveyed by the document? Images used purely for design or decoration do not need to be tagged. For images conveying information, the alternate text that you tie to a visual should not repeat the caption.
4. **Creating columns using built-in tools (not tabs or spaces).** If you intend on using a multi-columned layout, make sure that your authoring software has built-in tools to support this and that the content converts accurately to Tagged PDF. Adobe offers known support for Framemaker, InDesign, and Microsoft Office (2000 and greater). If you are using a different design software, convert to PDF and complete accessibility checks to insure accessibility of column-layout.
5. **Creating tables using built-in tools.** For example, instead of creating a table by using tabs to space out your rows, use either Word's Table > Insert Table or Table > Draw Table menu items to create a proper table. Do not "nest" data tables by putting one table inside another. Use a distinctive cell for each data entry.
6. **Adding descriptive text for data tables.**
  - o Best practice: adding descriptive text using table markup. Identify column and row headers and include descriptive summaries.
  - o Alternate practice: add descriptive text within the body of the text either immediately above or below the table.
7. **Properly inserting headers and footers.** Place header and footer information (e.g., page numbers, notes, citations) in header and footer windows/areas rather than manually spacing to the top or bottom of the page.
8. **Performing OCR**, optical character recognition, on all scanned text included in the document, so that is selectable, sizable, and searchable.
9. **Including a Table of Contents** or other document guide with in-document links (bookmarks or anchors) that jump to specific sections of the text.

[Table of Contents.](#)

## Accessibility Levels for PDF Documents.

Before considering how to prepare or retrofit a PDF document for accessibility, you must understand the issues within a non- or semi-accessible PDF document.

## Three levels of PDF Accessibility.

1. **Not Structured:** Document is completely inaccessible. Screen-readers not able to read the text: no tags, text is not selectable or sizable, not able to reflow the page, and images not identified through ALT-text.
2. **Structured:** Document is somewhat accessible (best for documents without complex structure such as columns, data tables, footers, and side bars). Document has no tags, not able to reflow, images have no ALT-text, table column and row headers aren't defined, and screen-readers may read text out-of-order, skip or incorrectly interpret sections of text, or read tables across rather than by cell.
3. **Tagged:** Document is fully accessible to software that supports PDF interpolation (Jaws, Window Eyes, Hal). Document tags use many elements of the tag structure to identify sections, divisions, captions, tables, images, and other special elements. Tables are fully rendered using tags to identify column and row headers and data content. Read-order is identified throughout document.

[Table of Contents.](#)

## Benefits of Tagged PDF.

Creating a tagged PDF document will resolve a majority of the accessibility issues with PDFs, and, for complex documents containing columns and extensive data tables, may offer the only method for meeting accessibility standards. Tagged PDF represents various components of a document, such as chapters, heading styles, blocks of text, tables, graphics, and so on, as tag elements.

The tag structure is similar to markup languages such as HTML and XML. A document's structure is represented as a hierarchy of tag elements. The order in the hierarchy represents the reading order of the document. Since the content is represented with tag elements, other applications can extract the information and reuse it for other purposes. Tagged PDF offers the following benefits:

- You can associate additional information with a particular tag element, such as a graphic, by filling in its alternate text property.
- Other applications can automatically reflow text and associated graphics to fit a page of a different size than was assumed for the original layout.
- The document's content can be converted to other common file formats (such as RTF, HTML, and XML) while preserving the structure and basic style information.
- Provides usability enhancements, including enhanced keyboard shortcuts, support for high-contrast viewing, and the ability to zoom in and reflow text on the screen.
- Supports screen readers: Provides direct support for screen readers via the Microsoft Active Accessibility (MSAA) application programming interface (API) for Windows.® MSAA enables Acrobat 5.0 to integrate with assistive technology products including the newest versions of screen readers from vendors such as

Freedom Scientific (<http://www.freedomscientific.com>), GWMicro (<http://www.gwmicro.com>), and Dolphin Oceanic (<http://www.dolphinoceanic.com>).

[Table of Contents.](#)

## Requirements for Accessible PDF.

The following is a summary of the necessary elements for an accessible PDF document. Included are suggested workarounds for structured and tagged PDFs (see "[Three Levels of PDF Accessibility](#)"), as well as methods for checking the accessibility of your existing PDF documents using Adobe Acrobat Reader 6.0.

**A fully accessible PDF will address or provide workarounds for these issues:**

### Read-order.

Encoding the proper, or logical, reading order for a document is one of the most fundamental steps towards accessibility. This is especially critical for documents with columnated formats or where there are several distinct text blocks. For example, if a document has been correctly authored using two columns to create a two-column format, the screen reader knows it should read all the way down the first column and then proceed to the second column. On the other hand, if the writer used tabs to imitate the look of two-column text, the screen reader would not recognize the layout as two-column. Instead, it would simply read horizontally, going from the first line in the first column and then tabbing over to the first line in the second column. To insure that your graphics retain their proper reading order, you must also make sure that the graphic has been inserted inline with the text.

**Structured PDF** – text is presented in single column only.

**Tagged PDF** – Header-levels convert to tags and tag order indicates read-order.

### User Checks for Read Order:

1. Use the "Select text" tool to highlight the document content. Does the cursor jump around at all? Does the text highlight in the wrong order? The order it highlights is the order the screen reader will read the document.
2. From the FILE menu, choose "Save As Text." Open the saved text file in your text viewer. This is how a screen reader will read this document.

[Table of Contents.](#)

### Reflow.

Ability to reformat, or reflow, document content. Magnifying the font size is not a viable solution since the viewer must scroll widely in all directions to cover the document. Instead, an application should reflow the magnified text into the available screen space such that the text reformats itself to conform to that space. Text reflow is also used, for example, to reformat a document for display on a Palm Pilot, although that is not a primary concern for accessibility. Text reflow is a good example of a feature that benefits users who do not have disabilities.

**Structured PDF and Tagged PDF** – use only TrueType fonts and all scanned or imaged text has been converted via “OCR”, so it is selectable and sizable.

### **User Check for Reflow:**

Zoom or enlarge the document view to 300% or more. From the VIEW menu, choose REFLOW. Does the text rearrange to fit within the available screen window? If you still have to scroll left-right or if the text appears distorted, the document does not reflow.

[Table of Contents.](#)

### **Alternate text for images.**

Include alternative, descriptive, text for all images. For example, in Acrobat, you can use the Tags palette to add a description of an image. Then, when a screen reader encounters that image in the document, it will read the alternate text description so the user can understand what the image is about.

You should seriously evaluate the information that a visual is conveying. Is the information already present in the text? Is the visual simply providing color and images that are not essential to the message conveyed by the document? The alternate text that you tie to a visual should not repeat the caption.

**Structured PDF** – include descriptions of all images in the body of the text. Example: “Image 5.1 depicts a young boy on a swing.”

**Tagged PDF** – use originating software to add “ALT tags” to images; when converted to PDF, images maintain “tags.” This allows for more detailed description than might be used in the body text.

### **User check for ALT-text for images:**

Since only a screen reader can detect ALT tags, you need to either examine the “TAGS” screen for the document, or, if you are unsure if ALT tags exist for the document, add captions within the body of the text (preferably before the image) that describe the images.

[Table of Contents.](#)

## **Alternate descriptions for data tables.**

add descriptive text for data tables. Do not “nest” data tables by putting one table inside another. Use a distinctive cell for each data entry.

**Structured PDF** – add descriptive text [caption] within the body of the text either immediately above or below the table.

**Tagged PDF** – add descriptive text using table markup in the originating software; identify column and row headers and include descriptive summaries.

### **User checks for accessible data tables:**

A screen reader is usually required to test for the accessibility of tables. If you are unsure of how the table was created, add a description in the body of the text (preferably before the table) that explains the information conveyed in the table. If this is not possible, you may need to recheck/recreate the document in it's originating software. You may also check for accessibility by viewing the document tags in a full copy of Acrobat (VIEW --> NAVIGATION TABS --> TAGS).

[Table of Contents.](#)

## **Disable document security settings.**

A document's security settings will make it inaccessible to screen readers if it's an Acrobat 4.0-compatible document and copying text and graphics is prohibited, or if it's an Acrobat 5.0-compatible document and accessibility is prohibited. If you must protect the content of the document, offer it in a password protected site or in alternate format by request.

### **User checks for document security:**

To view the current document security settings, open the FILE menu, choose DOCUMENT PROPERTIES, and then select SECURITY from the left menu.

[Table of Contents.](#)

## **Additional Recommended Standards**

Although not required to make a PDF accessible, the following additions to your PDF will significantly increase the usability of the document for users of assistive technology.

### **Provide document navigation using bookmarks (also called anchors or in-document links):**

Because of the lack of universal support for Adobe products, users of screen readers often have fewer options for moving through a document. Especially in longer documents, like dissertations and research reports, in-document links can facilitate getting to particular portions of the document quickly.

**Minimum standard:** set PDF conversion settings so that each header tag is also converted into a bookmark.

**Best practice** (in addition to the minimum standard):

1. add in-document links to the table of contents and/or document index,

**Note:** For documents created in supported software with correct conversion settings, heading bookmarks will match the entries for table of contents, unless style sheets were not used properly to identify the start of each chapter/section. However, adding in-document links in the form of a table of contents allows the user to jump to various sections of the document without moving between the bookmark and document windows in Adobe Acrobat Reader.

2. add in-document links to all data tables, relevant images, and side-bars or notes,
3. add "return to contents" (or navigation page) link to the footer (end) of each section or page.

[Table of Contents.](#)

## **Specify a document language and any instances of changes from the primary language:**

Although current screen readers are designed to read the document according to one particular language, specifying the language of the document in the structure can benefit future screen reader technologies that may be able to change languages on the fly.

## **Use Adobe's "Accessibility Checker" to identify and repair any unresolved accessibility issues:**

After creating your PDF document, Acrobat provides a tool called the Accessibility Checker to check various aspects of accessibility for a document.

Tip: if you turn on the "comment creation" before running the checker, you can page through the document and note where the Accessibility Checker has flagged problems in the document.

[Table of Contents.](#)

## **Steps to an Accessible PDF.**

## Step One: Before Converting to PDF

Insure that the originating software supports creating "Tagged PDF" or follow the guidelines for creating "Structured PDF" (see "[Three Levels of PDF Accessibility](#)").

Follow the [guidelines for best conversion](#) outlined in this guide:

1. use stylesheets to identify hierarchy and text sections;
2. use authoring software built-in tools to create tables, text boxes, columns, and other elements that might disrupt the expected flow of the text;
3. and insure images and graphics are inserted inline with text and have alternate descriptions.

## Step Two: During Conversion to PDF

1. Disable any security settings for the PDF document.
2. Specify a document language.
3. Choose settings that convert Table of Contents, Index, and Header information to navigational and organizational links within the document.

## Step Three: After Converting to PDF

**Use Adobe's "Accessibility Checker" to identify and repair any unresolved accessibility issues:** After creating your PDF document, Acrobat provides a tool called the Accessibility Checker to check various aspects of accessibility for a document.

Tip: if you turn on the "comment creation" before running the checker, you can page through the document and note where the Accessibility Checker has flagged problems in the document.

[Table of Contents.](#)

## PDF Accessibility Resources.

### PDF and OSU Standards.

As a companion to this guide, the WAC also offers "[Accessibility and PDF Documents](#)" a guide to implementing PDF document distribution in compliance with the [OSU Web Accessibility Policy and Standards](#).

### Training Video Online.

## [The National Center on Accessible Information Technology in Education](#)

[\(AccessIT\)](#) at the University of Washington serves to increase the access of individuals with disabilities to information technology in educational institutions at all academic levels nationwide. The WAC recommends the very helpful [Training Video on PDF Accessibility from AccessIT](#) (requires [Windows Media Player](#)): "PDF Accessibility" a presentation by Terry Thompson, Technology Specialist with AccessIT, offers detailed help with evaluating PDF files for accessibility and creating accessible PDF using MS Word and Adobe Acrobat plug-ins.

## **Resources from Microsoft.**

[Microsoft's Accessibility Web site](#): Read about accessibility in Microsoft products and compatible assistive technology products. Microsoft's Accessibility Web site:

Of particular note in this site:

1. [Microsoft and Section 508](#).
2. [Accessible Documentation for Microsoft Products](#).
3. [Accessibility Tips & Tricks for Microsoft Word 2000](#).

## **Resources from Adobe.**

[Access Adobe](#), a jumping-off point for information on the features and capabilities of Adobe products that enhance electronic document accessibility for people with disabilities such as blindness, low vision, and motor impairments. There are also links to resources that help people with disabilities work more effectively with Adobe software and aid authors in optimizing content for accessibility.

## [Self-paced Tutorials:](#)

Adobe offers a variety of training materials for both students and those who wish to train others in creating accessible PDFs. The online training modules cover:

1. **Creating accessible forms with Adobe PDF Forms Access**  
Learn how to create accessible Adobe PDF Forms using Adobe PDF Forms Access, a component of the Acrobat Capture 3.0 Agent Pack that significantly reduces the time required to turn a fillable Adobe PDF form into an accessible form. Complete the course at your own pace by
2. **Authoring for accessibility and reflow**  
With this series of standalone training courses, you can learn how to create accessible documents using Adobe FrameMaker®, Adobe InDesign®, and Microsoft® Word, with Acrobat. Complete each course at your own pace by

downloading a ZIP file containing instructions and exercises.

## **Movies/Streaming Training Videos (discusses Acrobat 5.0)**

1. [Working with Microsoft Office 2000 Files.](#)
2. [Working with Existing PDF files.](#)
3. [Working with Forms.](#)
4. [Usability Enhancements of Acrobat 5.0.](#)
5. [Working with Screen Readers.](#)

[Table of Contents.](#)

## **Accessibility Information**

The guidelines and standards presented in this document are based on [The Ohio State University Web Accessibility Policy and Standards \(effective June 30, 2004\)](#).

The WAC offers a detailed [guide to the OSU standards](#).

## **Information about Section 508: Standards for Electronic and Information Technology**

### [Guide to the Section 508 Standards for Electronic and Information Technology](#)

from The Access Board, a federal agency committed to accessible design.

[Section 508: The Road to Accessibility](#). The Center for Information Technology Accommodation (CITA), in the U.S. General Services Administration's Office of Government-wide Policy, has been charged with the task of educating Federal employees and building the infrastructure necessary to support Section 508 implementation. Using this web site, Federal employees and the public can access resources for understanding and implementing the requirements of Section 508.

[Table of Contents.](#)

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Portions of this document adapted from "Authoring for Accessibility and Reflow in Microsoft Word and Adobe Acrobat," an Adobe Acrobat tutorial available online at: [http://www.adobe.com/products/acrobat/access\\_info.html](http://www.adobe.com/products/acrobat/access_info.html)