

Creating Accessible PDF Documents with Adobe® InDesign® CS4



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Creating Accessible PDF Documents with Adobe® InDesign® CS4

Introduction

Can you read this document with your eyes closed? For people with visual disabilities, that's a challenge they're faced with everyday. Fortunately, you can use Adobe InDesign CS4 to make an accessible PDF document. You do this by adding "under the hood" features that don't affect the look of your pages, but do allow screen readers and other assistive devices to function properly.

This is important because many governmental agencies now require that all electronic documents be made accessible (often called "Section 508," based on a U.S. Federal law passed in 1998). Similarly, due to other laws and policies, school textbooks and other educational materials must often be made accessible, too.

But even if you aren't required to make your documents accessible, there are good reasons to do so. For example, you can view an accessible document easier on a wide variety of readers, such as mobile devices, because accessible documents can reflow on small screens.

If you already have a document in PDF format, you can add accessibility features in Adobe Acrobat Pro. However, it is far easier to add these features from within InDesign before you make the PDF. More importantly, if you have to edit the document and create a new PDF, you won't have to redo all the work you had done in Acrobat.

In this document we'll take a look at what is required in an accessible PDF document, how to perform those tasks in InDesign, and which follow-up tasks you will want to perform in Acrobat.

Overview of Required Elements

An accessible PDF file should include these elements:

- » Logical reading order. Does the document make sense when it is read aloud by a screen reader, or reflowed for a mobile device? This is handled by careful tagging of each story, heading, and paragraph.
- » Alternate Text Descriptions for Non-Text Elements. Can visually-impaired people or readers that do not display images understand what each picture represents? This is handled by adding "Alt" tags to each image.
- » Tagging Artifacts. Background images, page numbers, and other objects that are not relevant to a screen reader or reflowed text should be tagged as "artifacts."
- » Metadata. While metadata isn't required, it's helpful if your document includes information about itself, such as title, author, keywords, and language.
- » Hyperlinks. Any text that appears to be a hyperlink (such as a website address) should be tagged with an actual link. Similarly, you should add bookmarks to jump quickly to each section in the document.

Note that interactive forms require additional accessibility features. However, forms, which must be built in Adobe Acrobat Pro or LifeCycle Designer, are outside the scope of this document.

Tagging Text

Most word-processing documents are linear—they begin at the top of the page and end at the bottom. However, pages built in InDesign are often non-linear: A magazine article’s headline may be at the bottom of the page, or two or more distinct articles may appear side-by-side on a single page. To make these documents accessible, it is critical that you specify a reading order so that a screen reader or mobile device can interpret the page properly.

To specify reading order, you must tag each story and paragraph with the Tags panel (choose Window > Tags). All tagged text appears listed in the Structure pane (choose View > Structure > Show Structure).

These tagging features are the same as those used for XML import or export. However, you do not need to know much about XML in order to tag a document for accessibility, and even a beginner can quickly learn to tag a document.

Note: If your document is already tagged for XML import or export, it may be ready to create an accessible PDF file. Unfortunately, the XML tags you have used may not match the recommended tag names, so you may need to rename them in the Tags panel before creating the PDF. Alternately, you can use the Role Map feature in Acrobat Professional to rename the tags (see “Working in Acrobat Pro,” later in this document).

Creating Tags

Before you tag your document, you must create named tags in the Tags panel. InDesign can automatically add most of the tags you will need: choose Add Untagged Items from the Structure pane menu (Figure 1). When you choose this, about a dozen tags will be added to the Tags panel, including H1, H2, Story, Figure, and Artifact (Figure 2). You will be using these tags to identify elements in your document.

The Add Untagged Items feature also tags all your document’s text and graphic frames

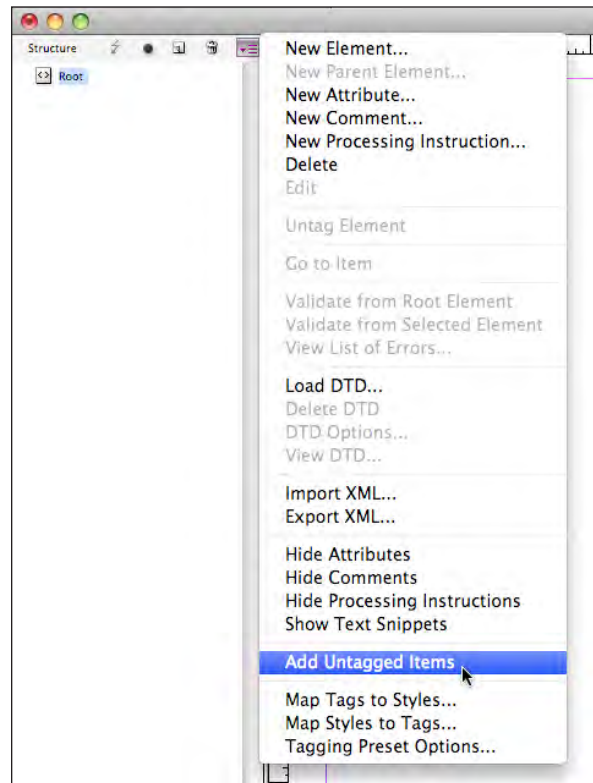


Figure 1. Choosing Add Untagged Items from the Structure pane menu.

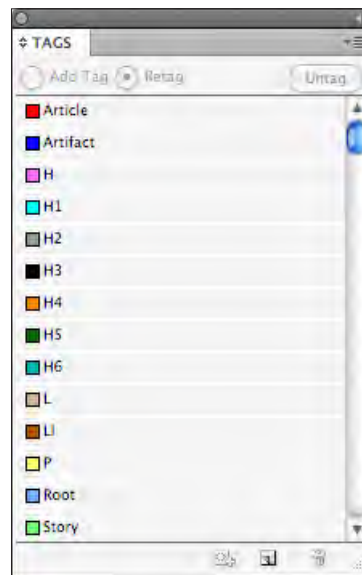


Figure 2. The Tags panel, with the default set of tags, created by Add Unnamed Items.

for you. This is very helpful, as it speeds up the tagging process.

If your document includes tables, you should create several additional tags in the Tags panel, named `Table`, `Cell`, and `TH`. You can create a tag by choosing `New Tag` from the Tags panel menu, or clicking the `New Tag` button in the panel and then naming the tag.

Tip: You can import tags already created in another InDesign document by choosing `Load Tags` from the Tags panel.

Applying Tags to Text

Once you have created a set of tags, you can apply them to the document. As noted earlier, choosing `Add Untagged Items` applies the `Story` tag to each text frame, and the `Figure` tag to each graphic frame in your document. If you later add a new frame, you can tag it by selecting it with the Selection tool and then clicking the `Story` (for a text frame) or `Figure` (for a graphic frame) tag in the Tags panel.

The next step is to tag individual paragraphs inside each story. This is important because the PDF itself doesn't really understand the concept of a paragraph or how a headline is different than body text. In an untagged PDF, it's all just letters on a page.

Fortunately, if you have used paragraph styles throughout your document, you can tag all your paragraphs quickly by choosing `Map Styles to Tags` from the Tags panel menu (Figure 3). In the `Map Styles to Tags` dialog box, click on each paragraph you have used in the document and then choose a corresponding tag from the pop-up menu that appears in the right column. For example, all body text paragraphs can be mapped to the `P` tag; a title could be mapped to the `H1` tag; a subhead might be mapped to the `H2` tag; and so on. (There are no rules for which of the standard tags you should use, but it is a good practice to be consistent across all your documents, when possible.)

Tip: If some of your paragraph style names already match your tag names, you can click the `Map By Name` button to match the two automatically.

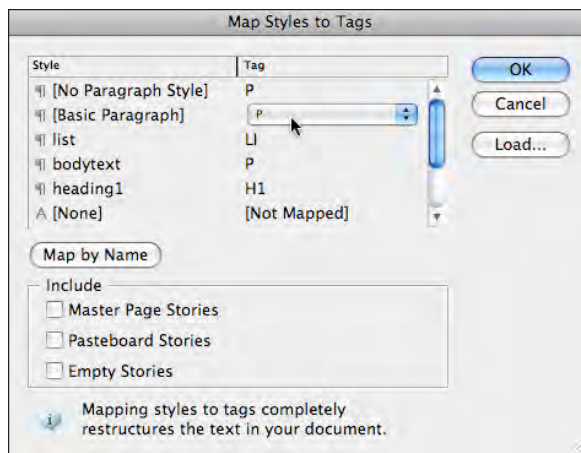


Figure 3. The `Map Styles to Tags` dialog box

When you click `OK`, InDesign tags all your styled paragraphs based on the settings in the dialog box. You can see this by clicking the triangle next to one of the `Story` elements in the Structure pane—you should see a series of `P` tags and other tags. You can double-click one of these elements to highlight the paragraph in the document window.

If you have not used paragraph styles in the document, you can still use the `Map Styles to Tags` dialog box to map the `Basic Paragraph Style` (which is, by default, applied to all paragraphs) to the `P` tag. Then you can change the tag for an individual paragraph in the document—such as a subhead—by choosing the `Type` tool, clicking once in the paragraph (so that the cursor is flashing), and then clicking a tag in the Tags panel.

Applying Tags to Tables

Documents that contain tables may require several extra steps. When you chose `Map Styles to Tags`, InDesign tagged the text inside each cell along with the rest of the document. At the same time, InDesign automatically added two additional tags to the Tags panel: `Table` and `Cell`. It then applied those tags to each table and cell in the file (which you can see in the Structure pane; Figure 4).

However, if your tables contain header rows, you should tag those separately after

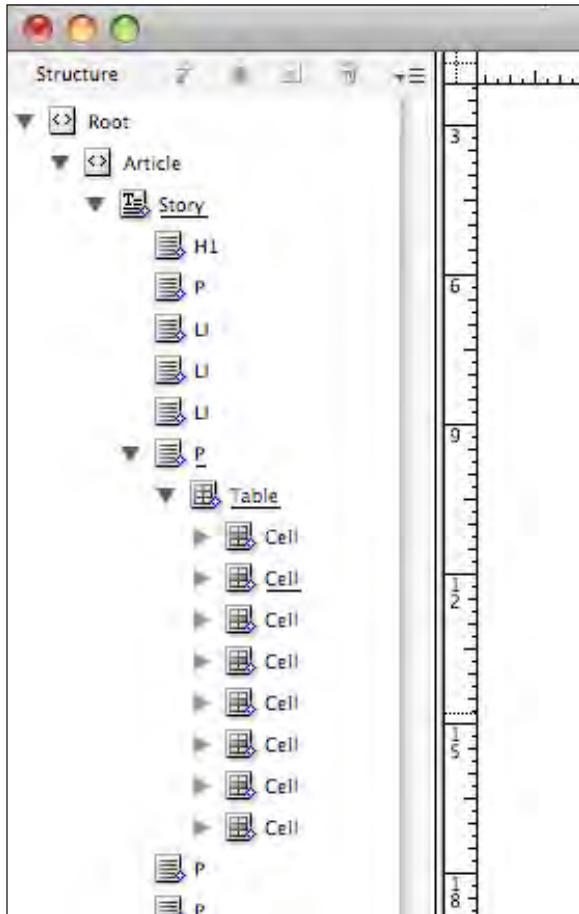


Figure 4. The Structure pane, after mapping style to tags. Note that a Cell tag is underlined, indicating that this cell is currently selected on the document page.

exporting the PDF file (see “Working in Acrobat Pro,” later in this document).

Applying Tags to Lists

Adobe InDesign currently exports all list items as regular paragraphs, even if the paragraphs are tagged with <L> or in the Tags panel. Therefore, you will need to fix list items in Acrobat Pro (see “Working in Acrobat Pro,” later in this document). However, to simplify that work, you should ensure that all bulleted and numbered paragraphs are assigned an appropriate paragraph style in InDesign.

Special Considerations

There are several special considerations to keep in mind when tagging objects in your document:

- » While you can tag text or images on a master page, only one instance of the corresponding element appears in the Structure pane, regardless of how many times the item appears on document pages. However, if you manually override a master item, the item will appear as a separate element in the Structure pane.
- » Footnotes cannot be tagged in InDesign as separate paragraphs. They do appear, however, in tagged PDF documents, automatically tagged with the name of their paragraph style.
- » You cannot tag a group of objects. You can tag a frame inside a group by selecting it with the Direct Selection tool first.

Ordering Tags

Look closely at the order of the articles and stories in the Structure pane—click on the triangles next to the structure elements to open them if necessary. The order you see here may not match the order you would expect or want if your document were read aloud. For example, a story’s heading may appear after the story.

When you use the Add Untagged Items feature, InDesign creates the structure based on the order in which you created each text frame. However, you can easily reorder the structure, so that someone with a visual impairment will hear it as you intended (or a mobile device will display it in the proper order).

To find a specific text frame in the Structure pane, select it on the document page; the Structure pane underlines the name of the associated element. Then you can drag it to a new location in the Structure pane.

However, take care when dragging structure elements—it may change the appearance of your document in unwanted ways. Dragging

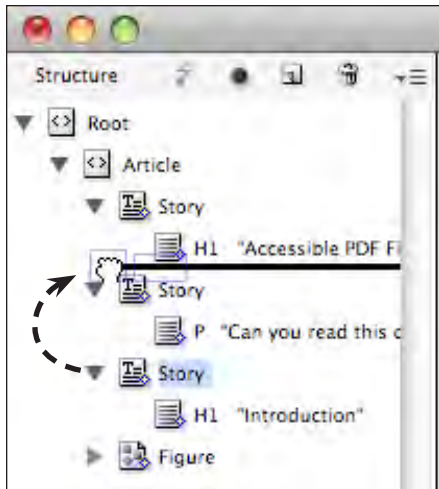


Figure 5. Reordering text elements by dragging in the Structure pane. Here, each Story is a different text frame and the heading “Introduction” needs to be moved before the paragraph. Note that choosing Show Text Snippets from the Structure pane menu enables you to see the first few words of the paragraph, which helps when reordering elements.

a Story element from one position to another should be okay, but dragging a P element (a paragraph inside a story) actually moves that paragraph from one position to another.

Tip: Watch where you “drop” the element when dragging it. Dragging an element on top of another element places it inside that element, which is often undesirable when reordering. Instead, look for a thick black horizontal line indicating that the element will be placed before or between elements. The width of the line determines the level within the structure hierarchy (Figure 5).

Tagging Graphics

Images in your document are no use to someone with a visual impairment unless they contain an alternate text description that can be read by a screen reader. Alternate text is also visible on screen in Acrobat when the viewer hovers the cursor over an image—useful in many documents.

To add alternate text, first make sure the graphic frame is tagged with a Figure tag. The Add Untagged Items feature does this automatically. However, if you later add a new image to your document, you can easily tag it by selecting it with the Selection tool and clicking the Figure tag in the Tags panel.

Next, while the graphic frame is selected, find it in the Structure pane, where it appears underlined. Choose New Attribute from the Structure pane menu. Alternatively, you can right-click (or Control-click with a one-button mouse) on the Figure tag in the Structure pane, and choose New Attribute from the context menu. In the New Attribute dialog box, type Alt in the Name field, and type your alternate text description in the Value field.

When you click OK, the alternate text appears as an attribute of the Figure element. (Click the triangle next to the word Figure to display its attributes; Figure 6)

Tip: If your graphic has a caption, you may also want to create a new Caption Tag in the Tags panel and apply it to that paragraph.

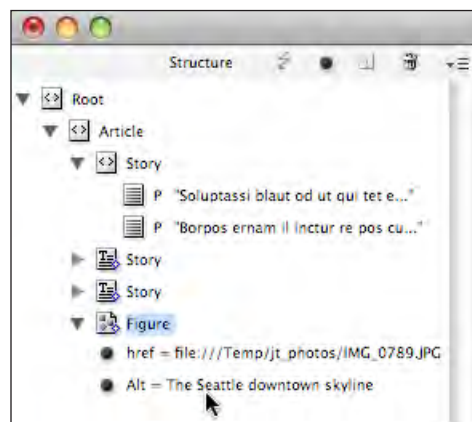
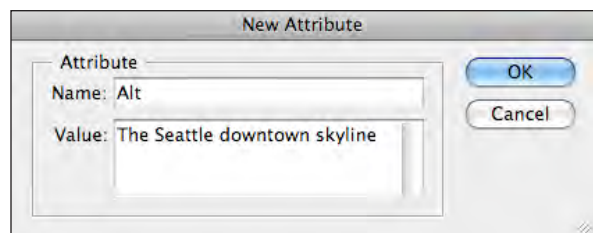


Figure 6. Adding an Alt attribute to a Figure tag in the Structure pane.

Tip: If it's important to maintain the position of a graphic relative to some text in your document, consider making the graphic an inline or anchored object in the text. Otherwise, the image may display out of order, even if you place it the correct order in the Structure pane.

Applying Tags to Artifacts

Background images, running headers, page numbers, and non-essential information should be tagged with the `Artifact` tag so that they can be ignored by screen readers or when the PDF is displayed in Reflow mode (such as on a mobile device). To define an object as an artifact, click on it with the Selection or Direct Selection tool and then click `Artifact` in the Tags panel.

Note that only objects—such as text frames or graphics frames—can be tagged as artifacts. You cannot tag individual paragraphs inside a story as an artifact. Also, you do not need to tag empty frames or paths, as they are automatically ignored by screen readers.

File Information and Metadata

Metadata is information about a document, such as its title, author, and copyright information. It is a good practice for all Acrobat PDF files to contain document metadata, but this is especially important for accessible documents and any document that will be distributed electronically.

You can insert metadata about your PDF file from within InDesign by choosing `File > File Info`. While you are technically adding the metadata to your InDesign file, this information is passed through to any PDF file you export, saving you from having to add it later in Acrobat.

The File Info dialog box offers many metadata options (*Figure 7*), but the important ones for accessible documents are: Title, Author, Description, and Keyword. The Description field equates to the Subject field in Acrobat.

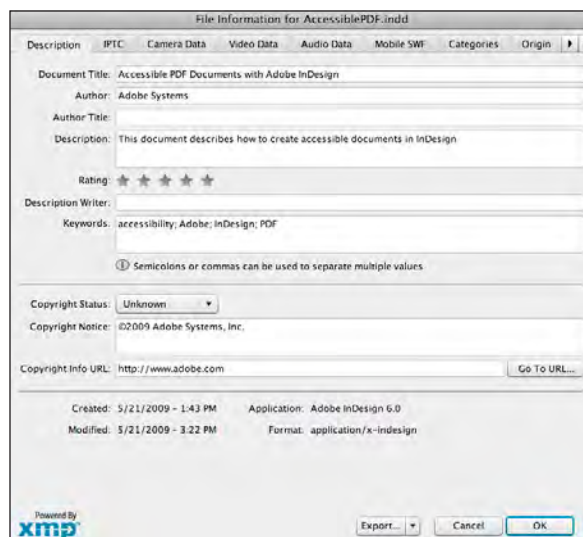


Figure 7. The File Info dialog box lets you add XMP metadata that can be read in the exported PDF file.

Tip: If you expect to use the same File Info settings multiple times, consider choosing Export from the Templates pop-up menu at the bottom of the dialog box. Later, you can add the settings to a new document by choosing Import from that same pop-up menu.

Bookmarks and Hyperlinks

When creating any Acrobat PDF document designed to be viewed electronically, you should consider adding hyperlinks and bookmarks. These are both particularly important in accessible documents, because they allow easier navigation.

For example, consider a document that contains footnotes or instructions such as “Continued on page 21.” You can use the Hyperlinks panel in InDesign to create text anchor links so that a disabled person can follow the story easily. You can also use the Hyperlinks panel to create cross-references (such as “see page 3” or “see Figure 6-15”). These links are all made “live” in the final PDF file.

Similarly, if your document contains links to external files (such as to a website), be sure to assign links to them in the Hyperlinks panel.

Bookmarks can be added with either the Bookmarks panel or by creating a table of contents for your document (Layout > Table of Contents).

Creating the Acrobat PDF File

After you have tagged your InDesign document and added hyperlinks, bookmarks, and metadata, it's time to export as an Acrobat PDF file. It is imperative that when creating the PDF file you use File > Export rather than creating the PDF via the Print dialog box. Using the Print dialog box to make the PDF will omit all the structure and work you have done to make your file accessible.

After you choose File > Export, choose Adobe PDF from the Format pop-up menu and give the file a name. When you click Save, the Export Adobe PDF dialog box appears, offering a number of options for creating your PDF file (Figure 8).

Accessible documents should be saved with the Compatibility pop-up menu set to Acrobat 5 or later. The following checkboxes should be selected: Create Tagged PDF, Optimize for Fast Web View, Bookmarks, Hyperlinks, and Interactive Elements. In most cases, you will also want to select View PDF after Exporting so that the file will open in Adobe Acrobat.

Tip: If you have added more than one document to a book panel, you can export the entire book as a single PDF file. To do this, select the documents you want included, then choose Export PDF from the book panel menu.

Tip: You may want to use the options in the Security pane of the Export Adobe PDF dialog box to restrict how someone can use the PDF file. For example, you can choose whether your audience can copy text out of your PDF file to paste into another application. However, if you enable any of the security features, be sure to select the checkbox labeled Enable Text Access of Screen Reader Devices for the Visually Impaired (it is enabled by default).

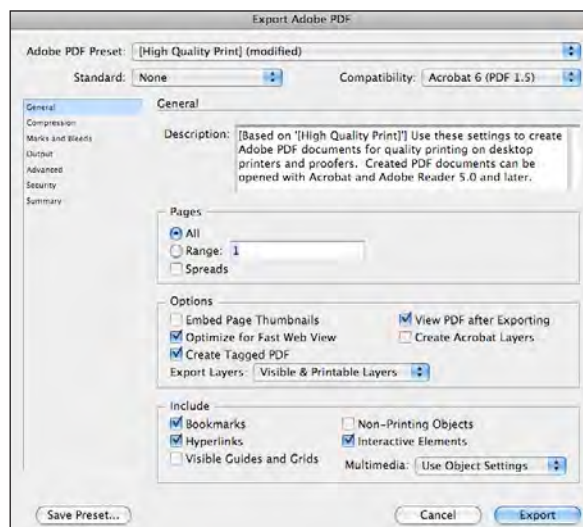


Figure 8. The Export Adobe PDF dialog box

Working in Adobe Acrobat Pro

After opening your PDF file in Acrobat Pro, you will likely need to change one or two things before the PDF is considered fully accessible.

Document Language

The W3C Web Accessibility Guidelines prescribe that you tag your documents with a specific language. InDesign does not have the ability to assign a document language to the PDF file, so you'll need to do this in Acrobat. Choose File > Properties, click the Advanced tab, and choose from the Language pop-up menu. (Alternatively, if the language you want is not listed here, you can type it into the field.)

Remapping Tags

When you export a tagged PDF from InDesign, your paragraph styles become tag names in the PDF. For example, a paragraph style named "bodytext" will appear tagged as "bodytext" in the PDF. You can see these tags by choosing View > Navigation Panels > Tags.

Tip: To view all the tags in a document, Option-click (Mac OS) or Alt-click (Windows) the "twist-down" triangle next to the Tags icon in the panel (Figure 9).

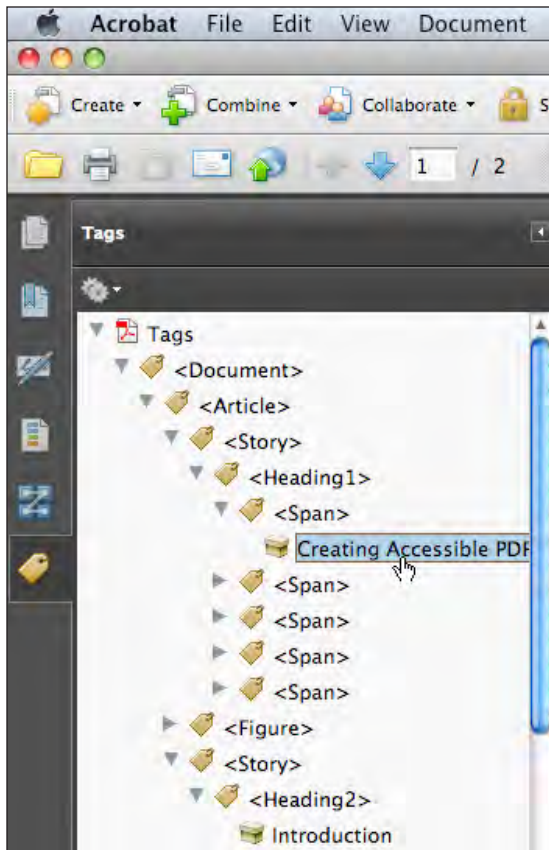


Figure 9. The Tags panel in Acrobat Pro

Tip: When working with tags in Acrobat Pro, it is useful to choose Highlight Content from the Options menu in the Tags panel. When you do this, selecting a tag in the panel draws a light border around the text or object.

Although your text is tagged with the InDesign paragraph style name, Acrobat uses a feature called the Role Map to associate those style names with the proper PDF tags. You can see these mappings by choosing Edit Role Map from the Options menu in the Tags panel (Figure 10).

InDesign creates the Role Map in the PDF file based on the settings you used in the Map Styles to Tags dialog box. For example, if you used Map Styles to Tags to map a style called “A-head” to the “H1” tag, the Role Map will display this.

Unfortunately, InDesign sometimes mis-maps styles. Notably, if you used the Map Styles to Tags dialog box to map a paragraph style

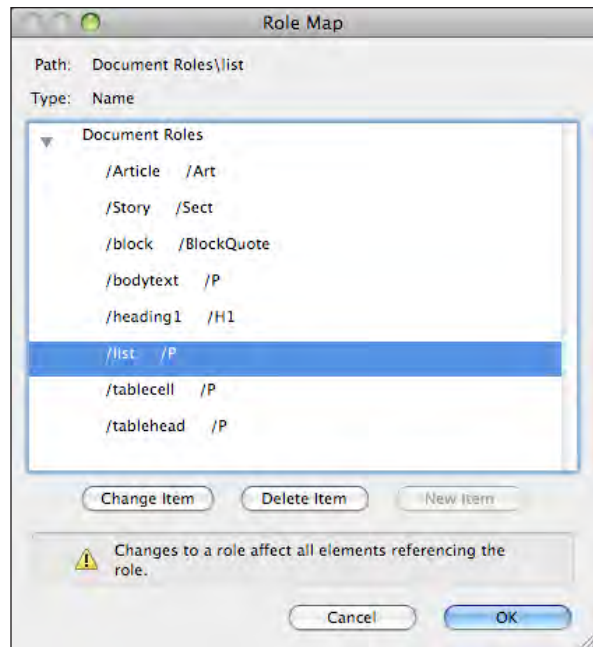


Figure 10. The Role Map lists your InDesign paragraph styles and the PDF tag each style is mapped to. Here, the paragraph style named “list” is mapped to a <P> tag. To change it to a tag, click the Change Item button.

called “list” to the tag, that mapping is currently not reflected in the Role Map—instead, it’s mapped to a <P> tag. Therefore, you must create these mappings manually in the Role Map dialog box.

To change the mapping, select the paragraph style (in this case, list) in the Role Map dialog box and click the Change Item button. Type in the name of the tag (in this case LI) and click OK.

Peruse the Role Map list and ensure that all paragraph styles are mapped to the PDF tag you expected.

Creating and Nesting Tags

You may also want to add additional elements in the Tags panel in Acrobat Pro. For example, in the case of a numbered or bulleted list, you should group (or “nest”) the list elements inside an <L> tag. InDesign cannot do this for you, even if you create this element in the Structure panel.

The easiest way to do this is to select the *last* list element (by clicking on it in the Tags panel), then choose New Tag from the Options menu in the Tags panel. Type the name of the tag into the New Tag dialog box (in this case type the letter L) and click OK; Acrobat Pro creates the new tag after the selected element—that is, at the end of the list.

Now, click on the first list element in the Tags panel and Shift-click on the last item in the list (to select the entire list), and then drag the selection over the new <L> tag element. When you see a short, thin, black line directly beneath the <L>, let go of the mouse button. This nests the list elements into your new tag (Figure 11).

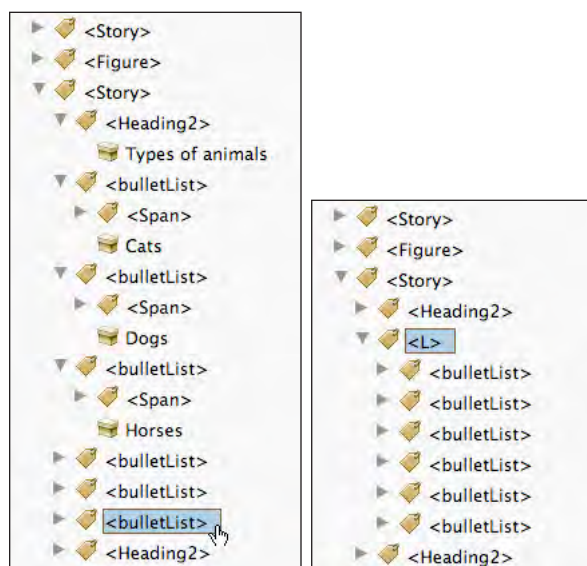


Figure 11. Left: Six paragraphs set to a style named “bulletList” (which has been mapped to the tag in the Role Map). Right: After a new <L> element is created, you can drag the list items into it so that they are nested.

Reassigning Tags

In some cases, you may want to edit the tag applied to an element in your document. A case in point: table headings. While InDesign applies the <TR> tags properly for each table row in exported PDF files, it does not currently assign the <TH> tag to table headings. Instead, it assigns <TD>.

Fortunately, you can reassign each of these tags easily in Acrobat. First, select a <TD> tag that you wish to change, then choose Properties from the Options menu in the Tags panel in Acrobat. (You can also right-click, or Control-click with a one-button mouse, and pick Properties from the contextual menu.)

In the Tag tab of the TouchUp Properties dialog box, change the Type pop-up menu from Table Data Cell to Table Header Cell. Now repeat with the other mistagged table header cells. Note that you do not need to click the Close button in the TouchUp Properties dialog box until you have finished changing the tags.

Document Order

Although you have already specified the appropriate reading order in the Structure pane in InDesign, you should also specify the tabbing order for each page of your document in Acrobat. Open the Pages panel in Acrobat (View > Navigation Panels > Pages) and select all the pages in your document (click on the first page, then Shift-click on the last page). Right-click on any of the selected pages (or Control-click with a one-button mouse) and choose Page Properties from the Context menu. In the Tab Order tab of the Page Properties dialog box, choose Use Document Structure.

After you click OK, try one or more of the following to ensure your document is set up with the proper reading order:

- » In Acrobat, choose View > Zoom > Reflow (or press Command+4 on the Mac OS or Ctrl+4 in Windows) to see how your document would be viewed without regard to page layout and positioning—for example on some mobile devices. Page items tagged with Artifact disappear in Reflow mode, so this is a good opportunity to see if you forgot to apply that tag to one or more objects on your pages.
- » Open the Order panel in Acrobat (View > Navigation Panels > Order) to confirm the reading order is correct for each page.

- » Choose from the File > Read Out Loud menu to hear a voice synthesizer read the document to you. This approximates what a screen reader user would encounter.
- » Check the document with third-party screen reader software, such as Freedom Scientific's JAWS for Windows.
- » Choose File > Export > Text > Text (Accessible) to save a text-only version of the document. Opening that text file lets you see your document at its most basic, as readers using a Braille printer would experience it.

Accessibility Check

At this point, it is a good idea to run an accessibility check in Acrobat. First, save the document, and then choose Advanced > Accessibility > Full Check. (Acrobat also offers an option for a Quick Check, but it's worth taking the time for the full check.) The Name pop-up menu in the Accessibility Full Check dialog box offers several different ways to check your document. The Adobe PDF option is likely good enough for most of your documents.

After you run the Full Check, Acrobat displays its findings in the Accessibility Report tab in the left panel. If any errors were found, the report will offer suggestions for how you can repair the problems.

However, note that some found errors may not actually affect the readability of the document, and not all document errors will be flagged by the Full Check. For example, the Full Check cannot alert you if a paragraph has the wrong tag, or the document has the wrong reading order—because only you, the content creator, can know what is right and wrong for your document.

Ultimately, if you follow the techniques outlined in this document, you should be able to create accessible documents with few to no errors efficiently.

Resources

You can find additional information about accessible PDF files at these websites:

- » Adobe.com/accessibility
- » www.adobe.com/accessibility/products/indesign/overview.html
- » Knowbility.org/main
- » Section508.gov
- » indesignsecrets.com/accessibility
- » www.hhs.gov/web/policies/checklistpdf.html
- » www.planetpdf.com/enterprise/learningcenter.asp?ContainerID=1505
- » www.webaim.org/techniques/acrobat/