

Creating accessible PDF documents with Adobe® InDesign® CS6

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It's critical that content is accessible to the widest possible audience and complies with accessibility standards and regulations, such as WCAG 2.0 and Section 508 of the U.S. Government's Rehabilitation Act. An "accessible" electronic document is one that is optimized for screen readers and other assistive devices used by persons with disabilities. Producing accessible content also plays a key role in optimizing PDF documents for successful indexing by Internet search engines.

Achieving this kind of accessibility requires tagging all document content based on its hierarchical structure (headings, paragraphs, lists, tables, and so on) and ordering the content in a linear path from start to finish. An additional requirement for accessible documents is identifying nontext content, such as graphics and images, in context and describing what is shown.

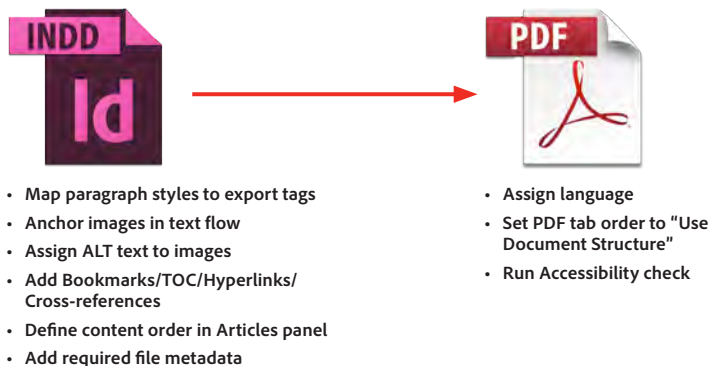
InDesign CS6 offers a direct and simple workflow that dramatically reduces the time and effort required to produce accessible PDF documents from an InDesign layout. Most of the tasks are executed within InDesign, with only a few final steps required in Adobe Acrobat®. This allows hierarchical and structural information to reside in the InDesign file, making updates faster and easier when you need to generate a revised accessible PDF document.

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

- **Adobe InDesign CS6 software** to prepare a document for accessible PDF export using the processes described.
- **Adobe Acrobat X Professional** to finalize the accessibility process. You cannot accomplish these steps with the free Adobe Reader® application.

Optionally, you might also need access to assistive technology (AT) for testing and verifying results beyond the Acrobat built-in accessibility accommodations.

Workflow for generating an accessible PDF document from InDesign CS6



You can perform the majority of the work necessary to properly structure and prepare a document for accessibility can be done directly in InDesign CS6, reducing the post-export work required in Acrobat X Pro to just a few steps. You can specify the document's structural hierarchy and content order in the InDesign document, which preserves that structure should you need to later modify the document and export a new PDF.

Required steps in InDesign CS6

Use paragraph styles consistently throughout your document. Consistent use of InDesign paragraph styles throughout a document is critical for efficiently and successfully exporting the content to PDF. Base styles on their hierarchical structure (main headline, secondary headings, subheading, and so on) and apply them appropriately to paragraphs according to their hierarchical role in the document.

Establish export tag relationships between InDesign styles and PDF tags. As you create InDesign styles, set each style's Export Tagging (in the Paragraph Style Options dialog) according to its role in the PDF document—paragraph (P), heading levels 1 through 6 (H1–H6), or Artifact. Tables and bulleted and numbered lists are recognized automatically in the export process and tagged appropriately.

Anchor images within the content flow. 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. Because screen readers use text-to-speech facilities to describe images, they should be placed as close as possible to the text that pertains to the image. InDesign's drag-and-drop object anchoring makes it simple to place the reference to the image in an appropriate location without affecting the print layout.

Add alternative text for images. Screen readers can only indicate the presence of an image. Conveying what the image depicts requires providing alternative text (alt text). With the Object Export Options feature in InDesign, you can specify alt text from metadata in an image file or add custom alt text to any image, graphic or group of objects in a layout.

Incorporate internal document navigation mechanisms. 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. The tagging order of a PDF document is essential to its readability. The Articles panel in InDesign CS6 enables you to precisely define which content in your document gets tagged and in what order. You can add content by dragging and dropping frames and objects into the Articles panel and then arranging them 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. For accessibility, as well as for search engine optimization, a PDF file requires a document title and a description of its contents. When you save this information in the InDesign File Information dialog, it's automatically transferred to Acrobat Pro X as required metadata.

Export as PDF with settings optimized for accessibility. When you use the InDesign PDF export options (print or interactive), the tagging, organizing, and bookmarking established in the layout become the tagging structure, order, and navigation scheme of the resulting PDF document.

Required steps in Acrobat X Pro

Set the language in Document Properties. You cannot set the document's language in InDesign. You must specify the language in the Advanced options area of the Acrobat Document Properties dialog.

Change display name from Filename to Document Title. 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 use the document structure in the Page Thumbnails pane. The structure established in the InDesign Articles panel is saved in the exported PDF file, but you must instruct Acrobat to honor that structure. To use the order specified by the InDesign document's structure, select all the pages in the Acrobat's Page Thumbnails pane, choose Page Properties from the Options menu, then select Use Document Structure for the tab order.

Run the Acrobat accessibility check. After these steps are completed, confirm that the document has no errors by choosing Full Check from the Acrobat accessibility tools.

Creating an accessible PDF

Add Export Tagging instructions to paragraph styles

Defining export tags in a paragraph style creates an association between the text using that style and its role in the semantic structure of the PDF document. You can set any paragraph style to one of eight basic PDF tags.

Understanding roles in a tagged PDF

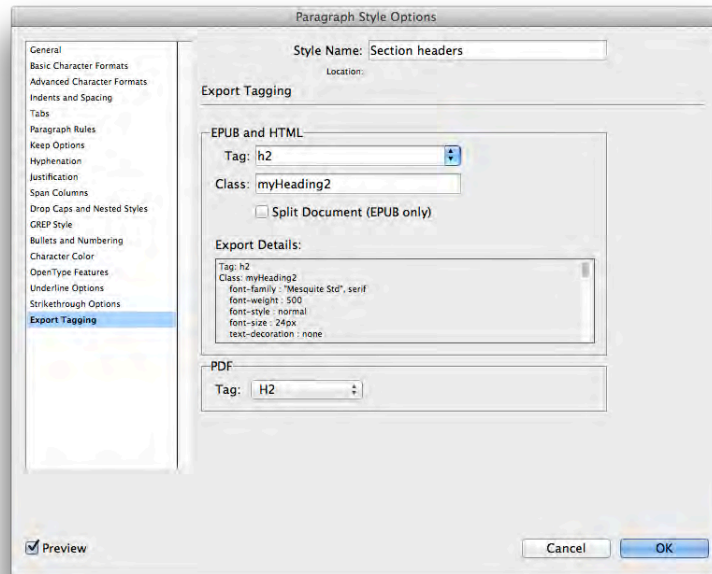
Assigning a paragraph style to a particular export tag defines its role in the tagged PDF file. For instance, text using an InDesign style named "Main Headline" might appear in the Acrobat Tags panel with a <Main Headline> tag wrapped around it, but in the Edit Role Map dialog in Acrobat, that Main Headline tag is assigned the role of <H1>, if H1 was defined as the style's export tag in InDesign.

Similarly, if a text flow in InDesign is tagged as <Story>, it is automatically mapped to the section (<Sect>) role in Acrobat.

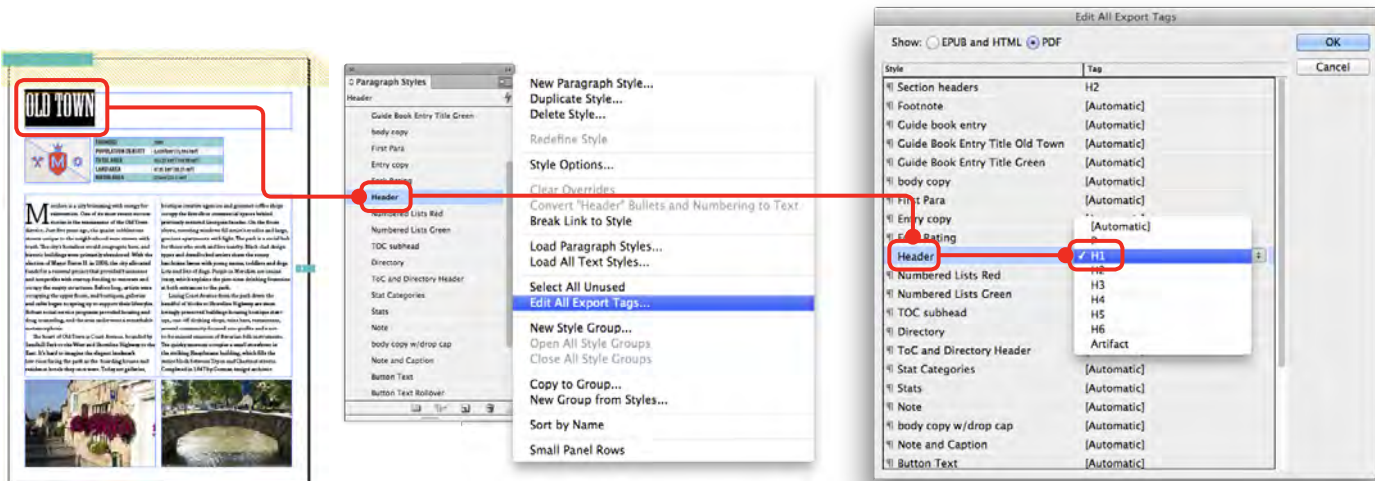
| PDF tag | Applied to |
|-------------------|---|
| <P> | Any standard, narrative paragraph of text that is not a heading |
| <H1> through <H6> | A heading that reflects the document's organizational hierarchy |
| <Artifact> | Any page content that the screen reader should ignore |

If you do not assign export tags, all styles default to Automatic. The Automatic setting honors any style-to-XML tagging that might have been established in an older XML-based workflow. If no style-to-XML relationships have been established, the Automatic setting translates them to a P tag in Acrobat. There is no additional parsing of the document to determine a heading structure. Because of this default behavior, explicitly assigning export tags to paragraph styles is an essential accessibility step.

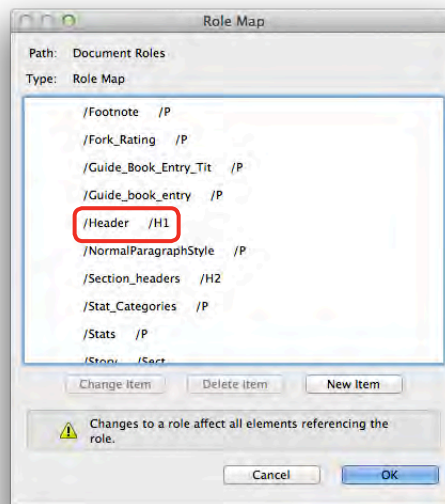
You set the Export Tagging options for a style in the Export Tagging area of the Paragraph Style Options dialog. If you use InDesign's Bullets and Numbering feature, bulleted and numbered lists are tagged as unordered or ordered lists, respectively, and converted automatically, depending on the options selected in the export process. Manually created lists are not recognized as list items.



InDesign's Export Tagging settings allow two 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, PDF has fewer options and no custom tagging options.



If a project already has styles, you can map all styles in the document in one step by choosing Edit All Export Tags in the Paragraph Styles panel menu (left). In the resulting dialog (right), select the PDF option and assign PDF tags from the pull-down menus in the right column to the paragraph style names in the left column.

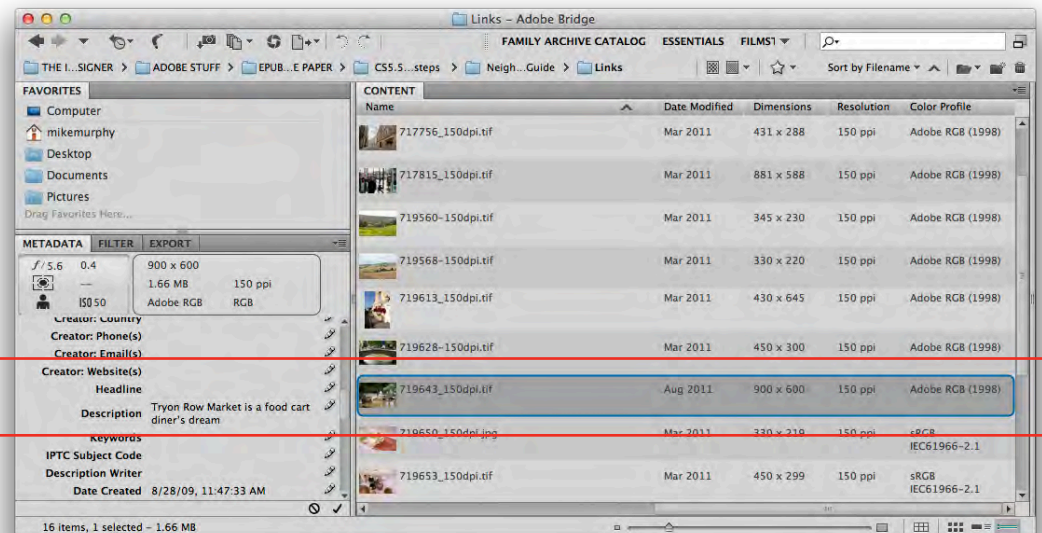


In Acrobat, the Role Map reflects the associations made between the InDesign Header style and the H1 tag and between the Section headers style and the H2 tag, both of which were assigned in the Export Tagging options for the respective styles in InDesign.

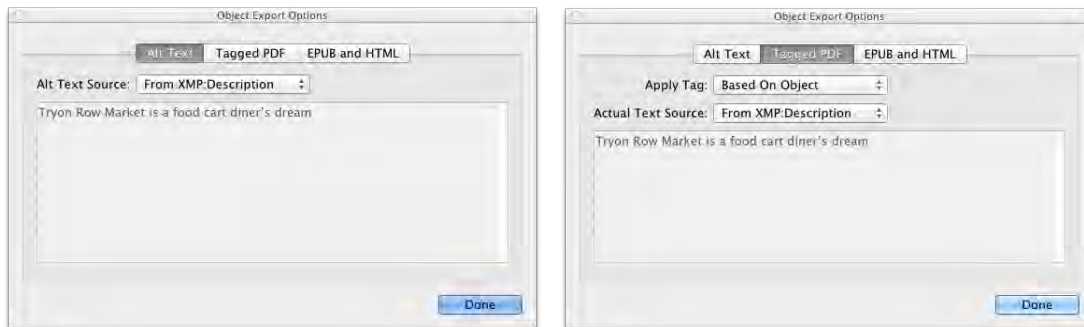
Add Alt text using Object Export Options

Images in an accessible PDF document require alternative 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 and CS6, you can also 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 the dialog.

The Object Export Options dialog has three tabs—Alt Text, Tagged PDF, and EPUB and HTML. Alt Text applies to both the PDF and EPUB/HTML workflows. You can generate the alt text from the document's XML structure (if any exists) or the image's XMP metadata (if present). Or you can directly add the alt text to the specific instance of the image in the layout by selecting Custom from the Alt Text Source pull-down menu.

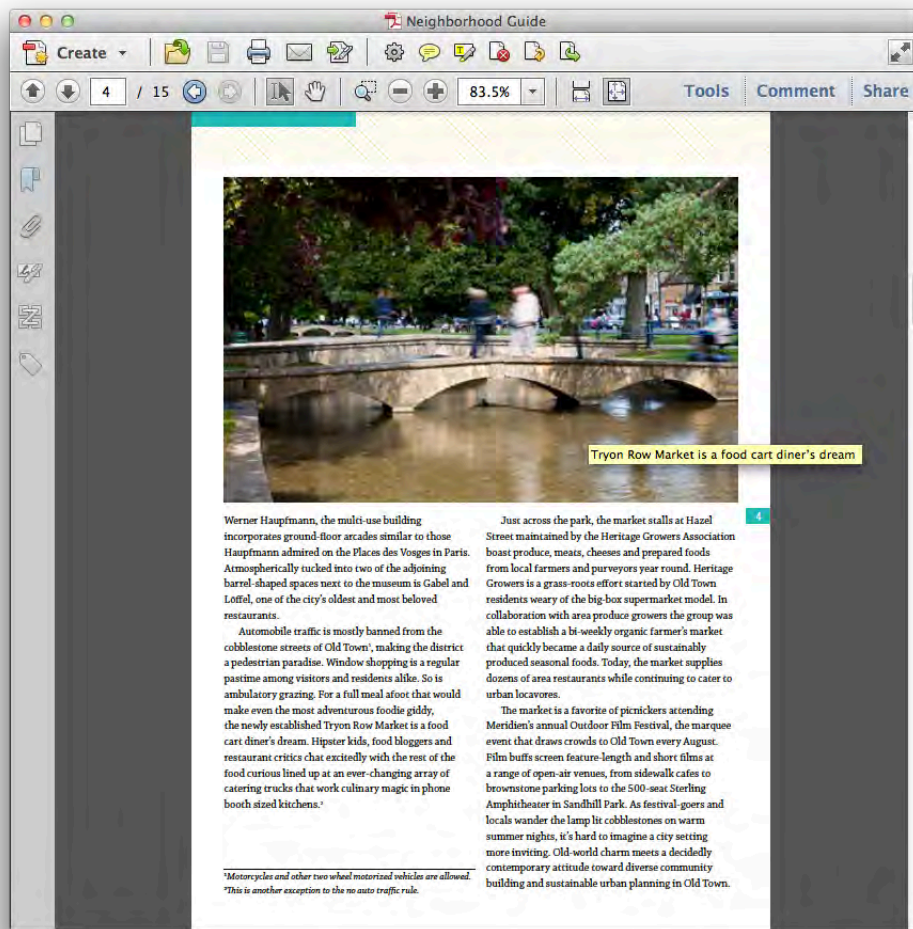


The XMP metadata for an image (top, shown in Adobe Bridge) is available as potential alt text in InDesign.



In the InDesign Object Export Options dialog box, you can 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 which object tag Acrobat applies (right) in the PDF document. Typically, the Based On Object option 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 the alt text and the metadata in the file is dynamic. If the metadata changes, alt text is updated when you update the image link in your InDesign document. Not including alt tags for all of your images will result in errors later in the workflow when you run the Acrobat accessibility check.



In the final PDF document, alt text appears as a tooltip when the user hovers over an image. The alt text is also 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 document, those images should be described at the appropriate point within the flow. InDesign 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 process has been a multistep task in earlier versions of InDesign, but was dramatically simplified in InDesign CS5.5.

Each InDesign frame and object group displays a small blue square on its top edge. To anchor an object in an accessible location in the text flow without changing the original position of the object, click and hold the blue square, and then drag it to the desired location within the text and release. The blue square changes to an anchor icon indicating that the object is anchored.

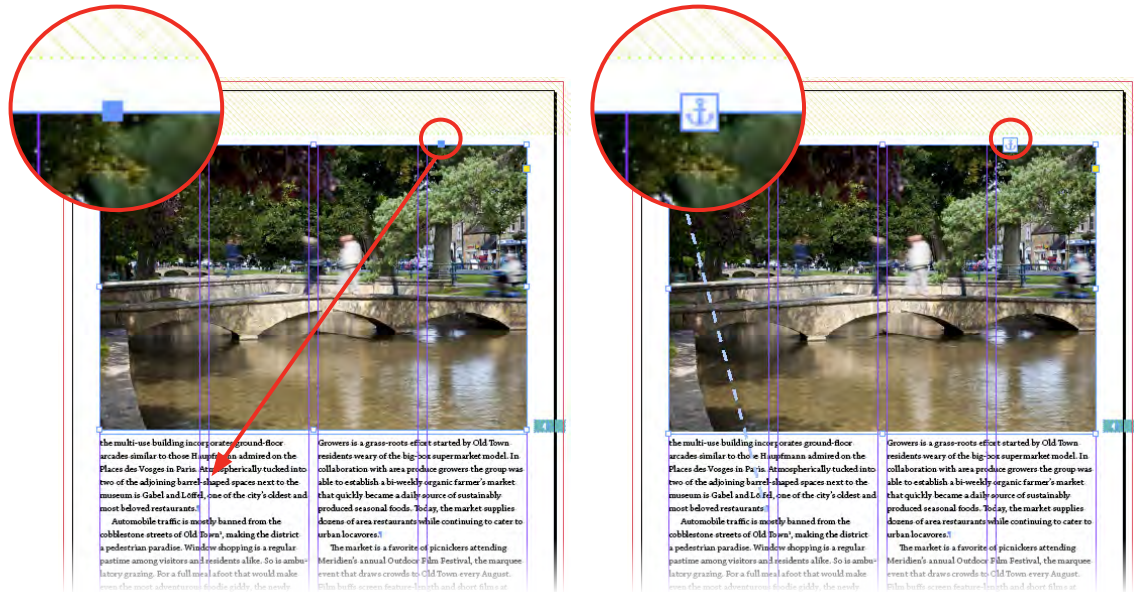
Tagging anchored text frames

You can anchor text frames within other text frames. In previous versions of InDesign, anchored text frames were incorrectly tagged as <Figure>, but in InDesign CS6, they are now tagged as <Story>. However, the content within the anchored text frame receives no additional paragraph, table, or list tagging when exported. All content in the frame is enclosed only in the <Story> tag.

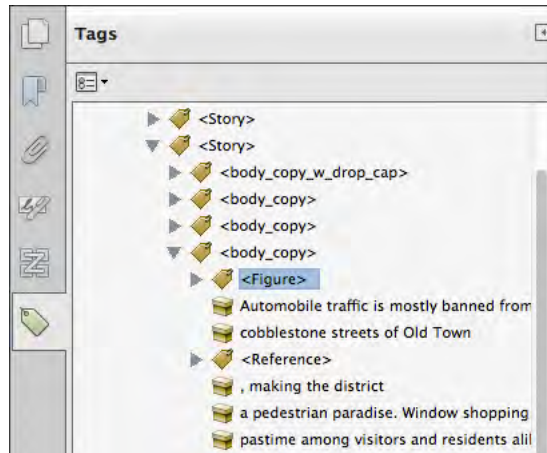
When possible, use the Articles panel to organize additional text frames such as sidebars to preserve desired content tags.

Tip

When you add multiple objects to the Articles panel at the same time, the objects are listed in the order in which they were clicked on the page. If you select page elements to add using Edit > Select All or by using the options available in the Articles panel menu InDesign determines the order, which might not correspond with your desired order.



To anchor an object, drag the blue square on a frame (left) to the desired location in the text. When anchored (right), the blue square becomes an anchor icon.



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

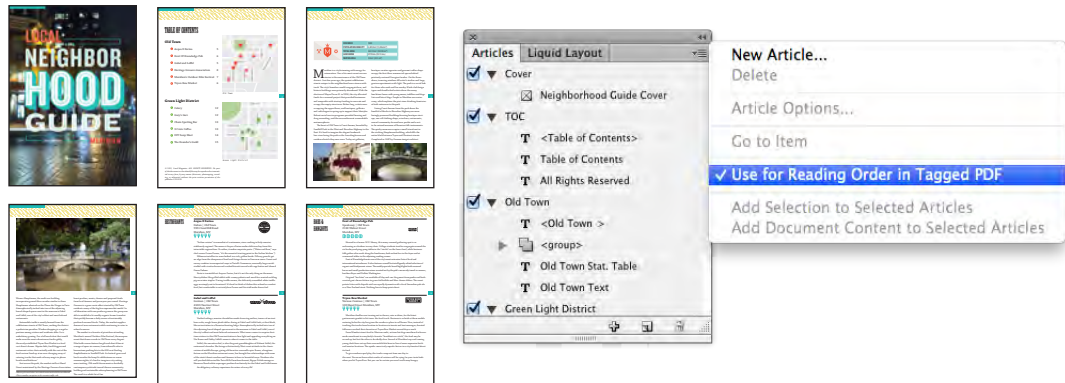
Establish a reading order with the Articles panel

InDesign's 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 the reading order in InDesign, open the Articles panel (Window > Articles) and 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. Objects are listed in the order that you click them. Name the article when prompted to, or keep the default name 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. If an object has already been given a specific name in the Layers panel, it retains that name in the Articles panel.



When adding a new article to the InDesign Articles panel, you must select Include When Exporting (the default) for the article to be properly tagged and ordered in the PDF file.



Recommendations for organizing content

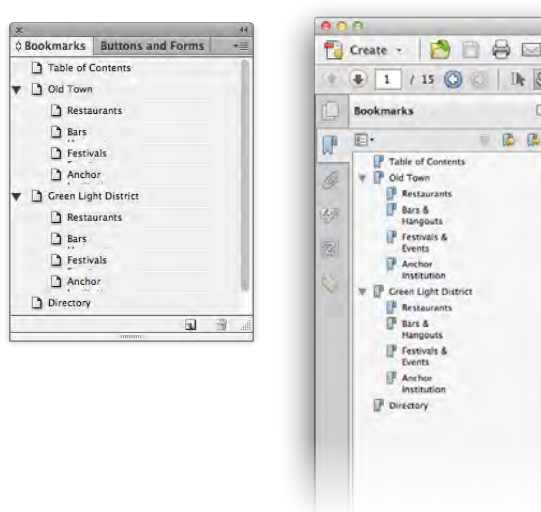
Each story in an article is enclosed in a <Sect> tag within the parent <Article> tag, identifying it as a section of the overall article and maintaining the contextual connection between the different pieces of content. To ensure that content related to a specific article, such as a sidebar, maintains its connection to that article, add the content to the article in the Articles panel rather than adding it as a new article.

To make sure that the order in the Articles panel is communicated to Acrobat when you export, select Use for Reading Order in Tagged PDF option from the Articles panel menu.

Organize your content in the Articles panel by dragging an item within an article up or down until all items are in the desired order. The reading order is from top to bottom. Reordering in the Articles panel does not affect the position or appearance of items on the InDesign page. You can also add elements from different parts of your layout into an existing article by dragging them from the layout into the Articles panel, or selecting them and choosing Add Selection to Selected Articles from the Articles panel menu. To break up your content's structure appropriately, you can create multiple articles.

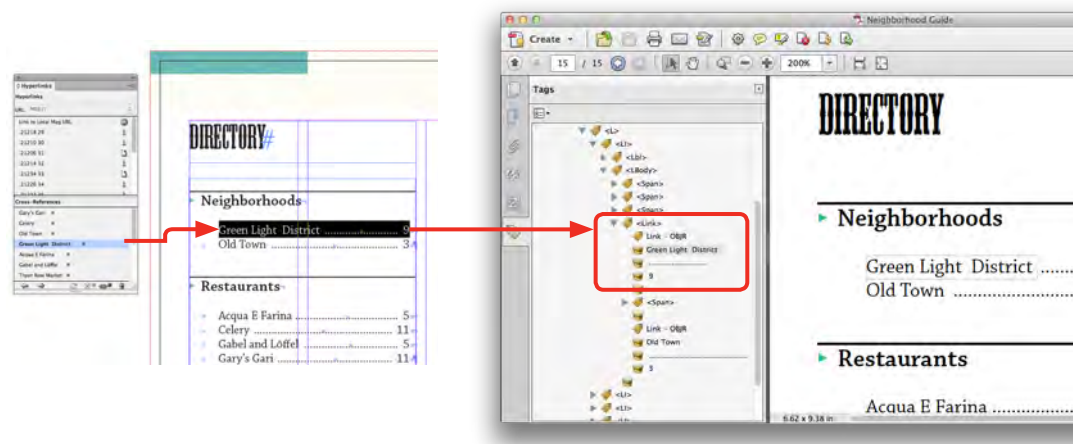
Add bookmarks, cross-references, and hyperlinks for navigation

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 users with disabilities move through a document and get an overview of its content and how that content is organized. A table of contents (TOC) generated in InDesign can add bookmarks automatically when the Create PDF Bookmarks option is selected in the Table of Contents dialog. You can also add custom bookmarks independent of a dynamic TOC in the Bookmarks panel (Window > Interactive > Bookmarks). You can link bookmarks 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).



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

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

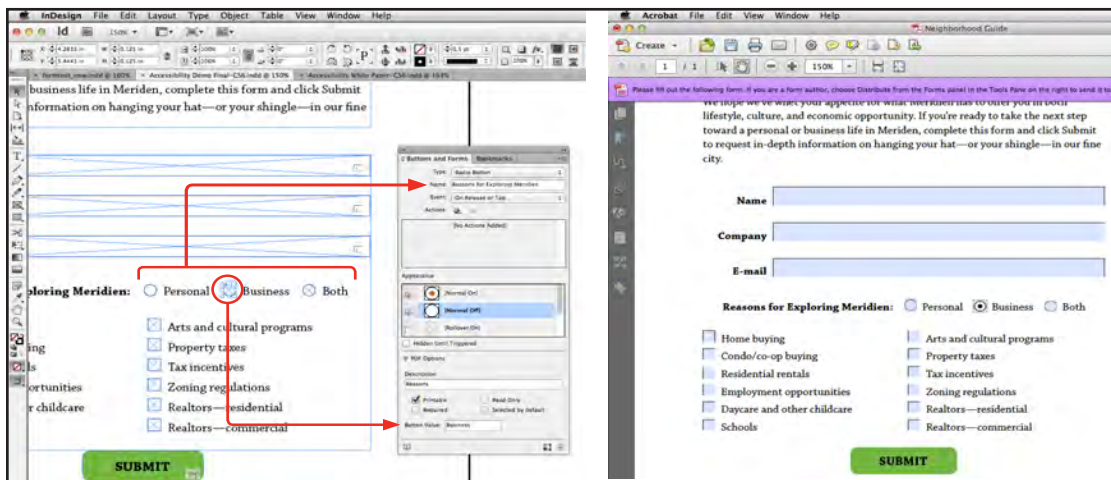


Cross-references created in InDesign (left) translate automatically to hyperlinks in the exported PDF document (right). Note that the entire Green Light District reference, including its page number, is within a <Link> tag in the Acrobat Tags pane. The improved export functionality of InDesign also correctly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

Add interactive form elements

With the addition of form-creation features in InDesign CS6, there is now additional support for tagging of certain interactive elements, such as form fields and buttons. An exported InDesign form contains the necessary <Annot> (annotation) tags to make it accessible in the resulting PDF document.

InDesign CS6 supports creation of checkboxes, combo and list boxes, radio buttons, text fields, and signature fields, all of which are created in the Buttons and Forms panel (Window > Interactive > Buttons and Forms). Each form element has both a name value and a description value that must be part of its definition. The description is essential for accessibility, because it acts as both the tooltip and as the alt text for the form item. The form can also have a visible label (for example, Name, Company, Phone) on the page, but as a user tabs from field to field or box to box, only the information assigned to the form element is read out; the adjacent text is not.

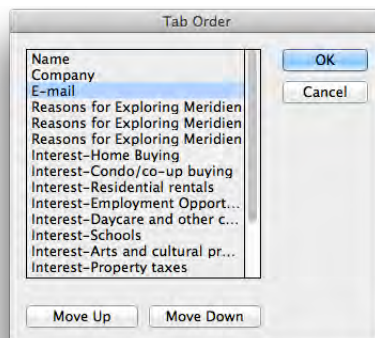


When setting up form elements in InDesign, properly identifying the button is essential for accessibility. In this radio button example, each of the three choices shares the same name and description in the Buttons and Forms panel. The shared name identifies the three options as part of the same either/or choice (only one can be selected). The description acts as both the tooltip and an identifier read out by screen reading software. The Button Value field identifies the specific choice and is also read by the screen reader. In this example, as the user makes a radio button choice using the keyboard, "Reasons. Business. Radio Button. Checked" would be read aloud.

It's essential to make sure that the tab order of the various form elements (including Submit buttons) is established correctly prior to export so that as the user tabs through—or is guided with an assistive device—the form fields and options, the user is advanced to each step in the proper order. When your form is designed and its functionality is defined in the Buttons and Forms panel, review the Tab Order dialog (Object > Interactive > Set Tab Order) to confirm that all form elements are listed in the proper order. Make any necessary adjustments or corrections using the Move Up and Move Down buttons. Alternately, you can add your form elements to the Articles panel in the appropriate tab order, but double-checking the order in the Tab Order dialog is still a good quality control measure.

Tip

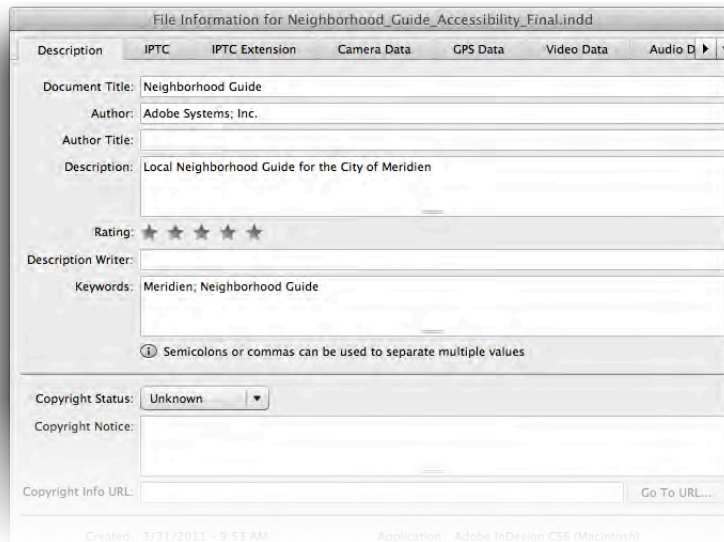
Form field order is most consistently maintained when form fields and other elements (checkboxes, radio buttons, and so on) are anchored in a text frame containing the entire form. Because text in a frame is a linear flow, that flow automatically establishes the tab order of the form elements.



The Tab Order dialog lists the order that a user moves through a form with either the Tab key or an assistive device from top to bottom.

Add file metadata to the InDesign document

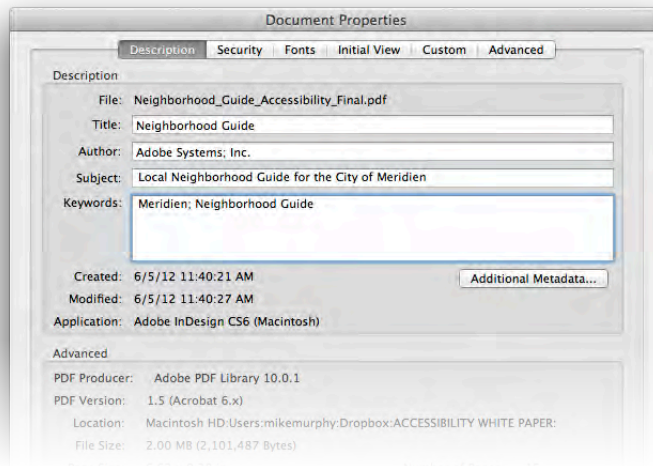
Accessible PDF documents require, at a minimum, a document title and a brief description of the contents. This information is stored in the file's metadata, which you can access from the Document Properties dialog in Acrobat. The metadata can (and should) originate in the InDesign document's File Information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



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

Tip

In the export process, a semicolon and space are added before the first keyword in the Keywords field of the Acrobat Document Properties dialog. This semicolon can cause problems with the successful interpretation of the keywords. You should delete the semicolon each time you create a new PDF document.

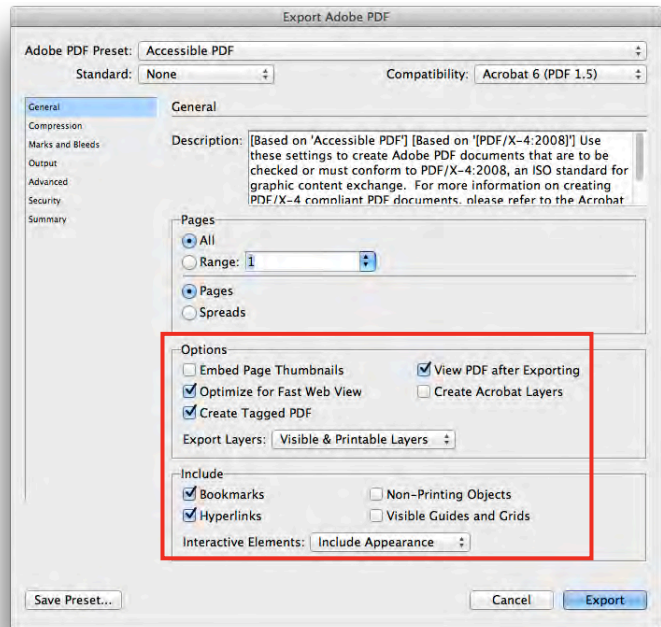
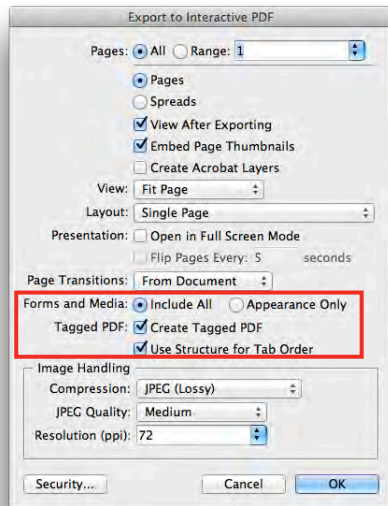


File metadata from InDesign reflected in the Description tab of the Acrobat Document Properties dialog.

Export for accessibility

After you prepared the document for accessibility in InDesign, you are ready to export it (File > Export) to PDF using the Adobe PDF (Interactive) or Adobe PDF (Print) format options. Which PDF type you choose depends upon whether or not your document contains interactive elements such as forms, buttons, audio, or video. Although the formatting is the same for both PDF types, they offer different options in their respective dialog boxes.. The Adobe PDF (Print) format exports bookmarks and hyperlinks but not buttons, audio, video, or animation. You can only opt to include the appearance of these interactive elements — not their functionality — or to not include them at all.

To be accessible, the exported PDF must be tagged, so make sure you select the Create Tagged PDF option in the Export dialog box for either PDF type. In the Export to Interactive PDF dialog, select the Use Structure for Tab Order option to save yourself that step in Acrobat later on. To activate bookmarking, hyperlinks, cross-references, and buttons, set the Forms and Media option to Include All. All other settings in the dialog are optional and subject to your specific needs or preferences. To automatically open the PDF document as soon as the export is completed, select the View After Exporting option. You can then move on to the final few steps required in Acrobat X Pro.



Whether you require an interactive PDF with the appropriate features or a print PDF, you must select the Create Tagged PDF option to add the necessary tagging for screen readers. To enable all bookmark, hyperlink, and cross-reference functionality in a print PDF, select the Bookmarks and Hyperlinks options. When exporting an interactive PDF, choose Include All Forms and Media to enable both navigational features and interactive elements. To save a later step in Acrobat, choose the Use Structure for Tab Order option. The order in the Articles panel is always used first. If there's no Articles panel ordering, the document's XML structure (if any) is followed.

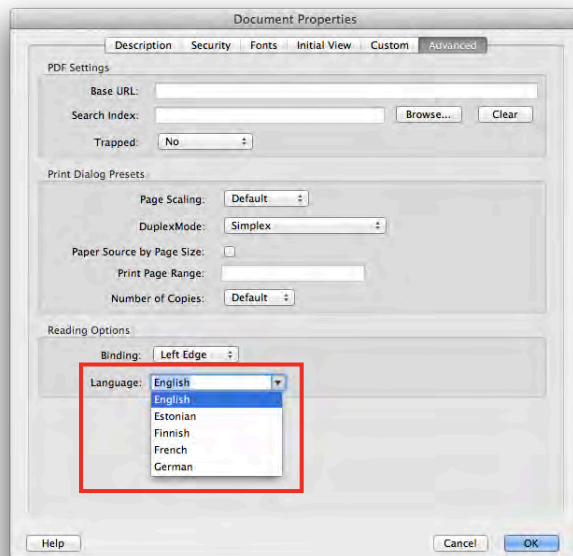
Review the exported PDF in Acrobat X Pro

As with any published document, it's always a sound policy to review the final version for any potential unexpected results. Looking at the tagging structure in the Acrobat Tags pane may help foster a better understanding of the connection between your InDesign preparation and the final PDF document.

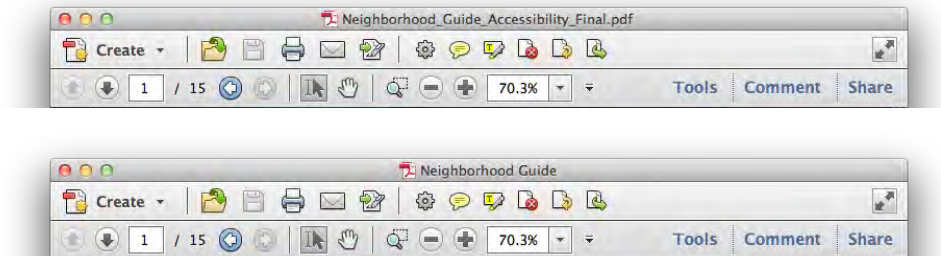
The Acrobat Order pane might not match the order you establish in InDesign's Articles panel, and it doesn't necessarily reflect the reading order used by assistive technologies and the Acrobat Read Out Loud feature. Only the Tags panel ordering, as determined by the arrangement of content in the InDesign Articles panel, represents the reading order of the PDF content, regardless of the sequence shown in the Order panel or in the Acrobat Reflow mode.

Assign a document language in Acrobat X Pro

After you've created the PDF file, you can move to Acrobat X Pro to complete the remaining steps to make the PDF document accessible. The first step is to set the document's language in the Advanced tab of the File Properties dialog (File > Properties). InDesign has no corresponding setting, so you must set the language in Acrobat. It's also recommended that you set the document to display its title in the document window's title bar rather than its filename. You can make that change in the Initial View options of the Document Properties dialog.



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



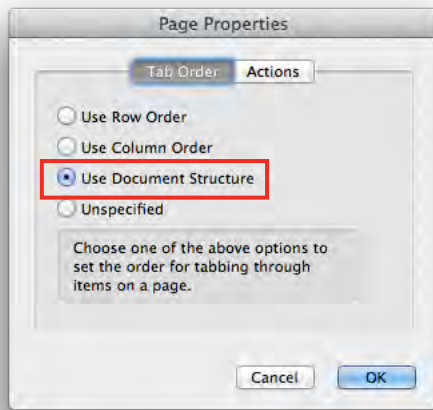
Because the document title (bottom) stored in the PDF file's metadata is often more logical, accurate, and screen reader-friendly than a PDF filename (top), it should be set to display in the title bar.

Specify the tab order

The structure created in the InDesign Articles panel is exported to the PDF file, but it is not automatically set as the order followed when tabbing through interactive elements like hyperlinks and form fields. You must establish the tab order the Acrobat Page Thumbnails pane (View > Show/Hide > Navigation Panes > Page Thumbnails). Highlight all of the documents page thumbnails, and then choose Page Properties from the Options menu in the Page Thumbnails pane. In the Tab Order area of the Page Properties dialog, change the content order from Unspecified to Use Document Structure.

If you've exported your document as an Interactive PDF file and selected the Use Structure for Tab Order option, you can skip this step. Because print version of the InDesign Export Adobe PDF dialog does not have this option, you must select it in Acrobat.

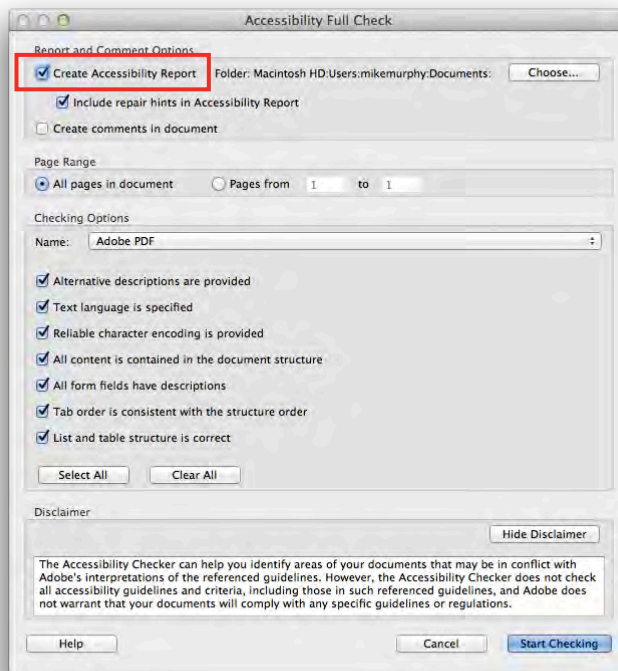
Tip
To quickly select all page thumbnails in the Acrobat Page Thumbnails pane, click the first page thumbnail, then press Command+A (Mac OS) or Control+A (Windows).



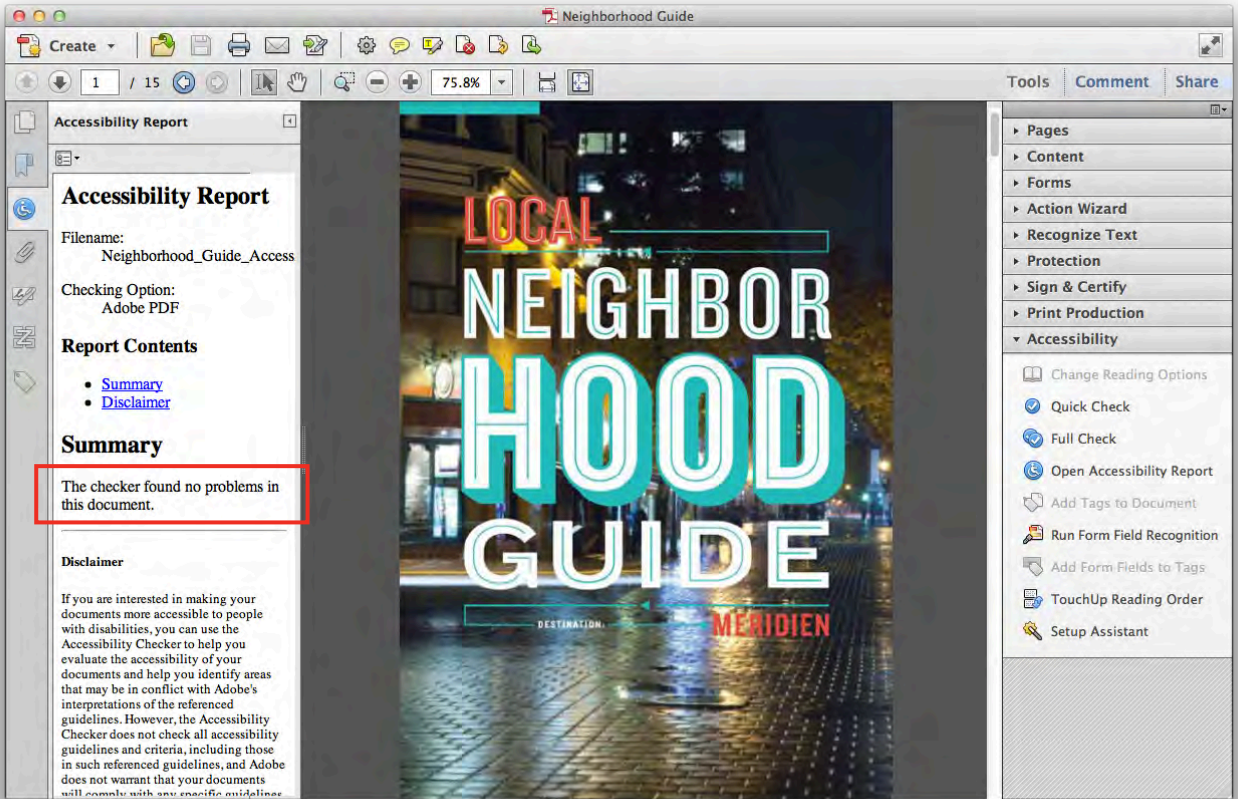
The tab order of a PDF file exported from InDesign is set to Unspecified by default, which is not a reflection of the structure established in the InDesign Article's panel. To establish the InDesign structure in the PDFdocument, you must select Use Document Structure.

Run the Acrobat X Pro accessibility check

From the Acrobat Tools pane, expand the Accessibility options (View > Tools > Accessibility), and select Full Check. Make sure that the Create Accessibility Report option is selected. This option shows whether the document is error free, and if not, details the problems.



The default settings of the Acrobat Accessibility Full Check dialog, including the option to create a report after completion.



The Accessibility report should indicate that no errors were found. If the check revealed an error, such as missing alt text for an image, it's best to fix that error in InDesign, reexport, and repeat the Acrobat steps rather than fixing the problem 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

- **U.S. Government's Official Section 508 website**
www.section508.gov
- **Video on creating PDF forms with InDesign CS6**
tv.adobe.com/watch/visual-design-cs6/creating-pdf-forms-with-indesign-cs6
- **Adobe Systems Accessibility Resource Center**
www.adobe.com/accessibility
- **InDesign Accessibility Product Page**
www.adobe.com/accessibility/products/indesign
- **Video on preparing accessible PDF documents with Adobe InDesign CS5.5: Part I**
<http://tv.adobe.com/watch/accessibility-adobe/part-1-new-accessibility-features-in-indesign-cs55>
- **Video on preparing accessible PDF documents with Adobe InDesign CS5.5: Part II**
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