

New Solutions for Creating Accessible PDF Documents with Adobe® InDesign® CS5.5

Producing a PDF from InDesign that's machine-readable, and optimized for screen readers and assistive devices—generally referred to as an "accessible" PDF—is critical for compliance with accessibility standards and regulations such as WCAG 2.0 and Section 508 of the U.S. Government's Rehabilitation Act. In addition, producing accessible content plays a key role in optimizing PDFs for successful indexing by Internet search engines. InDesign CS5.5 overcomes many of the obstacles to the efficient production of accessible PDFs which existed in previous versions, enabling a simplified layout-to-accessible-PDF workflow that dramatically reduces the time and effort required to produce accessible PDF documents. Most of the necessary tasks have been shifted from Acrobat to InDesign, allowing hierarchical and structural information to originate in the InDesign file, making updates and revisions faster and easier as well.

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To accomplish the tasks described in this white paper, you will need:

- **Adobe InDesign CS5.5 software**—to prepare a document for accessible PDF export using the processes described in this white paper.
- **Adobe Acrobat Professional**—the Acrobat-specific steps required to finalize the accessibility process cannot be accomplished in the free Adobe Reader application.

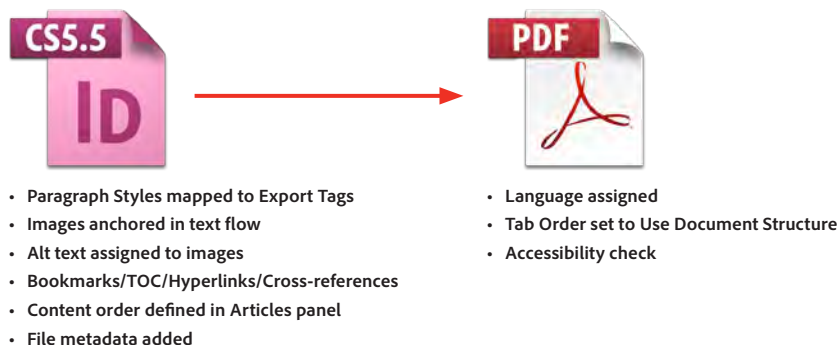
Optionally, you may also need:

- **Access to Assistive Technology (AT)**—for testing and verifying results beyond Acrobat's built-in accessibility accommodations.

Requirements for Accessibility

An electronic document is accessible if it can be used by people with disabilities such as blindness, low vision, or limited mobility. An accessible PDF document can be navigated by persons with disabilities when using Adobe Acrobat or Adobe Reader. These users can use third party assistive technology such as screen readers, or in some cases the built in accommodations found in Adobe Acrobat and Adobe Reader. This requires the tagging of all document content based on its hierarchical structure (headings, paragraphs, lists, tables, etc.), and the correct ordering of that content in a linear path from start to finish. An additional requirement for accessible documents is the identification and description of non-text content (such as graphics and images) for users with disabilities.

The InDesign CS5.5-to-Accessible PDF Workflow at a Glance



The majority of the work necessary to properly structure and prepare a document for accessibility can now be done directly in InDesign CS5.5, reducing the post-export work required in Acrobat to a mere handful of steps. InDesign CS5.5's new features make the InDesign-to-PDF workflow faster and easier. Now that InDesign allows you to specify and store the document's structural hierarchy and content order, that information is preserved and available should you need to modify the document and export a new PDF. The necessary steps are:

Use Paragraph styles consistently throughout your document (InDesign CS5.5)

Consistent use of InDesign Paragraph Styles throughout a document is critical for efficiently and successfully exporting to accessible PDF. Styles should be established based on their hierarchical structure (Main Headline, Secondary Heading, Sub-headings) and applied only to the text in the document that serves that role in the document's organization.

Establish Export Tag relationships between styles and PDF tags (InDesign CS5.5)

As you create InDesign styles, set each style's Export Tagging in the Paragraph Style Options dialog according to its role in the PDF—paragraph (P), heading levels 1 through 6 (H1–H6), or Artifact. Lists and tables are recognized automatically.

Anchor images within the flow of content (InDesign CS5.5)

Images in a print layout can appear anywhere in a spread and sighted users can make the connection between the image and relevant text as they read. Screen readers process content in a linear fashion, so images (which are described by their Alt text using the Screen Reader's text-to-speech facilities) should be described as close as possible to the text that pertains to them in the body of a document. Anchoring an image within a text frame at the appropriate place accomplishes this. InDesign CS5.5's drag-and-drop object anchoring makes it simple to place the reference to the image in an appropriate location while leaving the print layout unaffected.

Add Alternative (Alt) Text for images (InDesign CS5.5)

Screen readers can only indicate the presence of an image. Conveying what the image depicts requires providing alternative text. InDesign CS5.5's Object Export Options provide a means to specify Alt text from a variety of sources, such as metadata in an image file, or to add custom Alt text.

Incorporate internal document navigation mechanisms (InDesign CS5.5)

In an accessible PDF, tables of contents, bookmarks, hyperlinks, and cross-references can act as navigation mechanisms to the referenced content. They also allow screen reader users to efficiently navigate the document by using the links these mechanisms create.

Establish content order in the Articles panel (InDesign CS5.5)

The tagging order of a PDF is essential to its readability, and the Articles panel in InDesign CS5.5 enables you to precisely define what content in your document gets tagged, and in what order. Content can be added by dragging and dropping frames and objects into the Articles panel, then arranged in the desired reading order. You can also break the content up into smaller articles without affecting the page layout.

Specify a document title and description as metadata (InDesign CS5.5)

For accessibility, as well as for search engine optimization, a PDF requires a document title and a description of its contents. This information is best stored in InDesign's File Information dialog. The metadata is transferred over precisely to Acrobat Pro X to act as the metadata for the PDF.

Export for Interactive PDF with settings optimized for accessibility (InDesign CS5.5)

Using InDesign's Interactive PDF export settings, the tagging, organizing, and bookmarking established in the layout becomes the tagging structure, order and navigational tools of the resulting PDF.

Set language in Document Properties dialog (Acrobat Pro X)

It's essential that the document's language be specified for the screen reader. Language can't be set in InDesign, so this must be established in the Advanced options of Acrobat's Document Properties dialog.

Change display name from Filename to Document Title (Acrobat Pro X)

By default, Acrobat displays the PDF filename in the title bar of the document window. For accessibility purposes, this should be replaced by the document title established in InDesign's File Information dialog. To do so, choose Document Title instead of Filename in the Initial View options of Acrobat's Document Properties dialog.

Set the Tab Order to Follow Structure in the Pages pane (Acrobat Pro X)

The structure established in InDesign's Articles panel is saved within the exported PDF, but you must tell Acrobat to honor that structure. Indicate that Acrobat should use the tab order specified by the InDesign document's structure by selecting all of the pages in Acrobat's Page Thumbnails pane, choosing Page Properties from the options menu, and setting the Tab Order to "Use Document Structure."

Run the accessibility check (Acrobat Pro X)

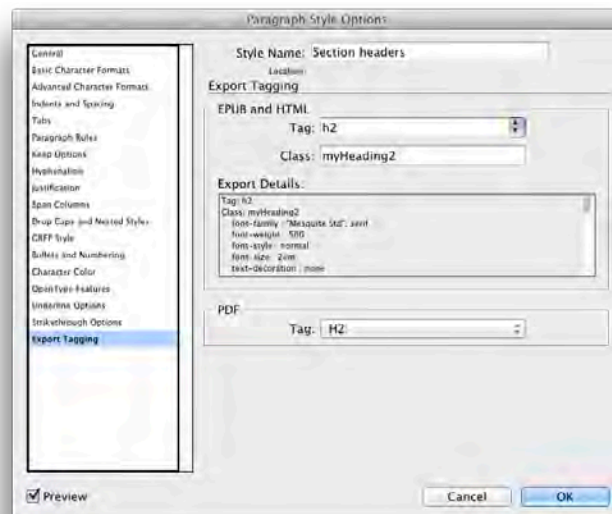
Once these steps are completed, choose and run the Full Check from Acrobat Pro X's accessibility tools. With all of the above steps properly executed in InDesign and Acrobat, the results should be error-free.

Step-by-step Guide to Creating an Accessible PDF

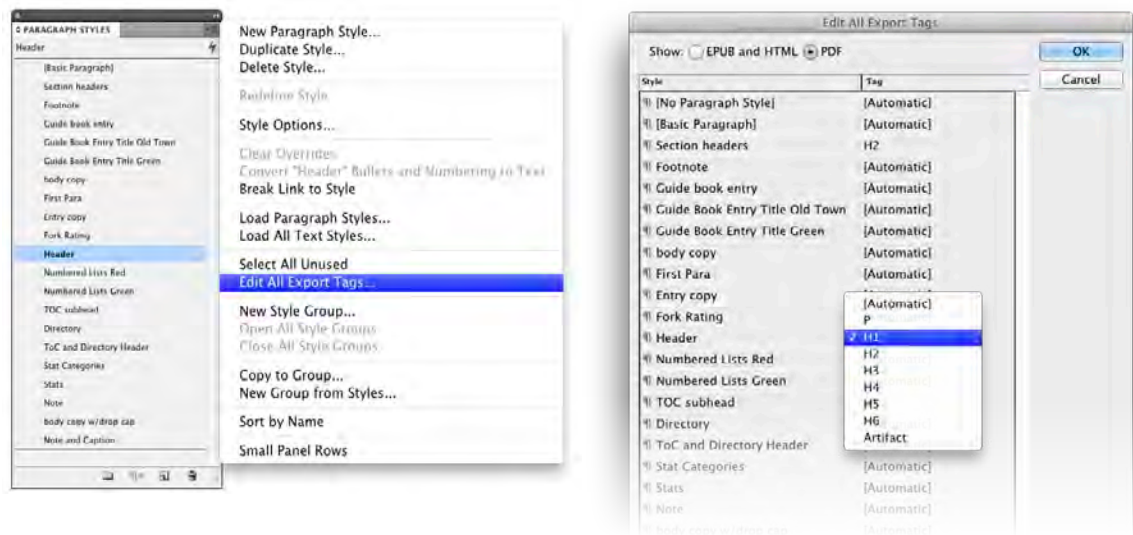
Add Export Tagging Instructions to Paragraph Styles

The addition of Export Tagging to the definition of a Paragraph Style enables an association between the text using that style and its role in the semantic structure of the PDF's content. Any style can be set to one of eight PDF tags—paragraph (P), heading levels 1 through 6 (H1–H6), or Artifact. Export Tagging options for a single style are set in the Export Tagging area of the Paragraph Style Options dialog. If you use InDesign's Bullets and Numbering feature, bulleted and numbered lists are tagged as unordered and ordered lists, respectively, and converted automatically depending upon the option selected in the export process. Manually-created lists are not recognized.

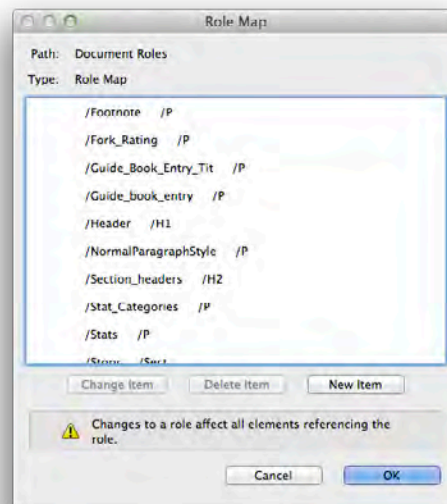
You must establish your document's heading structure by assigning the appropriate H1 through H6 tag to those paragraph styles that are used as headings. Any styles that should not be tagged should be marked as Artifact. Artifacts are not read by the screen reader. All other styles default to Automatic which translates them to a P tag in Acrobat.



InDesign CS5.5's Export Tagging settings in the definition of a Paragraph Style allow two completely different tagging schemes. The options for EPUB and HTML have no bearing on the options for PDF, which must be set independently. Although the role assigned to a specific paragraph will likely be similar between the two, there are fewer PDF options, nor are there any custom tagging options.



For a project with styles already present, all styles in the document can be mapped in one step by choosing Edit All Export Tags from the Paragraph Styles panel menu (left). In the resulting dialog (right), click the PDF radio button and assign PDF tags from the pull-down menus in the right column to the Paragraph Style names in the left column.

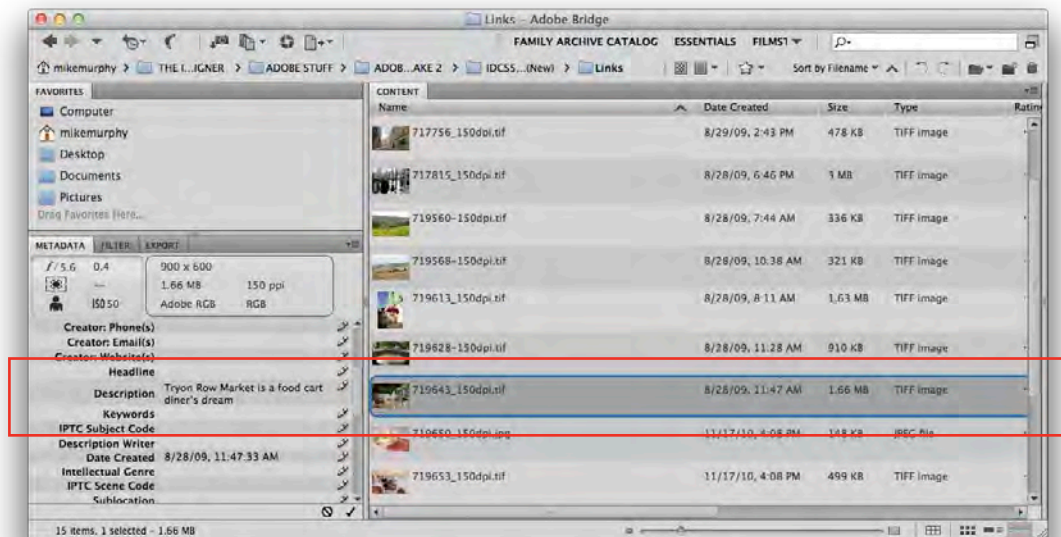


In Acrobat, the Role Map reflects the association made between InDesign's "Header" style and the H1 tag, as well as the association between the "Section headers" style and the H2 tag, both of which were assigned in the Export Tagging options for the respective styles in InDesign.

Add Alt text using Object Export Options

Images in an accessible PDF require alternative text, or Alt Text, so that the image can be described by a screen reader or assistive device. In previous versions of InDesign, you could only add Alt Text for an image through the XML Structure pane. That option is still available but in InDesign CS5.5, you can select any image and add Alt Text with Object Export Options (Object > Object Export Options). This dialog is non-modal, so it can remain open as you work in the document, allowing you to move quickly from image to image and assign metadata without repeatedly closing and opening a dialog.

There are three tabs in the Object Export Options dialog—Alt Text, Tagged PDF, and EPUB and HTML. Alt Text applies to both the PDF and EPUB/HTML workflows, and it can be generated from the document's XML structure (if any exists), the image's XMP metadata (if present), or directly added to the specific instance of the image in the layout by selecting Custom from the dialog's Alt Text Source pull-down menu.

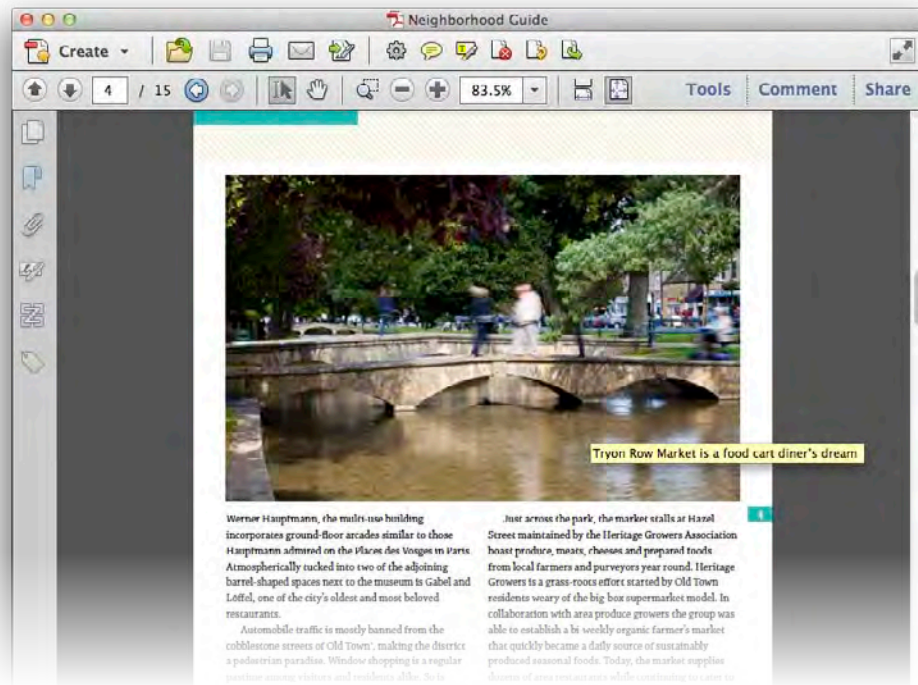


The XMP metadata for an image (top, shown in Adobe Bridge) is available as potential Alt text in InDesign.



InDesign's Object Export Options dialog allows you to assign Alt Text (left) from either data in a document's XML Structure or information stored in its XMP metadata. You can also enter custom Alt text. This dialog box is also where you designate what object tag Acrobat should apply (right) in the PDF. Typically, the "Based On Object" default is the appropriate choice, but you can also choose a tag from the document's XML Structure (if any), or tag the object as an Artifact to be ignored by screen readers.

Specifying Alt text from XMP metadata is the best choice in most cases because the link between that Alt text option and the metadata in the file is dynamic. If the metadata changes, the Alt text will also update once you update the image link in your InDesign document. Failure to include Alt tags for all of your images will result in errors later in the workflow when you run Acrobat's Accessibility Full Check.

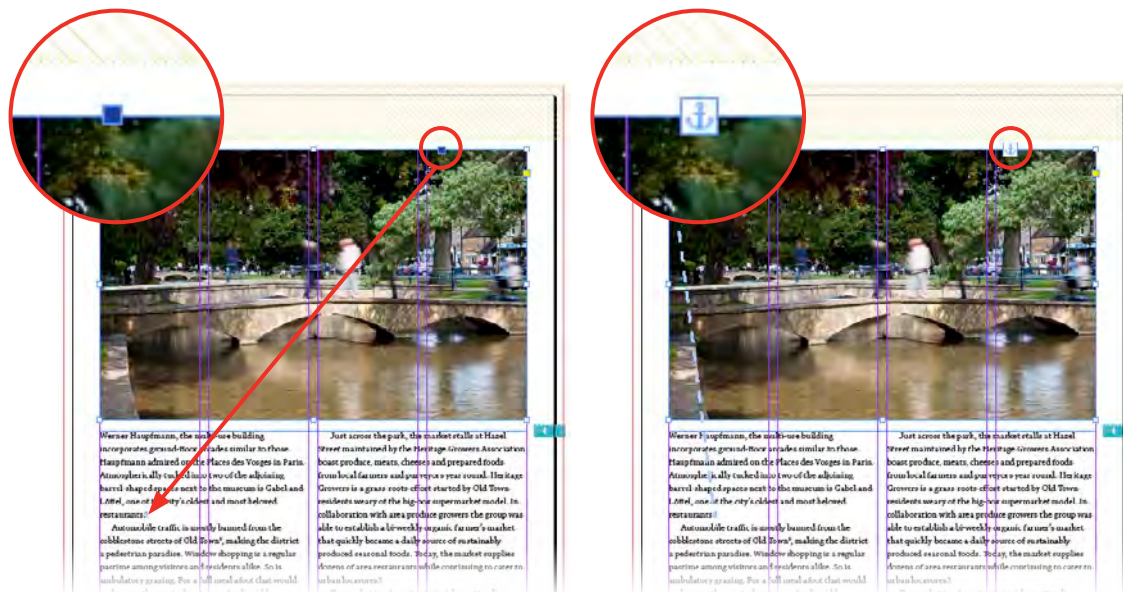


In the final PDF, Alt text appears as a tool tip when the user hovers over an image. That same Alt text is read as a description of the image when Acrobat's Read Out Loud feature is used, or when the PDF is read by an assistive device or screen reading software.

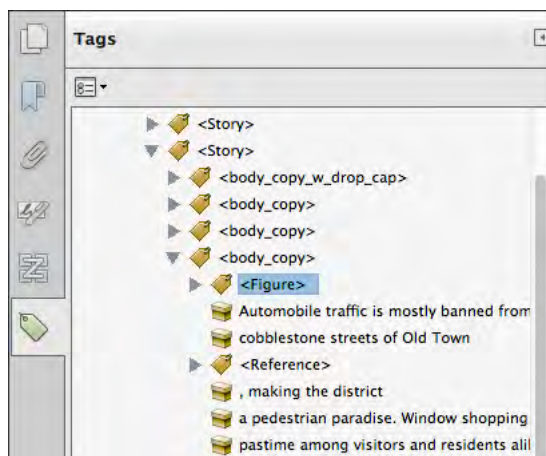
Anchor images into the text flow

When images are placed on a page in a print layout, they do not necessarily need to be placed adjacent to the copy that refers to them. For sighted users, it's not unusual for text to contain references to an image located elsewhere in the document. However, when you're establishing a flow of content for an accessible PDF, those images should "appear"—or, rather, be described— at the appropriate point within that flow. InDesign CS5.5 allows you to place a machine-readable reference to the image in the text by anchoring the graphic frame containing the image to an appropriate location within the text frame. This had been a multi-step task in earlier versions of InDesign.

Every InDesign frame and object group displays a small blue square on its top edge that enables click-and-drag anchoring of the object without changing its position on the page. Click and hold the blue square, then drag to the desired location within the text and release. The blue square changes to an anchor icon indicating that the object is anchored. Note that you are specifying the location of the anchor, and the object itself remains in its original position.



Custom object anchoring in InDesign CS5.5 is achieved by simply dragging the blue square on any frame (left) into the desired insertion point within the text. Once anchored (right), the blue square turns to an anchor icon to reflect the object's anchored status.



In the PDF, the Figure tag for the anchored image appears within the appropriate <body_copy> tag within the main article and will be referenced and described by its Alt text at that point.

Establish a reading order with the Articles panel

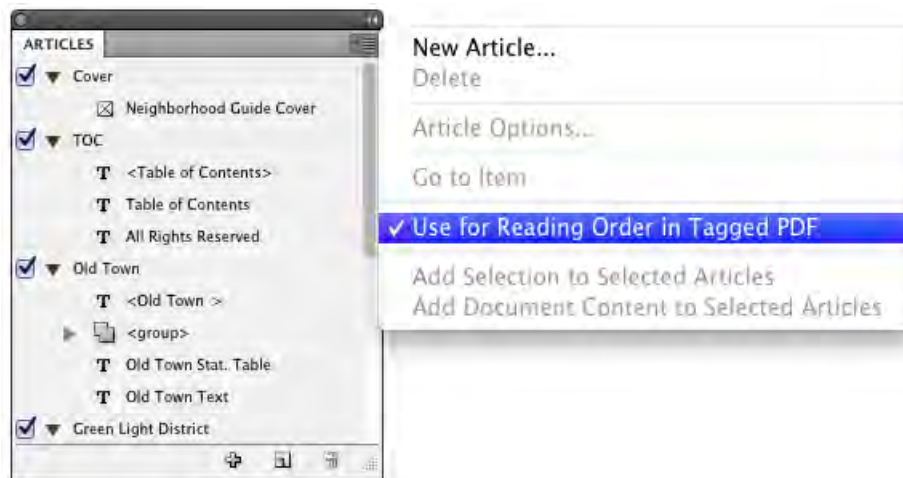
InDesign CS5.5's new Articles panel allows you to establish a document's content reading order for Acrobat entirely within InDesign without using the XML structure pane. Acrobat understands this order and will follow it in the exported PDF once you instruct it to do so in Acrobat X Pro.

To establish reading order in InDesign, open the Articles panel (Window > Articles), then click the desired object or objects on the page to include in the article. Drag the objects into the Articles panel, and release the mouse. In the resulting dialog, name the article or leave it at the default of "Article 1." Alternatively, you could use Select All (Cmd/Ctrl-A) and click the New Article button at the bottom of the Articles panel to add all selected objects and create a new article in one step (you can rename it later). Objects are given default names based on the object's type and content. Any objects that have been given specific names in the Layers panel will retain that name in the Articles panel.

TIP: Objects are added to the Articles panel and listed in the order in which they were clicked on the page. If the page elements are added using Select All, InDesign determines the order, which will likely not correspond with your desired order.



When adding a new article to InDesign CS5.5's articles panel, "Include When Exporting" (the application default) must be checked for the article to be properly tagged and ordered in the PDF.

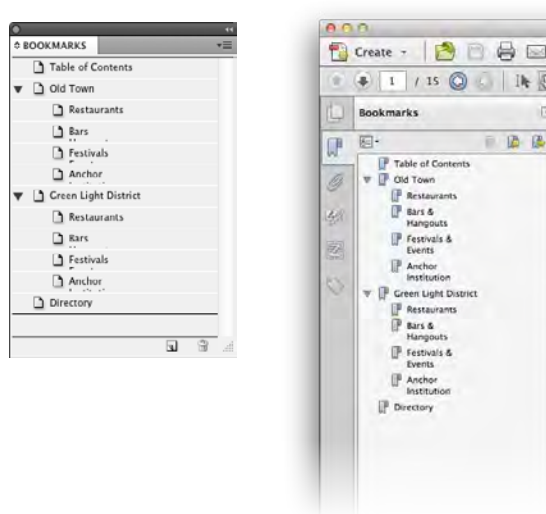


To make sure the Articles panel's order gets communicated to Acrobat when you export your accessible PDF, go to the Articles panel menu and turn on the Use for Reading Order in Tagged PDF option.

Organize your content by dragging any item within an article up or down in the Articles panel until all items are in the desired order. The reading order is from top to bottom within an article. You can create multiple Articles to break up your content's structure appropriately. You also add elements from different parts of your layout into any existing article by dragging them from the layout into the panel, or selecting them and choosing "Add Selection to Selected Articles" from the Articles panel menu. If desired, the same content can appear in multiple articles. This will not add any objects to your document or affect page layout in any way.

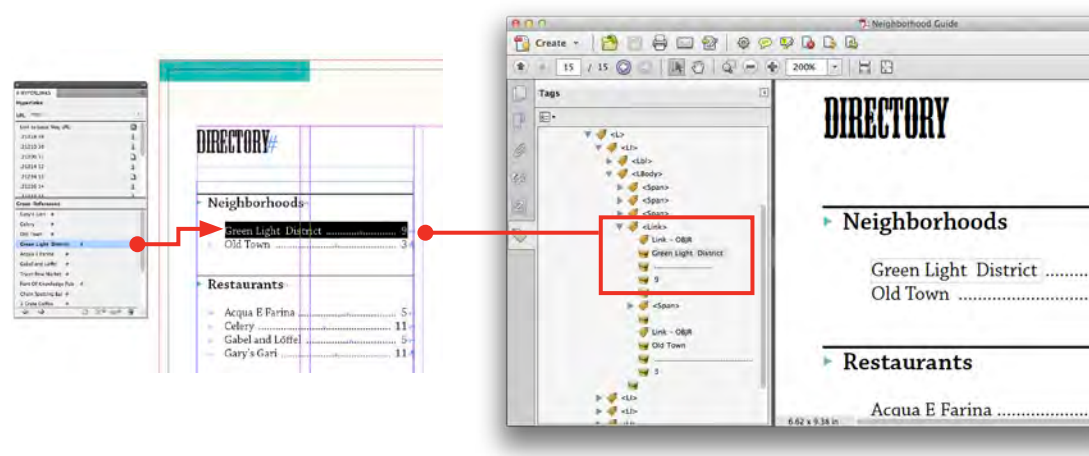
Add Bookmarks, Cross-references, and Hyperlinks for navigation

Cross-references (for example, "*See Dining, page 24*"), hyperlinks and bookmarks are conveniences to sighted readers, but are also essential navigation tools for the visually impaired. These navigation mechanisms are the means by which disabled users move through a document and get an overview of its content and how that content is organized. An InDesign-generated Table of Contents (TOC) can add bookmarks automatically when "Create PDF Bookmarks" is checked in the Table of Contents dialog. You can also add custom bookmarks independent of a dynamic TOC in InDesign's Bookmarks panel (Window > Interactive > Bookmarks). Bookmarks can be linked to either Text Anchors (bookmarks created when specific destination text is selected), or Pages (bookmarks created when viewing a page in InDesign with no text selected).



InDesign Bookmarks in the Bookmarks panel (left) can be arranged hierarchically and specific bookmarks can be nested under broader categorical bookmarks for a clearer indication of a document's distinct sections. When exported to PDF with the proper settings, those InDesign bookmarks and their organizational structure are matched exactly in Acrobat's Bookmarks pane (right) and work as clickable links to the appropriate content.

Similarly, hyperlinks—either to external locations like web sites or to in-document locations like text anchors—provide additional navigation points on a more micro level that may not be appropriate or necessary in the document's bookmark structure. PDF hyperlinks are created upon export for any links created in InDesign's Hyperlinks panel, as well as for any cross-references established using InDesign's Cross-references feature.



Cross-references created in InDesign (left) translate automatically to hyperlinks in the exported PDF (right). Note that the entire Green Light District reference, including its page number, is within a <Link> tag in Acrobat's Tags pane. InDesign CS5.5's improved export functionality also correctly includes the Link - OBJR element required for proper link functionality in an accessible PDF.

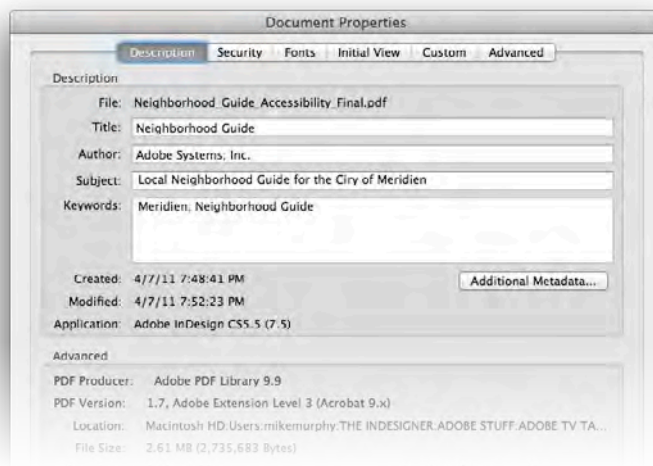
Add file metadata to the InDesign document

Accessible PDFs require, at a minimum, a document title and a brief description of the document contents. This information is stored in the file's metadata, which you can access from the Document Properties dialog in Acrobat. That metadata can (and should) originate in the InDesign document's File Information dialog (File > File Info), where it can be modified and updated easily and preserved each time a new PDF is exported.



File metadata entered in the Description tab of InDesign's File Information dialog.

TIP: In the export process, a semicolon and space are added before the first keyword in the Keywords field of Acrobat's Document Properties dialog. This semicolon can cause problems with the successful interpretation of those keywords and should be deleted each time a new PDF is created.

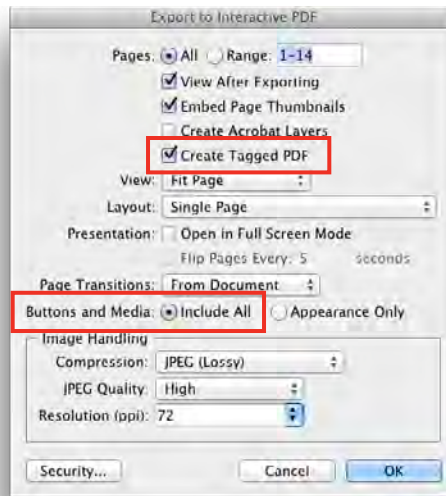


File metadata from InDesign reflected in the Description tab of Acrobat's Document Properties dialog.

Export for accessibility

Once all of the preceding preparation is completed, you've done everything possible in InDesign toward building an accessible PDF. You can then export your InDesign document (File > Export) to PDF using the Adobe PDF (Interactive) format option. Although the actual PDF formats are the same for both Interactive and Print, the options available to you in their respective dialog boxes are different, and it's the options in the Interactive dialog that matter for accessibility.

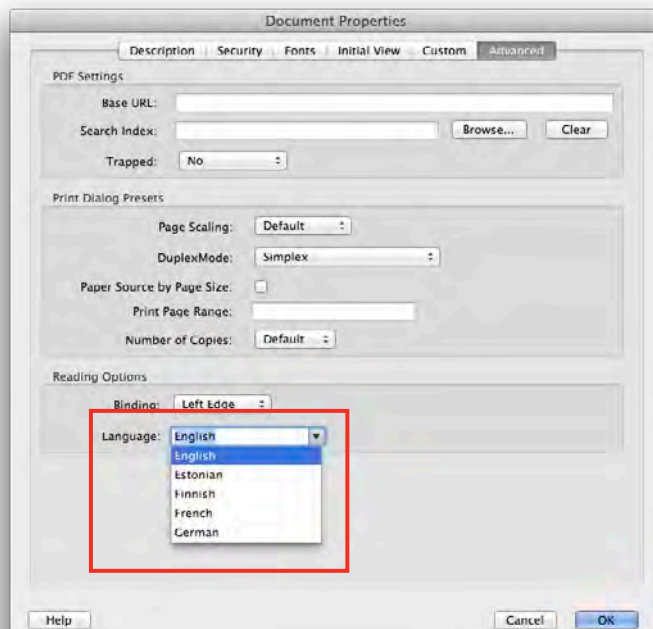
The exported PDF must be tagged in order to be accessible, so that box should be checked in the dialog. The Buttons and Media option must also be set to Include All in order to activate bookmarking, hyperlinks, cross-references and buttons. All other settings in the dialog are optional and subject to your specific needs or preferences. Checking "View After Exporting" is a good option to keep checked so that the PDF will open as soon as the export is complete and you can move on to the final few steps required in Acrobat Pro X.



Individual export options for any PDF can vary from one file to another (i.e., a two-up layout or the initial view size), but two settings are required for accessibility: Create Tagged PDF and Include All Buttons and Media. The former adds the necessary tagging for screen readers and the latter enables all bookmark, hyperlink, and cross-reference functionality.

Assign a document language in Acrobat Pro X

Once you've created the PDF, you can move on to Acrobat Pro X to complete the few remaining steps needed to make the PDF accessible. The first of these is setting the document's language in the Advanced tab of the File Properties dialog (File > Properties or Cmd-D/Ctrl-D). InDesign has no corresponding setting, so you must establish it using Acrobat by choosing the appropriate language from the pull-down menu. It's also recommended that you set the document to display its Title in the document window's title bar rather than its filename by making that change in the Document Properties dialog's Initial View options.



Language choices in the Reading Options area of the Advanced Document Properties options in Acrobat Pro X.

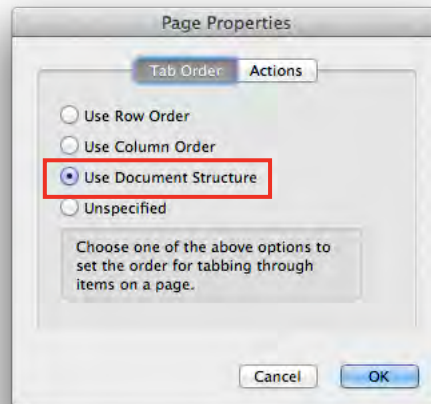


Document titles (bottom) stored in the PDFs metadata are often more logical, accurate and screen-reader-friendly than PDF filenames (top) and should be set to display in the title bar.

Specify the Tab Order

TIP: To quickly select all page thumbnails in Acrobat's Pages pane, click the first page thumbnail, then type Command-A (Mac) or Ctrl-A (Windows).

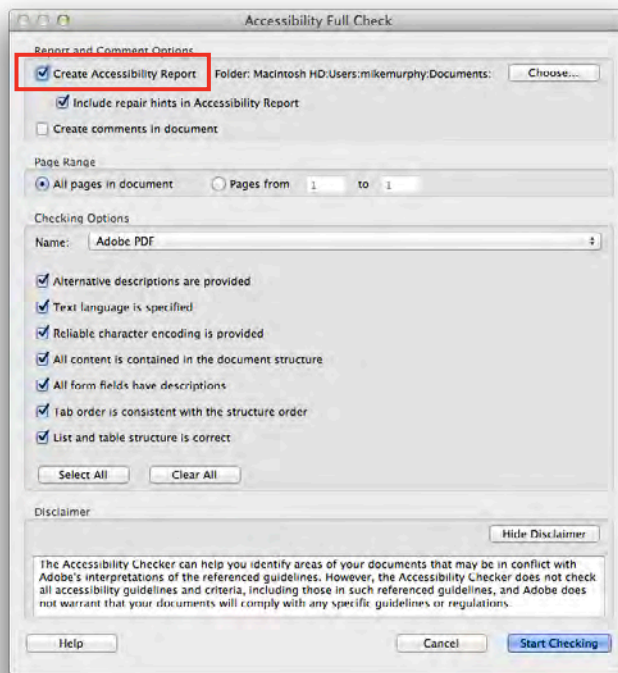
The structure established in InDesign's Articles panel is exported and available to the PDF, but it is not automatically set as the order to be followed. That needs to be done in Acrobat's Pages pane (View > Show/Hide > Navigation Panes > Pages). Ensure that you have highlighted all of the documents page thumbnails, then go to the options menu in the upper left portion of the Pages pane and choose Page Properties. In the Tab Order area of the Page Properties dialog, change the content order from Unspecified to Use Document Structure.



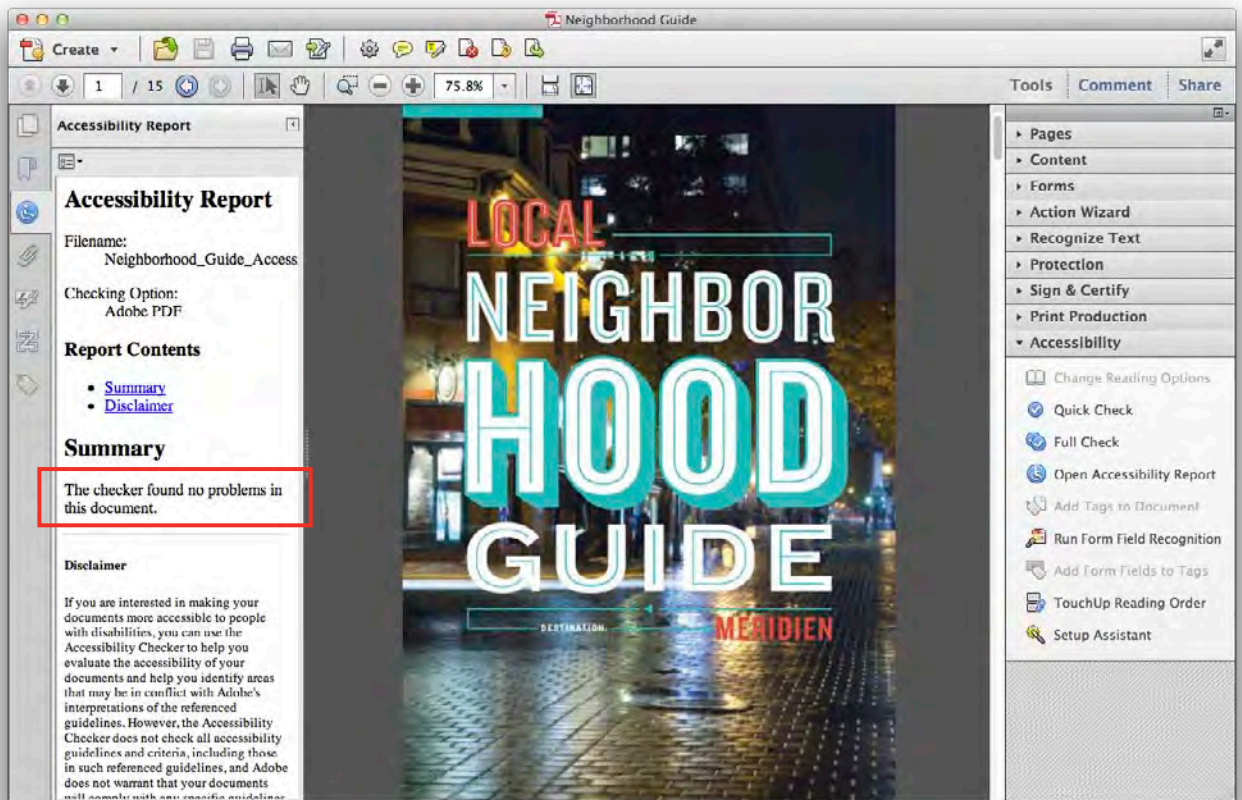
The Tab Order of a PDF exported from InDesign remains set to "Unspecified" by default, which is not a reflection of the structure established in InDesign's Article's panel. To impose that InDesign structure on the PDF, choose "Use Document Structure" instead.

Run the Accessibility Check

From Acrobat's Tools pane, expand the Accessibility options (View > Tools > Accessibility), and select Full Check. Be sure that, among all of the default settings in the Accessibility Full Check dialog, you check "Create Accessibility Report" if it isn't checked already. This will open up a pane in Acrobat when the check is complete verifying that the document is OK, or detailing any problems (missing Alt text, for example) that may have made it though unintentionally.



The default settings of Acrobat's Accessibility Full Check dialog, including the option to create a report once completed.



Once checked, the report should indicate that no errors were found with the document's accessibility. If the check revealed an error such as missing Alt text for an image, it's best to fix that error in InDesign, re-export, and repeat the Acrobat-specific steps in this process rather than fixing it only in the PDF. Keeping the source InDesign file fully optimized for accessible output affords the smoothest process for any future updates and exports.

Additional Resources

- **VIDEO: Preparing Accessible PDFs with Adobe InDesign CS5.5: Part I**
<http://tv.adobe.com/watch/accessibility-adobe/part-1-new-accessibility-features-in-indesign-cs55/>
- **VIDEO: Preparing Accessible PDFs with Adobe InDesign CS5.5: Part II**
<http://tv.adobe.com/watch/accessibility-adobe/part-2-exporting-and-finalizing-your-pdf/>
- **U.S. Government's Official Section 508 Web site**
<http://www.section508.gov/>
- **Adobe Systems Accessibility Resource Center**
<http://www.adobe.com/accessibility>
- **InDesign Accessibility Product Page**
<http://www.adobe.com/accessibility/products/indesign/>
- **InDesign Voluntary Product Accessibility Template**
<http://www.adobe.com/accessibility/products/compliance/#indesigncs55>



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