

A Guide to Creating Electronic Appellate Briefs

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Supreme Court of Texas**

There are six basic steps to creating an electronic brief that complies with the electronic filing rules for Texas Appellate Courts:

- (1) convert your brief from the original word processing document, such as Word or WordPerfect, directly to PDF (**do not scan the brief to create a PDF**);
- (2) convert any appendix materials to PDF (do not scan materials that are available in electronic format (e.g. court opinions, statutes, rules, etc.);
- (3) make any scanned appendix materials searchable using Optical Character Recognition (OCR) software like Adobe Acrobat;
- (4) combine the brief and any appendix materials together into one computer file;
- (5) create bookmarks for any documents contained in an appendix; and
- (6) redact any information that must be redacted under the rules (e.g. social security numbers, minors' names, bank account numbers, etc.).

If you have Adobe Acrobat, you can complete steps 1-5 in one easy step using the Combine Documents features, which is discussed in detail below.

If you do not have an appendix or attachment you can skip steps 2 through 5—just save your document as a PDF. And you can skip step 6 if there is not any information in your document that must be redacted.

Although not required by the rules, in addition to creating bookmarks for your appendix you should also create bookmarks for the different sections of your brief. Bookmarks are a fast and easy way for the courts and their staff to navigate through the brief.

If you have time, consider including in your appendix copies of opinions or authorities that are important to your case and providing hyperlinks in the index of authorities and the body of your brief to the cited authorities. You can even include a copy of every case and other authority that you cite in the appendix and then hyperlink every citation to the cases and authorities in your appendix. This is not required by the rules and can be labor intensive. But Justices and their staff frequently comment that they like fully hyperlinked briefs.

The fastest and easiest way to create electronic briefs is to use Adobe Acrobat. There are other software programs that allow you to convert documents

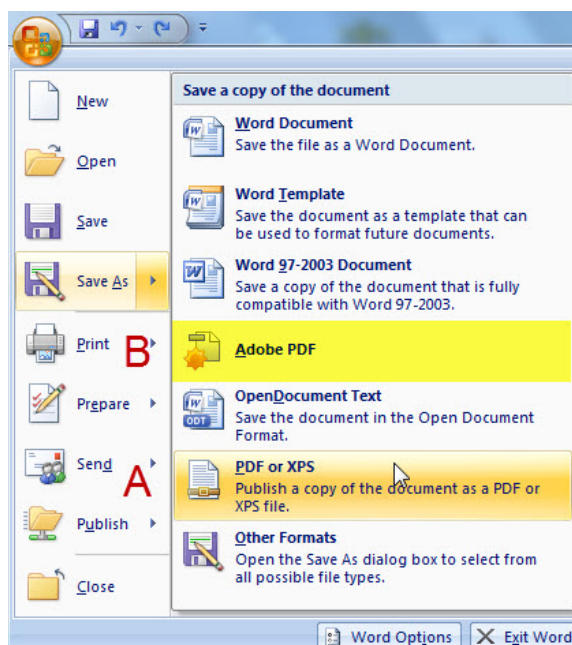
to PDF, combine PDF documents together, make PDF documents searchable, redact PDF documents¹, and create bookmarks and hyperlinks. But Adobe Acrobat is the most comprehensive solution. You will also find more blogs, books, and online support for Adobe Acrobat than any other PDF software on the market. These instructions explain how to use Adobe Acrobat to create an electronic brief. But these same basic processes should be followed if you use a different software program.

1. CONVERTING BRIEFS AND OTHER TEXT DOCUMENTS DIRECTLY TO PDF.

A. Word

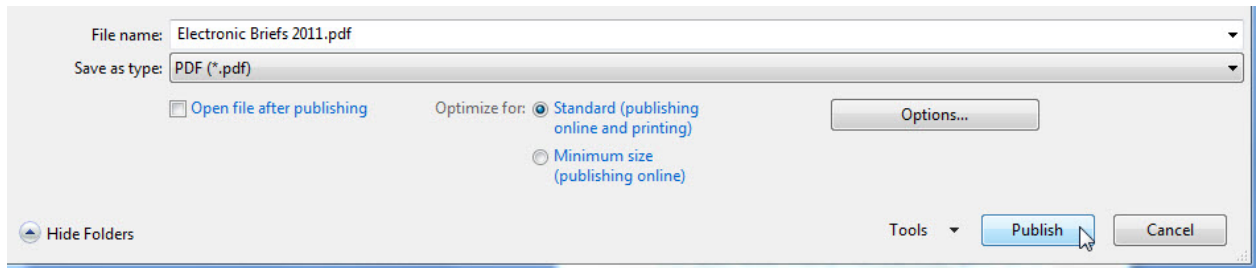
In Word 2003, 2007 and Word 2010 you can easily convert your Word document to a PDF. Follow these simple steps:

1. Click the Microsoft Office Button in the top left corner of Word;
- 2 (A) Choose “Save As” and “PDF or XPS” OR
(B) If you have Adobe Acrobat installed choose “Save As” “Adobe PDF”;

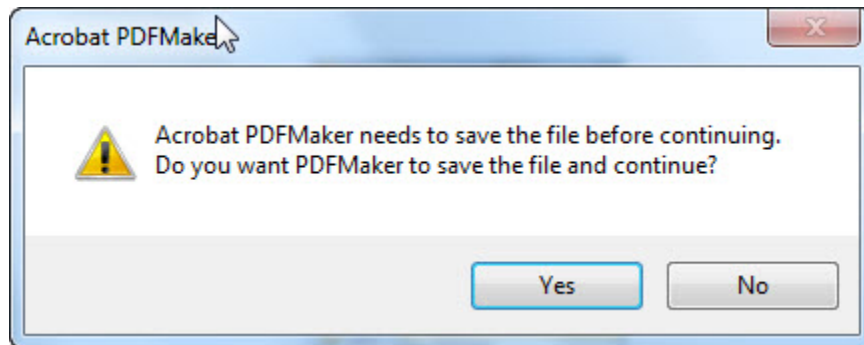


¹ Only Adobe Acrobat Pro provides the ability to redact PDF documents. Adobe Acrobat Standard does not provide the ability to redact documents.

3. (A) In the dialog box that appears, click the button in the lower right hand corner that says “Publish”.



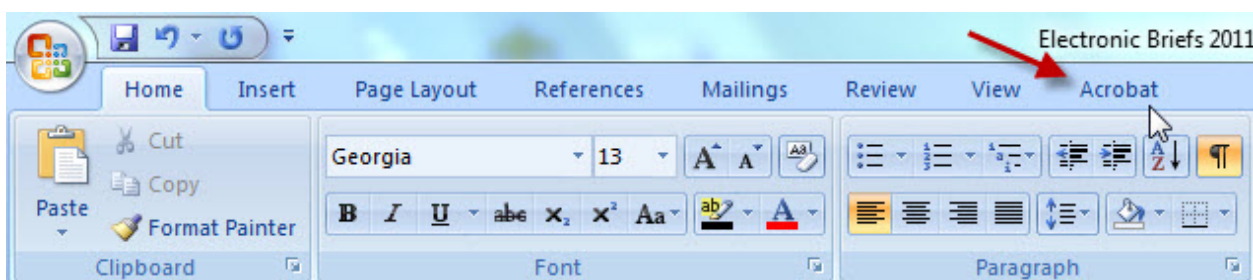
- (B) If you have Adobe Acrobat installed and you chose to “Save As” “Adobe PDF”, a dialog box should appear that says “Acrobat PDFMaker needs to save the file before continuing. Do you want PDFMaker to save the file and continue?” Choose “Yes.”



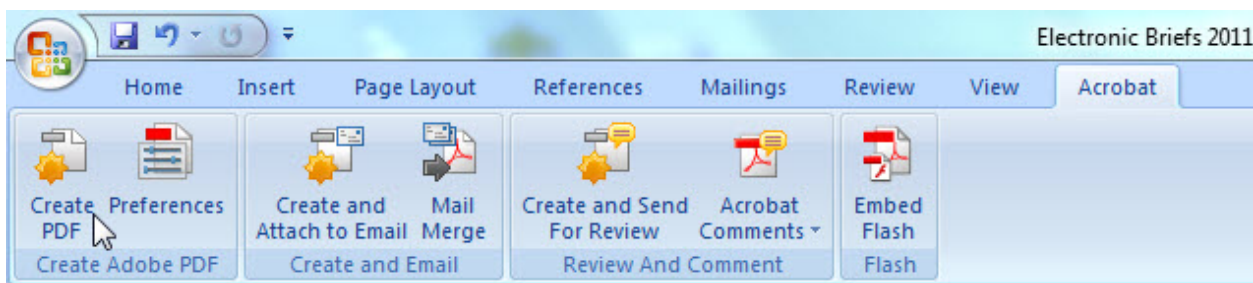
If you have installed Adobe Acrobat, you also have the option of using the Adobe PDFMaker ribbon to create a PDF in Word. When you install Adobe Acrobat, the installer adds Acrobat PDFMaker buttons or menu commands to Microsoft Office applications. In Word 2007 and Word 2010, in the ribbon at the top of the screen you should see “Acrobat” next to “View”. Selecting “Acrobat” reveals the Acrobat ribbon.

Follow these steps to convert your brief directly to PDF in Word using the PDFMaker ribbon:

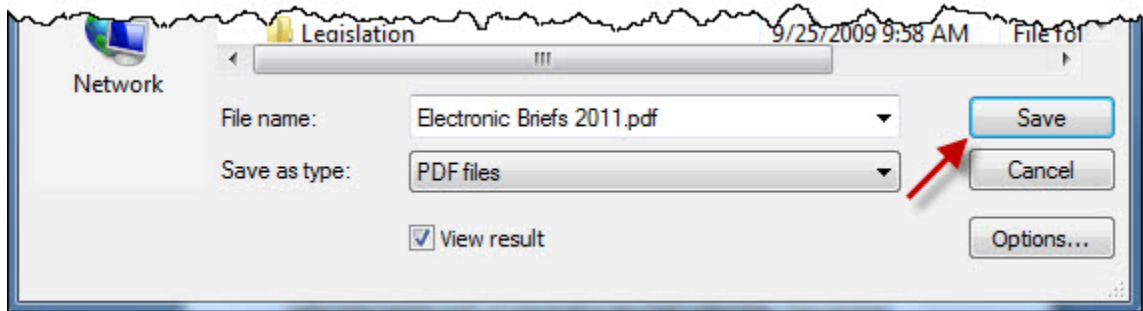
1. Choose “Acrobat” at the top of the screen (to the right of “View”)



2. Click “Create PDF” in the PDF Maker menu



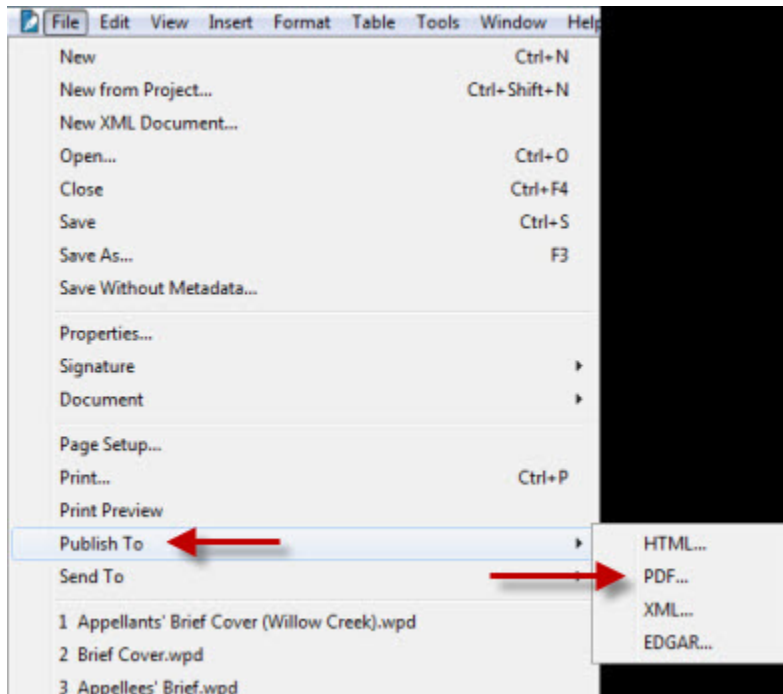
3. In the dialog box that appears, click “Save”.



B. WordPerfect

In WordPerfect follow these steps:

1. Choose “File”
2. Select “Publish To” and then “PDF”



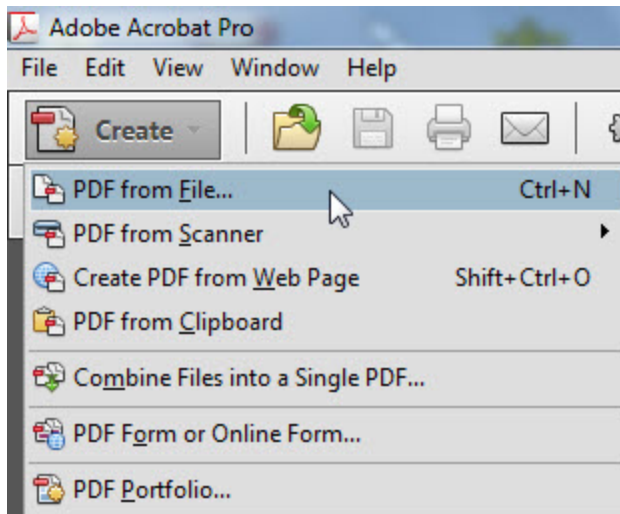
3. In the dialog box that appears, select the button that says “OK”.

C. Adobe Acrobat

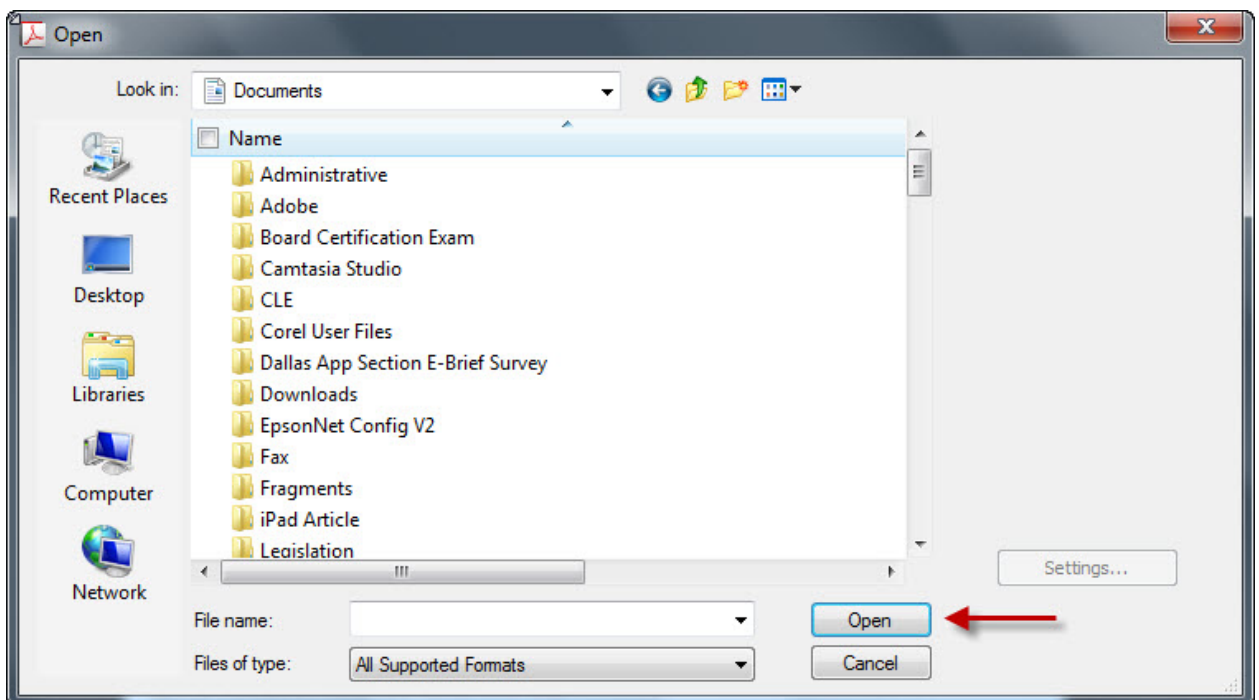
1. Open Acrobat
2. In **Acrobat 8 and 9**, choose File > Create PDF > From File.

Or in the task bar click the Create PDF button and choose File.

In **Acrobat X**, click the Create PDF button in the Welcome Screen or click the Create PDF button on the Quick Tools toolbar, and choose PDF From File.



3. Use the dialog box that appears to locate the document you want to convert to PDF. Select the document and click “Open.”



4. Once Adobe Acrobat has converted the file to PDF, then save the document. You can save the document by clicking File > Save or by clicking File > Save As > PDF.

2. CONVERTING APPENDIX MATERIALS TO PDF.

A. Do not scan appendix materials unless you have to.

Do not scan appendix materials unless you absolutely have to. Scanning creates larger files that are slow to load on portable electronic devices like iPads, Kindles, iPhones, Blackberries, etc. Scanning a large number of documents will compound this problem. Scanned documents are also not searchable unless you use Optical Character Recognition (OCR) Software to make them searchable. OCR software is often not accurate, meaning that Justices and their staff may not be able to find what they are looking for with a computer search of your scanned documents.

B. Use court websites and the Legislature's website to obtain free electronic copies of legal sources. Convert these electronic copies directly to PDF using the instructions above or the Combine feature in Adobe Acrobat.

Most legal authorities can be found online in electronic format and saved as a text file (e.g. Word) and then converted directly to PDF. For example, Texas appellate courts post their opinions online in HTML and PDF formats. Instead of scanning the paper copy of a court of appeals opinion, use the electronic version available for free on the court's website. Texas statutes are also available in Word and PDF format online for free through the Legislature's website at <http://www.statutes.legis.state.tx.us/>.

C. Better yet, use Westlaw or Lexis to download hyperlinked electronic copies of legal resources.

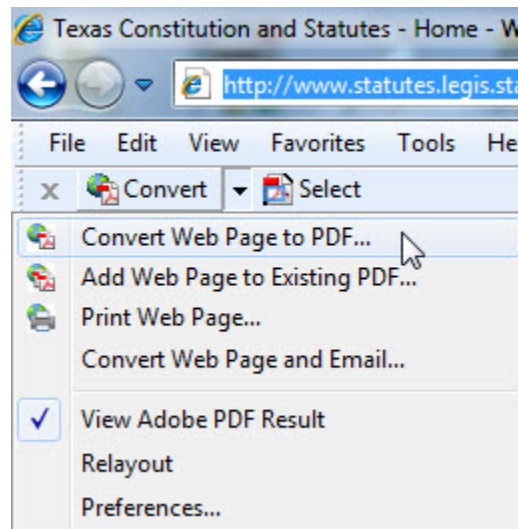
You can also obtain these legal authorities from Westlaw or Lexis and have them e-mailed to you as PDF files (or Word, WordPerfect, etc.). The great thing about using these electronic versions from West and Lexis is that the hyperlinks to legal sources cited in the opinions are available to the Justices and their staff, saving them time and effort when doing research on their case. Making things easier on the Justices and their staff is always a good idea.

D. Convert web pages directly to PDF using Adobe PDFMaker in Internet Explorer instead of printing the web pages out and scanning them.

If you have Adobe Acrobat, use the Adobe PDFMaker in Internet Explorer to convert web pages directly to PDF instead of printing them out and scanning them. PDFMaker will save the web page as a PDF and will preserve the hyperlinks on the web page. There are two tabs in the Internet Explorer menu bar—“Convert” and “Select.” The “Convert” tab lets you to convert the entire web page to PDF. The “Select” tab lets you select portions of the page to convert to PDF.

To convert the entire web page to PDF, follow these steps:

1. Use Internet Explorer to locate the web page you are looking for.
2. In the menu bar choose Convert >Convert Web Page to PDF.



3. In the dialog box that appears, click “Save.”

It is not unusual to see a warning that some of the contents of the web page could not be converted to PDF. Check the results to see if they are satisfactory.

3. MAKING SCANNED DOCUMENT SEARCHABLE USING OPTICAL CHARACTER RECOGNITION (OCR) SOFTWARE

If you have to, you can scan appendix materials and then make them searchable using Optical Character Recognition Software.

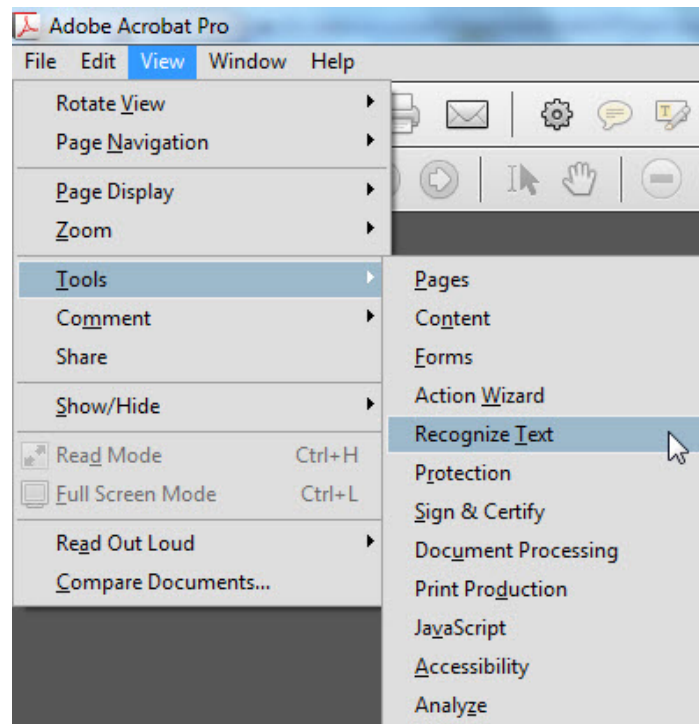
To make a scanned PDF searchable using Adobe Acrobat, follow these steps:

In **Acrobat 9**, follow these steps:

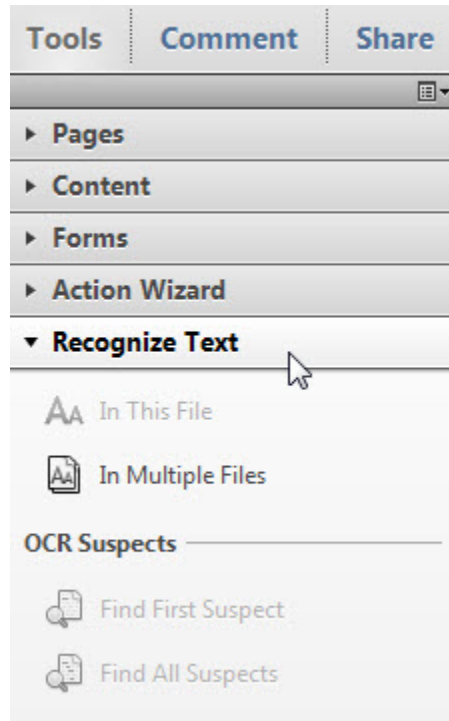
1. Open the document in Acrobat.
2. Choose Document>OCR Text Recognition>Recognize Text Using OCR.
3. In the Recognize Text dialog box, select an option under Pages.
4. Optionally, click Edit to open the Recognize Text-Settings dialog box, and specify the options as needed.

In **Acrobat X**, follow these steps:

1. Open the document in Acrobat.
2. Choose View>Tools>Recognize Text>In this File or in the sidebar menu choose Tools>Recognize Text>In this File.



(Adobe Acrobat X: View>Tools>Recognize Text)

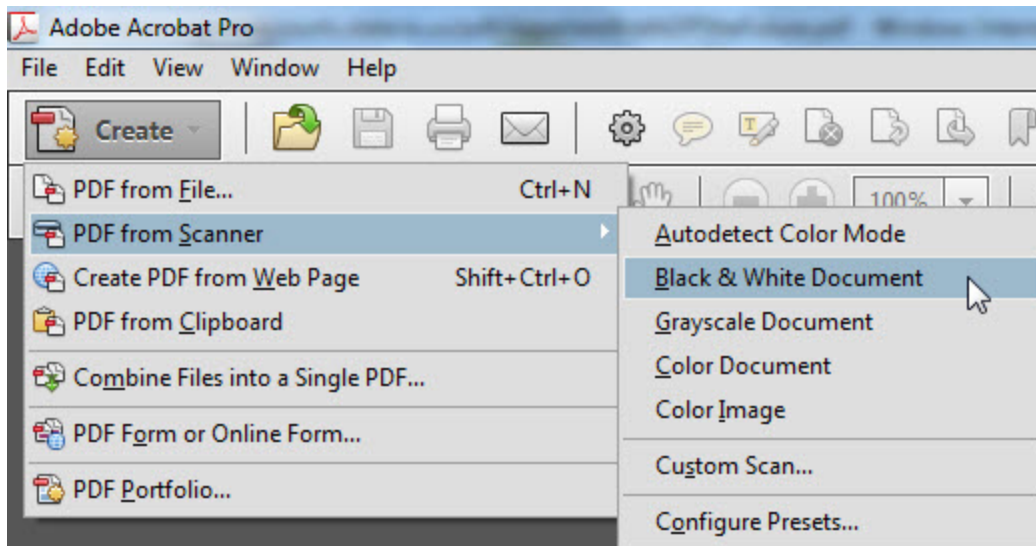


(Adobe Acrobat X Side Bar: Tools>Recognize Text)

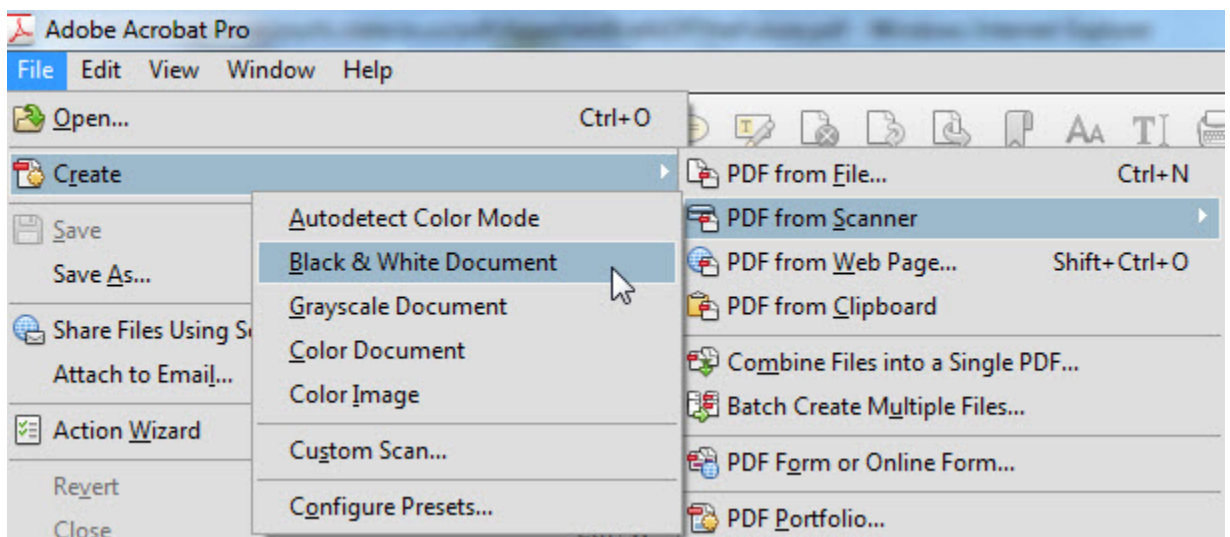
Scanning with Adobe Acrobat:

If you have a scanner connected to your computer that Adobe recognizes, you can scan documents using Adobe Acrobat and save it as a PDF file that has searchable text. To scan a document using Adobe Acrobat and make it searchable, follow these steps:

1. Insert the document into your scanner.
2. Open Adobe Acrobat.
3. In Acrobat , choose “Create>PDFFrom Scanner.
4. Choose from the following options: (1) Black and White Document; (2) Grayscale Document; (3) Color Document; (4) Color Image; (5) Custom Settings.



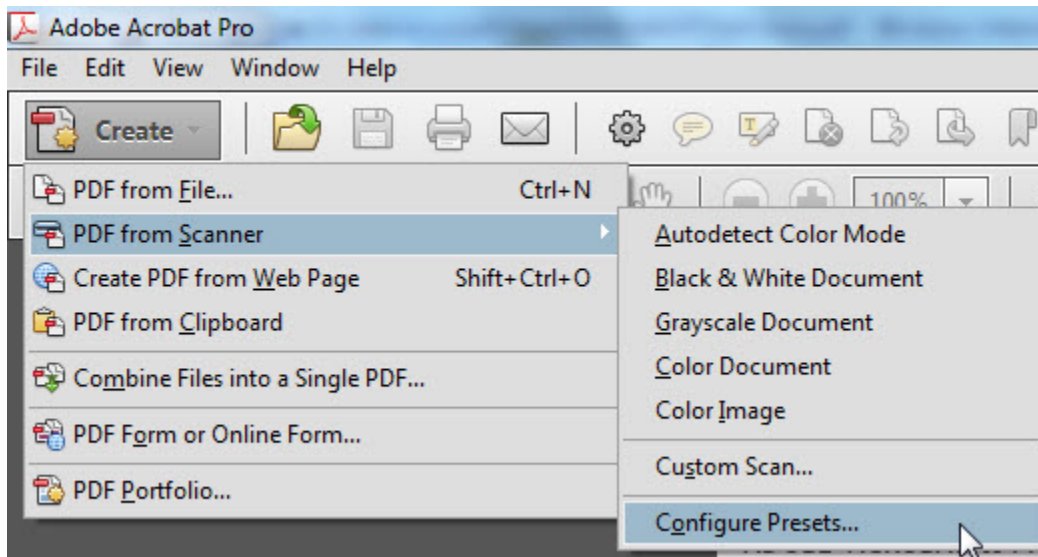
(Image is from Adobe Acrobat X-using the Create button in menu)



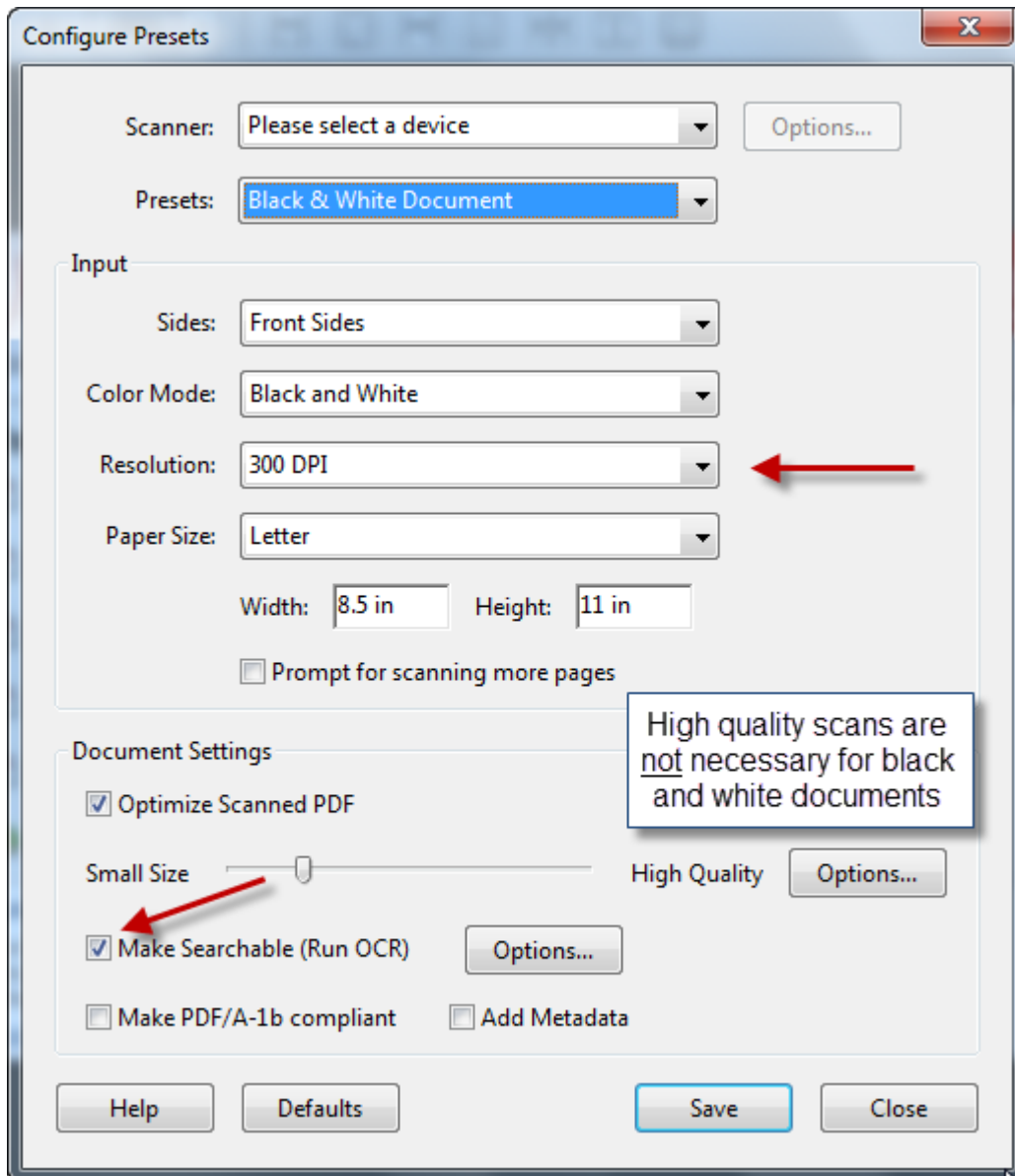
(Same step using File>Create>PDF from Scanner>Black & White Document).

Most often you will want to choose the Black and White Document setting. The Grayscale setting is recommended for scanning black and white photographs. The Color Document setting is for scanning color pages that contain solid colors. The Color Image setting is for scanning color photographs. Obviously there is no point in using color settings for black and white documents. If you do so, you will create a file that is unnecessarily large.

If you have not already configured your preset settings for the different scanning options (e.g. Black & White Documents) you will need to do so before scanning a document. To configure these settings choose Create > PDF from Scanner>Configure Presets.



Configure your presets to scan at 300 dpi (as required by the rules-higher settings create larger files). Be sure to check the “Make Searchable (Run OCR)” check box. For standard black and white documents you do not need to create a high quality scan (this will increase the file size unnecessarily).



Configure Presets dialog box for scanning in Adobe Acrobat.

4. COMBINING YOUR BRIEF AND APPENDIX MATERIALS TOGETHER INTO ONE COMPUTER FILE.

The rules require you to combine your brief and any associated appendix together into one computer file. This task is easily accomplished in Adobe Acrobat. Here are the steps:

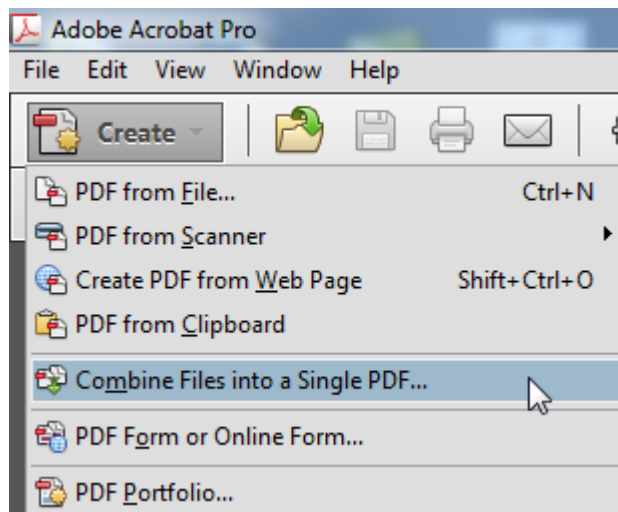
Adobe Acrobat 9

1. Choose Create PDF>Merge Files into a Single PDF or Combine>Merge Files into a Single PDF.
2. In the Combine Files dialog box, add the individual files or folder of files that you want to combine into a single PDF. The files can be a mix of formats that are supported by Adobe Acrobat (Word, PDF, Excel, etc.).
3. Arrange the files in the order that you want them combined using the Move Up and Move Down buttons.
4. Select the Combine button in the dialog box and save the resulting combined file.

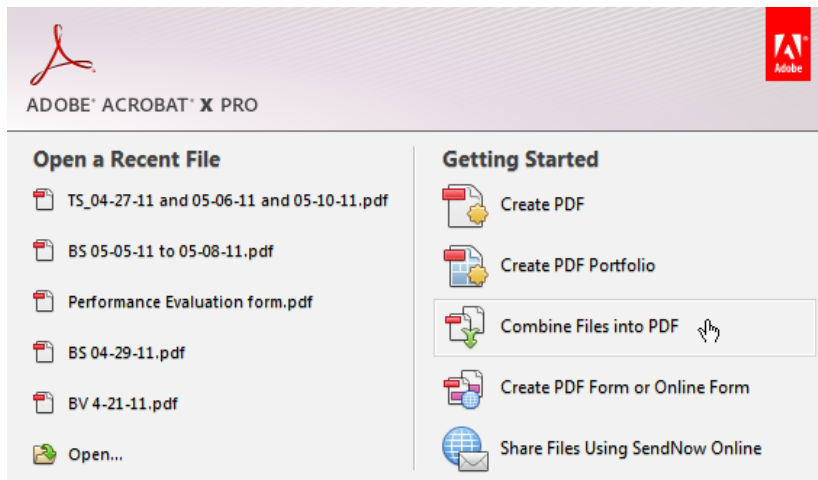
(See illustrations below)

Adobe Acrobat X

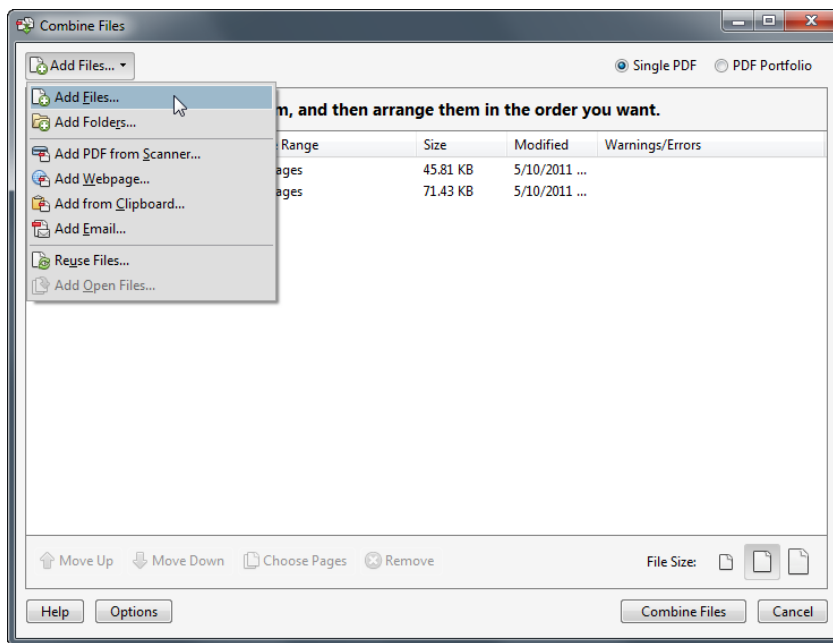
1. Choose Create > Combine Files into a Single PDF or Combine Files into PDF in the Getting Started Menu.



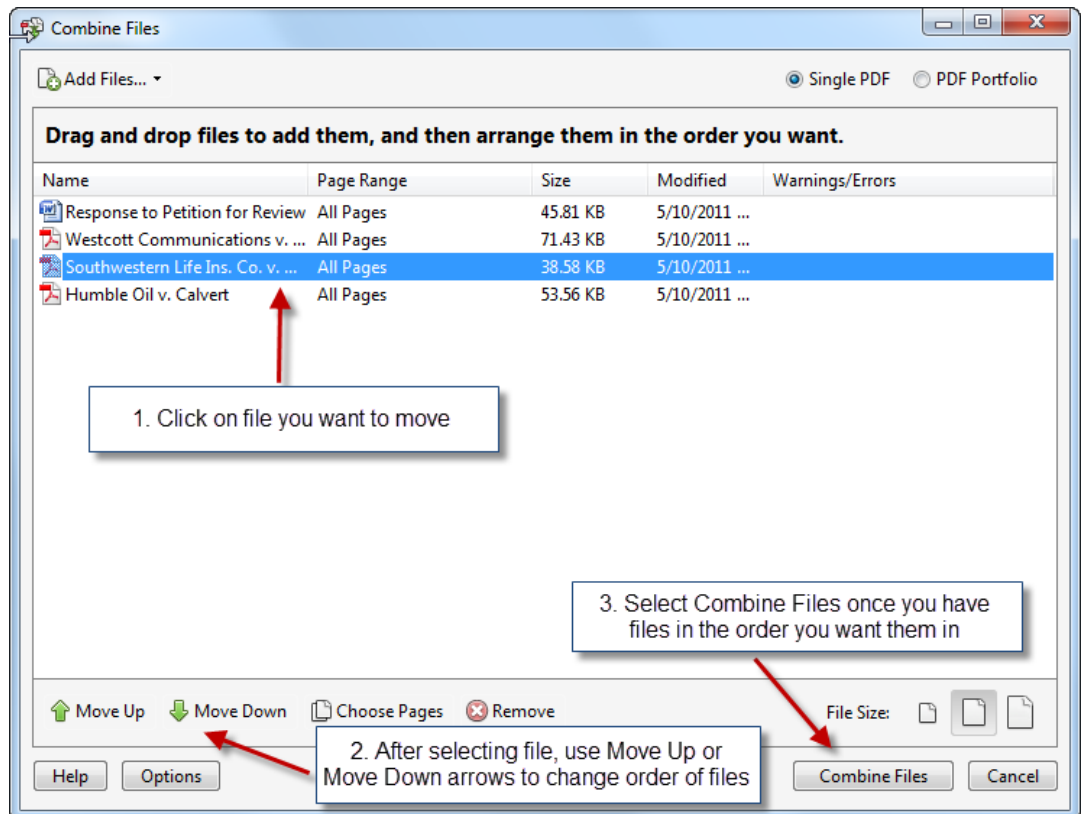
OR



2. In the Combine Files dialog box, add the individual files or folder of files that you want to combine into a single PDF. The files can be a mix of formats that are supported by Adobe Acrobat (Word, PDF, Excel, etc.).



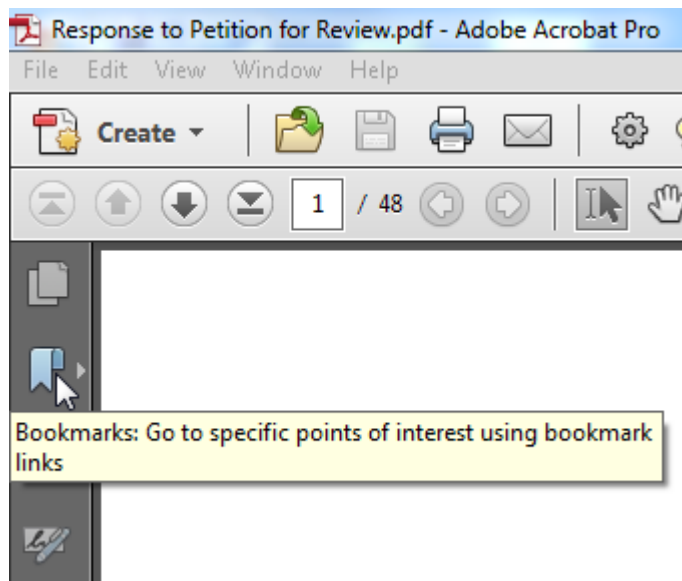
3. Arrange the files in the order that you want them combined using the Move Up and Move Down buttons.
4. Select the Combine button in the dialog box and save the resulting combined file.



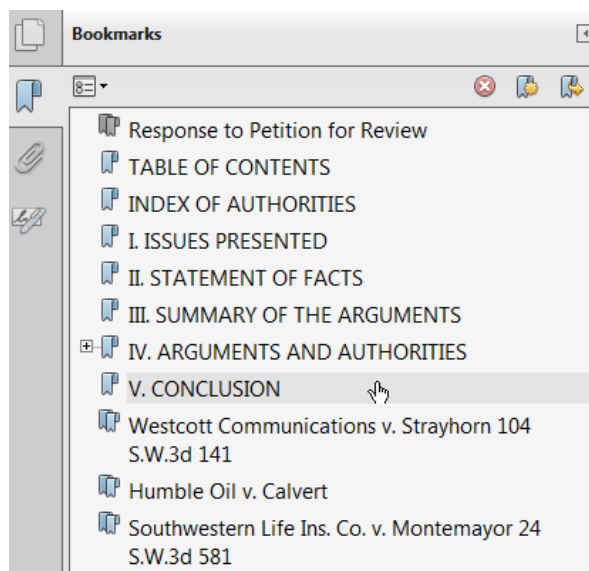
5. CREATING BOOKMARKS

A bookmark is a text link that appears in the Bookmarks Panel of Adobe Reader and Adobe Acrobat. Readers can use the bookmarks to quickly navigate to different sections of your brief and your appendix.

To see the Bookmarks Panel, open the Navigation pane and click on the Bookmarks icon.



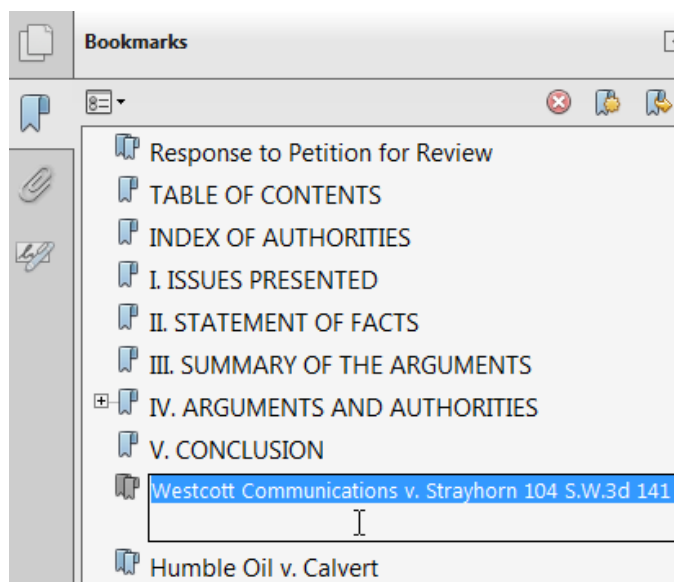
This is what the Bookmarks Panel looks like once you have expanded it.



Adobe Acrobat automatically creates bookmarks when you use the Combine document feature discussed above. The bookmarks will have the names of the files that you merged together.

Adobe Acrobat will also generate bookmarks automatically during PDF creation from the table-of-contents entries of a document created by most desktop publishing companies like Microsoft's Word. But how you convert the document makes a difference. In Word 2003, 2007 and 2010, Adobe PDFMaker will generate bookmarks automatically, but merely saving the file within Word as a PDF will not generate bookmarks. To generate bookmarks automatically, you must use paragraph styles (e.g. Heading 1, Heading 2). A tutorial on Word's paragraph styles is beyond the scope of these instructions, but it would be worth your time to learn to use them.

If you do not like the way Adobe generated bookmarks, you can select the bookmarks and press the delete key to delete them. You can also edit the bookmark names by double clicking on the bookmark. Once the bookmark text is highlighted, you can retype the name of the bookmark. Press enter or return when you are satisfied with the new name. Be sure to give your bookmarks names that are useful to the reader. Names like Appendix A, Appendix B, etc. are not particularly helpful. Instead, try something like Appendix A—Summary Judgment Order, Appendix B—Court of Appeals' Opinion.

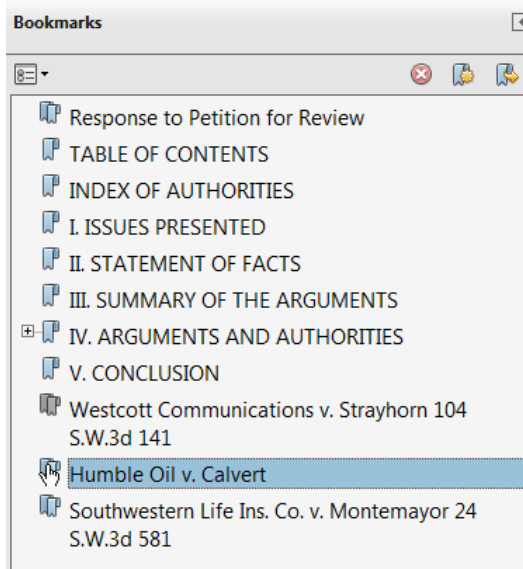


Double click the bookmark to enter a new name.

You can also create new bookmarks using Adobe Acrobat by following these steps:

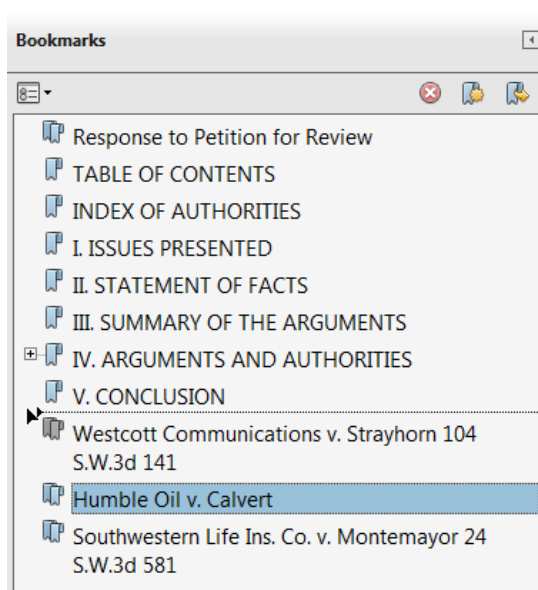
1. Click on the page where you want to create a bookmark. Make sure the Single Page button on the toolbar is selected; a bookmark will display the page at the magnification that was used when the bookmark was created.
2. In the Bookmarks Panel, click the bookmark above the place where you want a new bookmark to appear. The new bookmark will appear underneath the bookmark you selected. If you do not select a spot for the new bookmark, the new bookmark will appear at the bottom of the list.
3. Click the New Bookmark icon. Or press the CTRL and the B key at the same time.
4. In the text of the new bookmark, type the name or label that you want to give the bookmark (e.g. TABLE OF CONTENTS). A shortcut for naming your bookmarks is to highlight the text on the page you want the bookmark to point to and press the CTRL and B key at the same time. For example, go to your table of contents page and highlight the header TABLE OF CONTENTS and press CTRL and the B key at the same time.

If you want to move bookmarks up and down in the Bookmarks Panel, left click the bookmark ribbon symbol on the left side of the bookmark's name and drag the bookmark to the desired location in the Bookmarks Panel while holding down the left mouse button. Once the arrow and dotted line are in the new location, release the left mouse button to drop the bookmark in its new location.



Moving a bookmark **Step 1:**

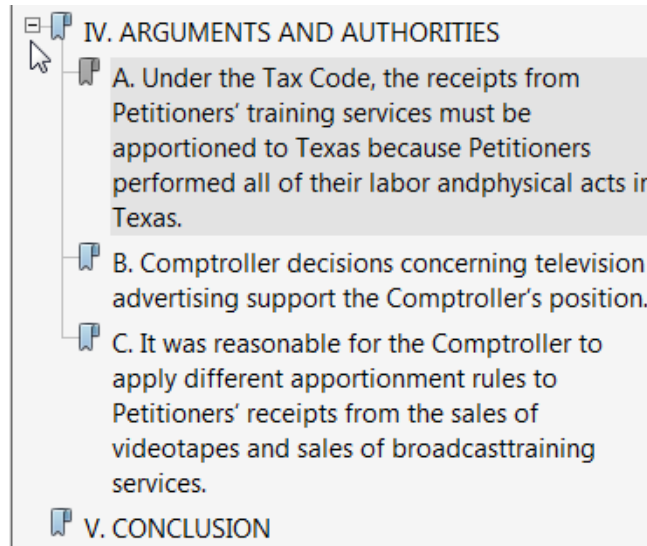
Select the blue ribbon next to the bookmark's name.



Moving a bookmark **Step 2:**

Left click and hold while you drag the bookmark to the new location. Release the left click button to drop the bookmark in its new location.

You can also nest bookmarks underneath other bookmarks to create a tiered structure of bookmarks, as in the illustration below.



Here you can see that the Argument and Authorities bookmark has three nested bookmarks underneath. These bookmarks link to the different arguments made in that section of the brief. Clicking on the minus sign next to the Argument and Authorities bookmarks collapses these bookmarks so that they are not visible. A plus sign then appears next to the Arguments and Authorities bookmark, which will expand the nested bookmarks and make them visible again when selected.

To nest a bookmark underneath another bookmark you move it as described above, but this time you move the bookmark up and over. In other words, select the bookmark mark and move it up underneath the bookmark where you want it nested. Without releasing the left mouse button, move the cursor over to the right. Release the left mouse button when the bookmark appears to be indented. It can take a little bit of dexterity, but with practice you can do it.

Nesting bookmarks is a good idea because it provides the reader a detailed set of links to the different parts of your brief. And you can collapse the bookmarks so that the Bookmarks Panel does not appear too cluttered. Once the Bookmarks Panel looks the way you want it to look when the document is opened, save your document. From then on the Bookmarks Panel will appear as it was when you saved the document (unless of course the reader makes changes and saves the changes).

6. REDACTING DOCUMENTS

You must redact the following information from your briefs, appendix materials, records in original proceedings and any other electronic documents that you send to the court: (1) social security numbers; (2) a birth date; (3) a home address; (4) the name of any person who was a minor when the underlying suit was filed; (5) a driver's license number; (6) a passport number; (7) a tax identification number; (8) any similar government-issued personal identification number; (9) bank account numbers; (10) credit card numbers; and (11) any other financial account number.

The best way to avoid having to redact your brief is to not use any of the above information in your brief. This information will seldom be of use to an appellate court or its staff.

The most important thing to remember about redacting documents is that you must do so in a way that permanently removes the information from the document. Do not use a black highlighter in Adobe Acrobat to cover up the information! Highlighter marks can be removed by anyone with Adobe Acrobat. And anyone can search the text of the document to find the text that is beneath the highlighter mark.

If you have Adobe Acrobat Pro, you can use the redaction features of the program to redact documents electronically (see instructions below). Please note that Adobe Acrobat Standard does not have redaction features.

If you do not have Adobe Acrobat Pro, then you should edit the text of any document that you have in the original text files (e.g. a Word document) to remove the information. Replace any characters that you remove with the letter x and then save the edited document as a new document. This is the method recommended by the National Security Agency (see Supreme Court Clerk's Redaction Guidelines and NSA article below). Here is an example:

Original text document:

Mike Brown's social security number is 357-57-7372. His home address is 1510 Maple Avenue, New York, 201292. His credit card number is 2138 2912 2938 2919.

Edited Text:

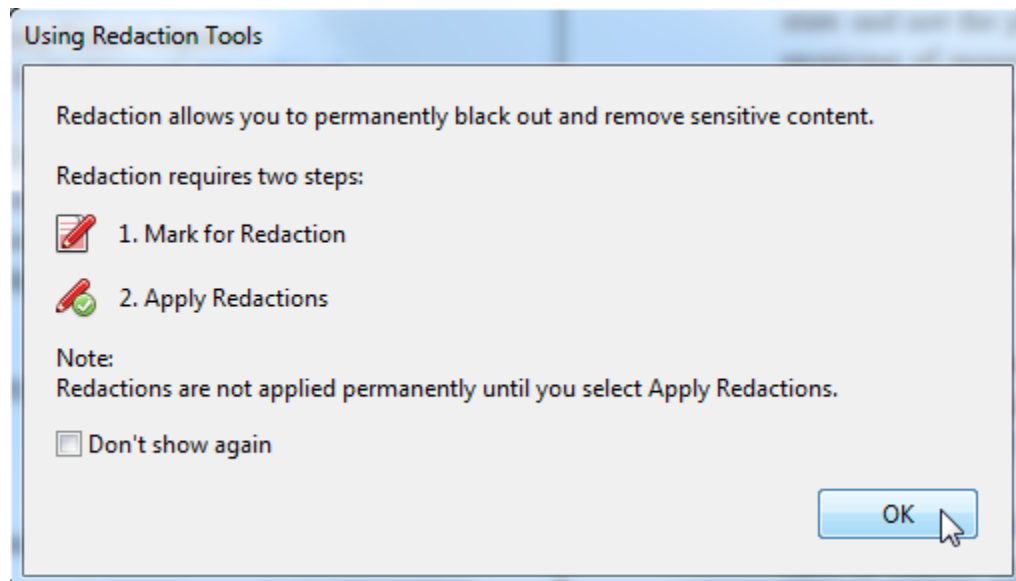
Mike Brown's social security number is xxxxxxxxxx. His home address is xxxx xxxxx xxxxxxxx xxx xxxxx xxxxxxxx. His credit card number is xxxx xxxx xxxx xxxx.

As you can see, depending on the font you are using, editing the document in this way may slightly alter the layout of your document. Be sure to check the page layout to see if your page numbering has been altered.

If do not have Adobe Acrobat Pro and you only have the documents in paper format, you will need to copy the documents, redact them manually, and then scan the redacted documents.

If you have Adobe Acrobat Pro, follow these steps:

1. In **Acrobat Pro 9**, choose Advanced>Redaction > Mark for Redaction. In **Acrobat Pro X**, choose the Tools side panel > Protection > Mark for Redaction.
2. Mark words for redaction by selecting the text you want to redact by clicking and dragging across the text using the redaction tool. You can also double click a word to mark it for redaction.
3. Preview what the text will look like when redacted by placing the cursor over the word mark for redaction.
4. Once you are satisfied with the appearance, choose Apply Redactions.



7. CREATING A HYPERLINKED BRIEF IN ADOBE ACROBAT

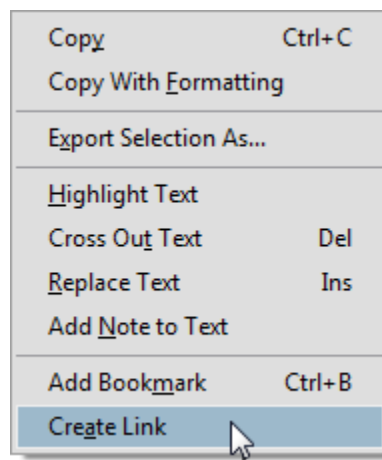
Once you have combined your document and appendix into one computer file, you are ready to create a hyperlinked brief. You can create hyperlinks from your index of authorities and citations in the body of your brief to any authorities that you have included in your appendix. Creating hyperlinks is appreciated by the Justices and their staffs, even though it is not required by the rules.

The number of hyperlinks you provide is entirely up to you. You can provide a fully hyperlinked index of authorities by including PDF copies of all of the authorities cited in your brief in your appendix. Then you can create hyperlinks in the index of authorities to the authorities contained in the appendix. And of course you can also provide hyperlinks from the case citations in the body of the brief to the authorities in the appendix.

If that's too much work, consider providing just a few of the important authorities in your appendix and then hyperlink the case citations in the body of the brief to those authorities in your appendix. This sort of "lite" hyperlinked brief is still more useful than one that is not hyperlinked at all.

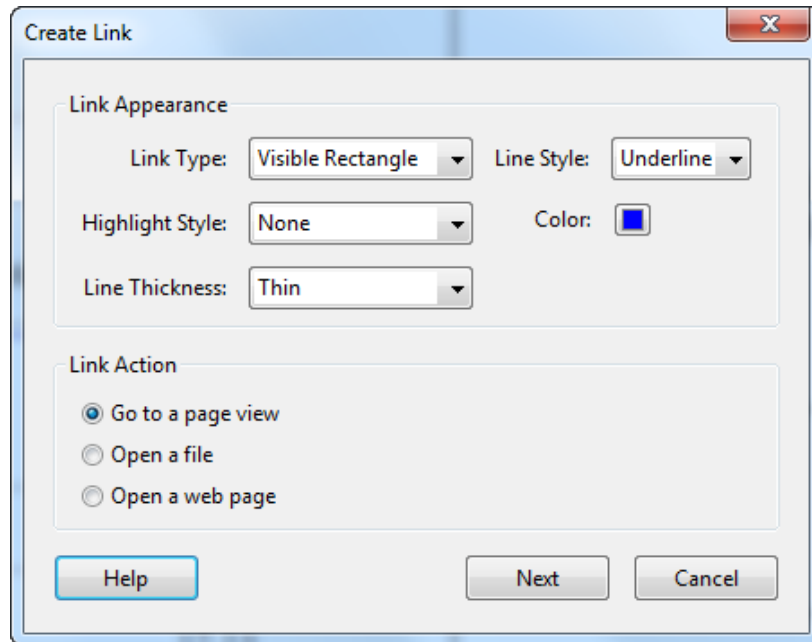
To create hyperlinks in Adobe Acrobat, follow these steps:

1. Select the text or graphic element, such as a photo, with the Select tool (the arrow in the toolbar).
2. Right click (Windows) or CTRL-click (Apple), and then choose Create Link from the menu. The Create Link dialog box appears.



3. In the Link Appearance area of the Create Link dialog box, click on the Link Type drop-down arrow and choose one of the following: (1) Visible

Rectangle (creates a link with a visible rectangle); (2) Invisible Rectangle (creates a link that isn't visible).



4. If you choose to make your hyperlink visible, click on the Line Thickness drop-down arrow and choose, Thin, Medium, or Thick. This option defines the thickness of the hyperlink border.
5. Click the Line Style drop-down arrow and choose, Solid, Dashed, or Underline. This option defines the style of the line indicating the presence of a hyperlink. Most people choose Underline.
6. Click the Color Swatch and choose the color of your line. Most people choose a light blue.
7. Choose one of the following of the following from the Link Action area to specify the action that is taken when the hyperlinked is clicked:
 - If you are creating link to a web page, choose “Open a Web Page”. The Edit URL dialog box appears, enabling you to enter URL of the web page that opens when the hyperlink is clicked.
 - If you are creating a link to a page in your PDF file (e.g. you combined your petition and appendix together as one file and you want to add a hyperlink in your petition to a page in your appendix), choose “Go to a Page View”. This allows you to specify which page will appear and at what zoom level when the hyperlink is clicked.

- If you are creating a CD containing your brief and the materials cited in your brief, choose “Open a File.” This will load the file when the hyperlink is clicked. The files you are linking to must be on the same CD as the brief and the file paths must remain the same.



REDACTION GUIDELINES FOR ELECTRONIC BRIEFS

Supreme Court of Texas Miscellaneous Docket Order No. 09-9153 instructs the Clerk of the Court to post redaction guidelines for electronic briefs on the Court's website. The purpose of the redaction guidelines is to aid attorneys in preventing the accidental disclosure of information that attorneys intend to redact from electronic briefs submitted to the Court for posting on the Court's website. These guidelines are merely intended as an aid in redacting electronic briefs. Using these guidelines is not mandatory. You should use the method for redacting electronic documents that you determine is the most reliable.

There are many different ways to properly redact an electronic document. The National Security Agency examined methods for redacting electronic documents and published a report titled "Redacting With Confidence: How to Safely Publish Sanitized Reports Converted From Word to PDF" on December 13, 2005. The report contains detailed step-by-step instructions for redacting Word documents and publishing them to PDF in order to prevent disclosure of sensitive or confidential information. The same techniques outlined in NSA's report apply to WordPerfect and other word processing programs. A copy of the report is included below.

Although Word and Adobe Acrobat have undergone changes since the NSA issued its report, following the steps set forth in NSA's report should result in a properly redacted document. The procedures contained in NSA's report, therefore, are adopted as the guidelines for redacting electronic briefs submitted to the Court for posting on the Court's website.

The key to ensuring that information is properly redacted is to remove the information from the document, as opposed to obscuring the information or

making it illegible. The basic steps suggested by NSA to properly redact a document are as follows:

1. Create a copy of your original document and save it as a new document;
2. Turn off track changes;
3. Review the new document and delete any sensitive text, but maintain proper spacing in your document by replacing the text with other characters (e.g. “John Smith” may be replaced with “xxxxxxxxxx”);
4. Double check the redacted document for any missed sensitive information;
5. Open a new blank document and select and copy data into this new blank document from the redacted version of your document;
6. Check the conversion settings of your PDF software to ensure that hidden data is not converted;
7. Convert the document to PDF; and
8. Review the PDF for missed redactions and any formatting issues.

A more detailed explanation with step-by-step instructions is contained in NSA’s report which is included below. There may be easier methods for properly redacting an electronic document. For example, Adobe provides guidance on its website for redacting documents using Adobe Acrobat 9 Professional. If you have access to this software, you may determine that Adobe’s solution is better than the method suggested by the NSA. Again, you should redact your documents using the method that you determine is the most reliable.

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***Redacting with Confidence: How to Safely Publish
Sanitized Reports Converted From Word to PDF***

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Abstract

There are a number of pitfalls for the person attempting to sanitize a Word document for release. This paper describes the issue, and gives a step-by-step description of how to do it with confidence that inappropriate material will not be released.

SUMMARY

Both the Microsoft Word document format (MS Word) and Adobe Portable Document (PDF) are complex, sophisticated computer data formats. They can contain many kinds of information such as text, graphics, tables, images, meta-data, and more all mixed together. The complexity makes them potential vehicles for exposing information unintentionally, especially when downgrading or sanitizing classified materials. Although the focus is on MS Word, the general guidance applies to other word processors and office tools, such as WordPerfect, PowerPoint, Excel, Star Office, etc.

This document does not address all the issues that can arise when distributing or downgrading original document formats such as MS Word or MS PowerPoint. Using original source formats, such as MS Word, for downgrading can entail exceptional risks; the lengthy and complicated procedures for mitigating such risks are outside the scope of this note.

DETAILS

MS Word is used throughout the DoD and the Intelligence Community (IC) for preparing documents, reports, notes, and other formal and informal materials. Commonly used versions of MS Word include Word 2000, Word XP, and Word 2003.

Adobe PDF is used very extensively by all parts of the U.S. Government and military services for disseminating and distributing documents of all kinds. PDF provides excellent fidelity and portability, and allows easy distribution of documents over computer networks and the Internet. PDF files are usually produced using commercial conversion software (so-called “distillers”) that accept source formats such as Postscript or MS Word, and output PDF. PDF is often used as the format for downgraded or sanitized documents.

As numerous people have learned to their chagrin, merely converting an MS Word document to PDF does not remove all metadata automatically. In addition, Adobe Distiller and the PDFMaker Add-in to MS Word (the most common way to convert) convert much of the layering complexity from one format to the next. For example, images placed on top of text in MS Word will be copied verbatim to PDF with the same layout.

Typical Kinds of Exposures

When attempting to sanitize a document, analysts commit three common mistakes with MS Word and PDF that lead to most cases of unintentional exposure.

1. **Redaction of Text and Diagrams** - Covering text, charts, tables, or diagrams with black rectangles, or highlighting text in black, is a common and effective means of redaction for hardcopy printed materials. It is not effective, in general, for computer documents distributed across computer networks (i.e. in “softcopy” format). The most common mistake is covering text with black.

2. **Redaction of Images** - Covering up parts of an image with separate graphics such as black rectangles, or making images ‘unreadable’ by reducing their size, has also been used for redaction of hardcopy printed materials. It is generally not effective for computer documents distributed in softcopy form.
3. **Meta-data and Document Properties** - In addition to the visible content of a document, most office tools, such as MS Word, contain substantial hidden information about the document. This information is often as sensitive as the original document, and its presence in downgraded or sanitized documents has historically led to compromise.

Note that many of these mistakes can also occur inadvertently in document composition. For example, sensitive information in an embedded image can be overlaid with another image during format. Such hidden data can be difficult to be spot during manual review of the softcopy.

Application Tools and Settings for Removing Data

Microsoft Word XP/2003: Microsoft has attempted to remedy certain issues with Metadata in Office XP and up by including a menu option to remove personal information (metadata). There is also a tool available for free from MS, Remove Hidden Data 1.0 (for XP) and 1.1 (for Office 2003), hereafter referred to as RHD, that allows batch removal information from Word documents. None of these will remove sensitive information from the main document; neither will they remove all metadata of possible concern. And RHD 1.0 suffered from stability issues. Reliance of these tools may give a false sense of security.



Figure A: PDFMaker Settings in MS Word

Adobe Acrobat 5.0/6.0: The use of PDF conversion tools on a Word document does guarantee the removal of a great deal of data, such as version information and change tracking. These tools also convert embedded objects such as Excel spreadsheets into images so that only the viewable face of the object remains. Adobe’s conversion tool for within Word, PDFMaker, is an add-in that works in connection with Adobe Distiller. Distiller is a robust PostScript to PDF application whose operation can be modified by Conversion Settings selectable within Distiller or PDFMaker (Select Adobe PDF->Change Conversion Settings->Advanced Settings). Most of these tweak the size and resolution of the resulting PDF. PDFMaker itself has a number of Word-specific settings as shown in Figure A, two of which are relevant to the sanitizer. The checkbox “Convert Document Information” controls the conversion of MS Word metadata to PDF and is checked by default. “Attach source file to Adobe PDF” does just what it suggest: it inserts a copy of the original Word document inside the output file, almost certainly not what was intended by the analyst. It is unchecked by default. Unselecting “Convert Document Information” removes one avenue of metadata leakage, but will not stop the other sources of leakage.

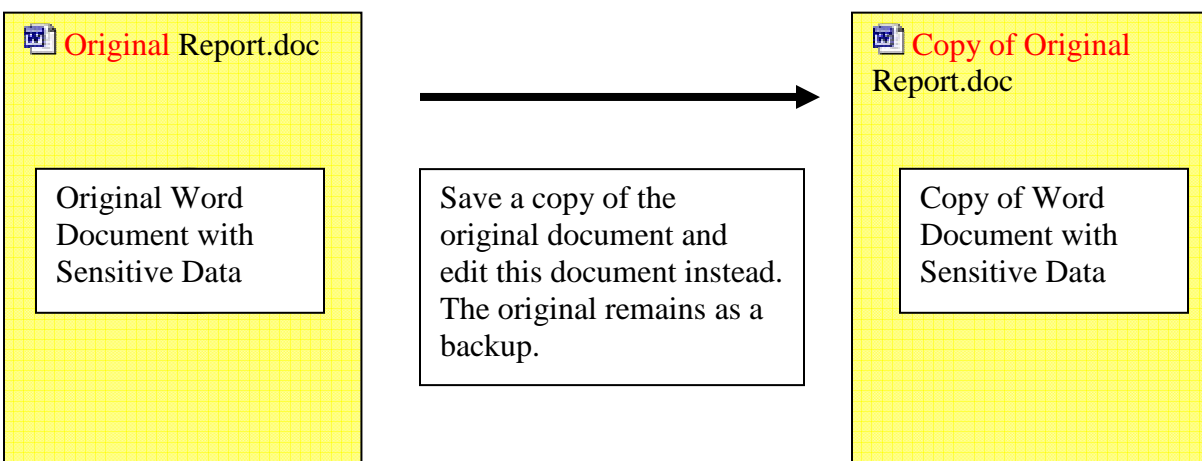
Deletion not Redaction

The key concept for understanding the issues that lead to the inadvertent exposure is that information hidden or covered in a computer document can almost always be recovered. The way to avoid exposure is to ensure that sensitive information is not just visually hidden or made illegible, but is actually removed from the original document. Thus any sensitive information must be removed from the document through deletion. The procedures detailed below discuss some of the ways to maintain formatting during the process.

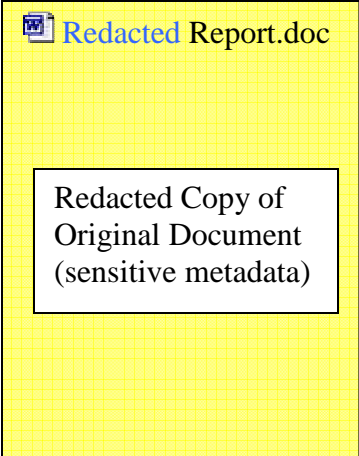
Section 2: Procedures to Sanitize a Word Document

The following steps were tested with MS Word 2000 and Acrobat 5.0 and 6.0. Other recent versions should work similarly. While time-consuming, these steps give the highest confidence that sensitive information is not hidden in the released document. Copying the text and images into a blank document is a good way to manually review a sensitive document, since sections can be copied over one at a time as they are reviewed.

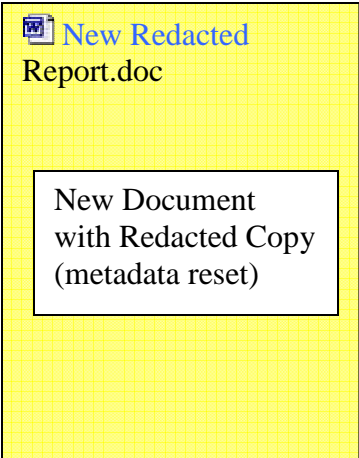
Pictorial Outline of Procedure--



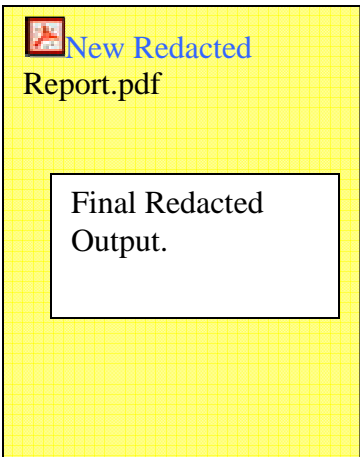
Review document and delete sensitive text, diagrams, tables and images using the techniques described. Turn off Track Changes, Comments, and other visible markups. Rename document to remove sensitive information and to indicate manual redaction has been completed.



Open new blank Word document, and select and copy data into it. This step removes residual document composition information (except data associated with the default template!). Selecting and copying section by section is a good way to verify that redaction was done correctly.



Convert Word document to PDF (here using PDFMaker). Review final output PDF for missed redactions, or formatting issues.



Detailed Procedure

Create a new copy of the document.

1. Open the document and select **File->SaveAs** from the top menu bar; give the file a new name. Make sure the new name is not itself sensitive. Do all redacting work with the new copy, preserving the original as a backup.

Turn Off Track Changes

2. The Track Changes feature is a toggle. Selecting **Tools->Track Changes** from the top menu bar toggles the feature on or off. The quickest way to determine if Track Changes is on or off is by looking at the bottom status bar. The letters TRK are dimmed if Track Changes is off and bold if Track Changes is on.

Review and Delete Sensitive Content

3. Select each chart, diagram, image or segment of text to be redacted and delete that item. Delete all comments.

Resizing an image, covering a section with a black box, or changing the color of a font to make it invisible will not work. The item **must** be deleted. If deleting an item changes the format or structure of the document in an unacceptable way, replace the item with meaningless content of a size that keeps the formatting correct. If the redacted item is text, replace the text with copies of a single character such as all As or all Xs. If the redacted item is an image or a chart, replace the item with a gray rectangle of the same size.

Example: Redacting text. Figure 1 on the right shows a page of a document before redaction. Figure 2 shows the same page after deleting some text (the area marked by the large black arrows at the top of the figures).

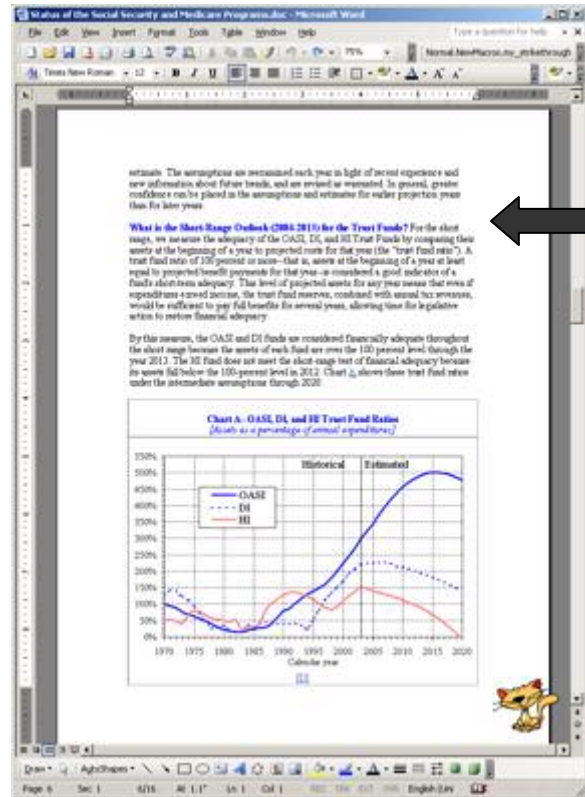


Figure 1 – Original Document

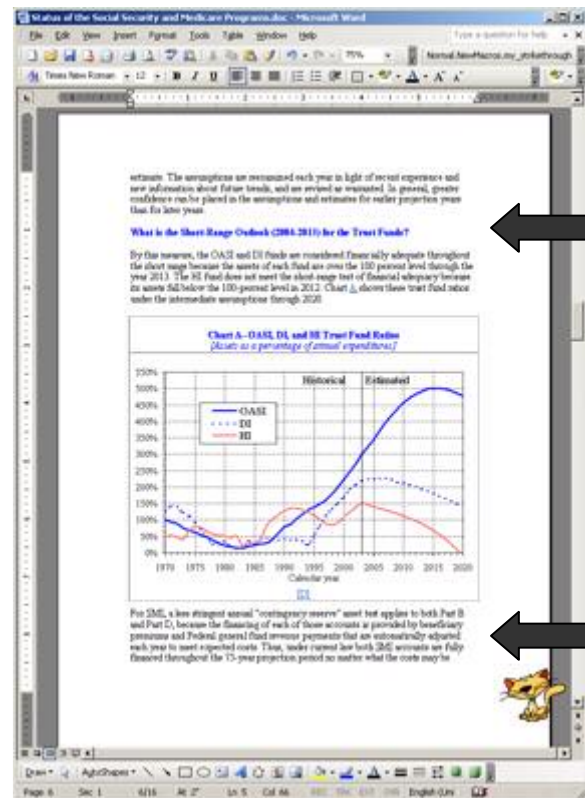


Figure 2 – Text deleted from original changes formatting

Notice that the chart and a paragraph from the next page move up in the document because deleting the text has shifted the subsequent text (the area marked by the large black arrow at the bottom of figure 2).

Because of this shift, subsequent pages may need to be reformatted to ensure figures stay with certain text, or that page breaks are in the correct place, or that other such formatting issues do not adversely alter the appearance of the document. This could be time consuming for a large document. If formatting changes are a concern, replace the text with meaningless content of the same size rather than delete it. Figure 3 shows a before and after close-up of the replaced text. Notice that the paragraph following the replaced text did not shift position thus preserving the formatting of the rest of the document.

Example: Redacting a chart, image, or other object. Figure 4 shows the page from Figure 1 after redacting some text and deleting the chart. In this case, the chart is an image. Notice that some text and part of a table have shifted onto the page. To preserve the formatting, insert a gray rectangle the same size as the chart (or image) into the vacant space as detailed in the following steps:

- Before deleting the image, determine its size: select the image, select **Format->Picture** from the top menu bar, and then select the **size** tab in the Format Picture dialog box. Make a note of the height and width of the image.
- Select the image and delete it.

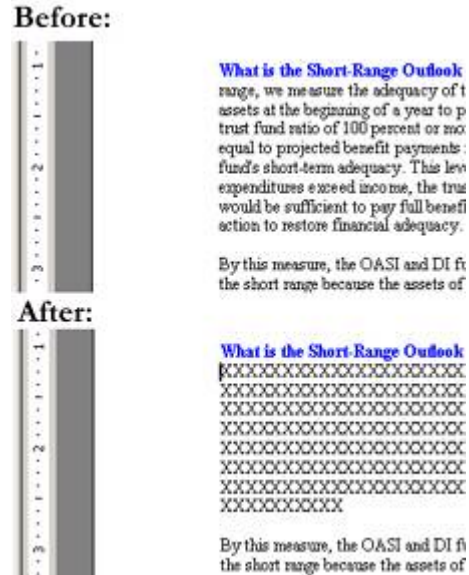


Figure 3—Replacing deleted text with an equal amount of meaningless text.

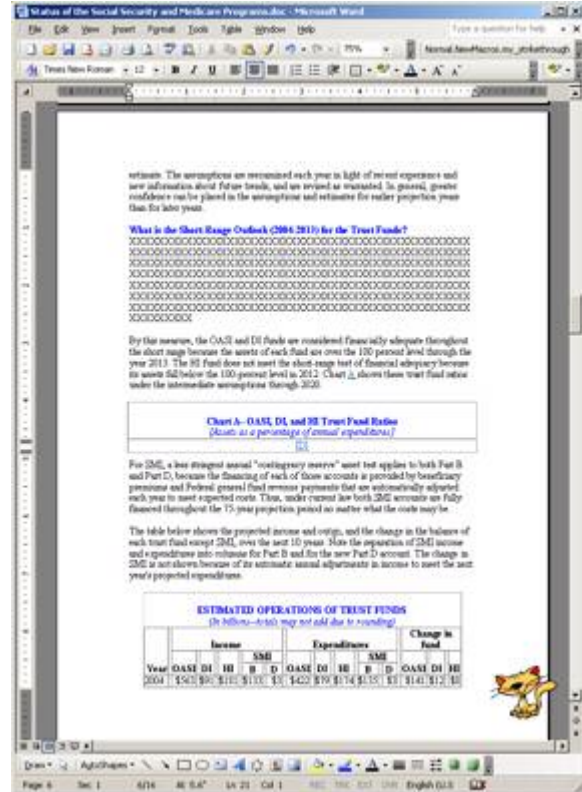


Figure 4

Doublecheck Redacted Document

- Carefully read over the document to ensure that all material to be redacted has been deleted and if necessary replaced with innocuous filler. Check all headers, footers, captions, section titles, footnotes, endnotes, labels, etc. Verify that all comments have been deleted.

To easily flip through the document, use Word's "Browse By" feature for some of the different objects. By default, the arrows at the bottom of the right scroll bar browse through the document by page when clicked. To change this, hit the dot at the bottom of the scroll bar that is shown in figure 9. This brings up a toolbar with the "Browse By" options, including Browse By Comment, Browse By Footnote, Browse By Graphic, etc. as shown in figure 10. Select one of the options. Now use the double arrows on top and bottom of the dot to flip through the document to each instance of that type of object. This is a quick way to make sure all comments are deleted, all images have been redacted correctly, all footnotes have been checked, etc.

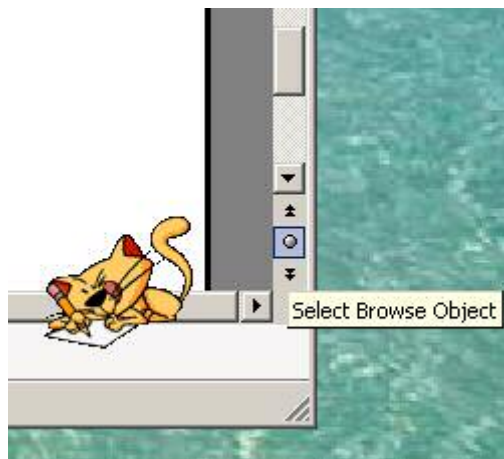


Figure 9

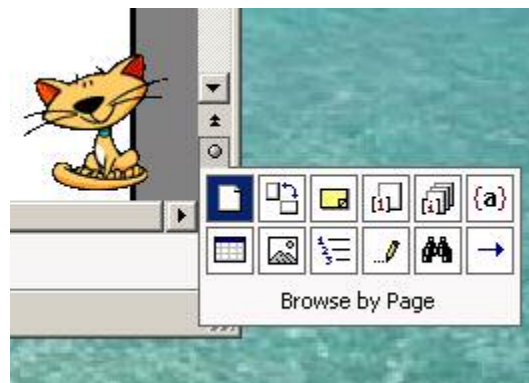


Figure 10

Select and Copy the Contents of the Document to a New File

- Select the entire contents of the document using **Edit->Select All** from the top menu bar. Copy the selected contents using **Edit->Copy** from the top menu bar. This will copy the contents, the formatting, the headers and footers and all necessary information into Word's buffer.

Open a new Word document using **File->New** from the top menu bar. Paste the redacted document contents into this new document using **Edit->Paste** from the top menu bar.

Save the document with a new name using **File->SaveAs** from the top menu bar.

Ensure Adobe PDF settings are correct.

6. One reason to convert a Word document to PDF is that the conversion redacts some information or hidden data from the document that is intrinsic to the Word format. However, some PDF software has the ability to automatically copy document meta-data and properties from Word to PDF. This feature, among others, must be disabled when downgrading or sanitizing documents. This section of the paper will describe the most common way to disable the features and convert a document, but other methods are suitable as long as the PDF software is configured to prevent converting anything but the visible contents of the file.

The most common configuration for PDFMaker in Acrobat 6.0 is to run from the menu bar of Word as in Figure 11 (if Adobe PDF is not on the menu bar, see the system administrator). There is also a configuration tool that allows the user to change numerous settings for PDF conversions. This step describes which options must be set for converting redacted Word documents, and these options must be verified for each document conversion.

Select **Adobe PDF->Change Conversion Settings** from the menu bar as in Figure 12. This opens the Acrobat PDFMaker dialog shown in Figure 13. There are four tabs labeled **Settings**, **Security**, **Word**, and **Bookmarks**. On the **Settings** tab, ensure that **Convert Document Information** and **Attach Source File to Adobe PDF** are both unchecked as shown in Figure 13.

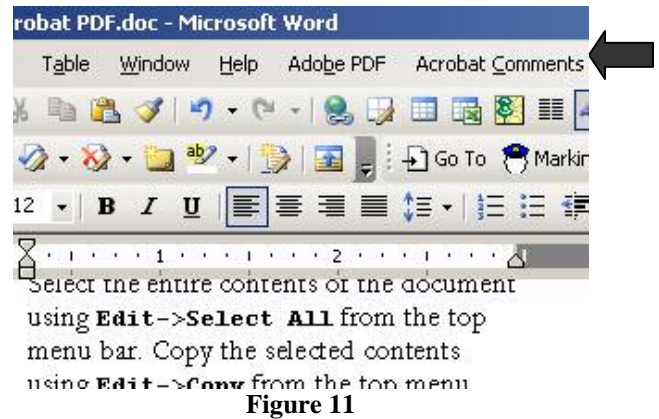


Figure 12



Figure 13

On the Word Tab, shown in the close-up in Figure 14, uncheck Convert Comments to Notes and hit OK.

7. Convert the document to PDF by selecting **Adobe PDF ->Convert to Adobe PDF** from the menu bar.
8. Lastly, review the output PDF for formatting issues and omissions.



Figure 14

References and Further Reading

1. **How to minimize metadata in Office documents** – Microsoft, January 28, 2005, available at support.microsoft.com.
2. **Avoiding Information Compromise When Using Microsoft Word and Adobe Acrobat PDF** – NSIRC- Advisory
3. **Metadata – Are you Protected?** – Donna Payne, Payne Consulting Group, Law Technology News, August 2004. Discussion of PDF issues.