# Comparison Study of PDF Accessibility Checking Tools

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## Abstract

There are several tools available (web based and commercial) for checking the accessibility of websites but only a few to check the accessibility of Adobe PDF documents. Of the available tools for PDF accessibility checking, how effective and reliable are they in analyzing the accessibility of a PDF file? Are the results of the tool’s evaluations consistent with one another? Is one tool better than another? Does the use of these tools save the developer time over manually checking for PDF accessibility?

The scenario for testing these files is that no knowledge of the accessibility of the document being tested is known and the user has little or no knowledge of PDF accessibility. Therefore, results will be recorded as noted by the test performed whether the result is positive or false in reality.

This scenario is designed to support the idea that a user needs to know if a PDF file is accessible and has access to one or more of these tools. The recorded results will represent the results this individual would get.

## Testing Methodolgy

A group of PDF test files will be created in four different manners (converted from Word 2003, converted from Word 2010, created using Print to PDF option, and retagged in Acrobat Pro X).

The following tools will be used to test the PDF files:

* Adobe Acrobat Reader 9 and 10 (X)
* Adobe Acrobat Pro 9 and 10 (X)
* EGovMon web based tool
* PDF Accessibility Checker – PAC
* CommonLook by Netcentric

A list of tests with anticipated results will be developed. These tests will focus on the basic elements that should be present for a PDF file to be accessible. Some additional tests will be developed to see if the tools can be “tricked” into reporting false positives. Tests will be developed in the areas of:

* Tagging Structure
* Images
* Heading Structure
* Title
* Lists
* Tables
* Forms

## Testing Tools Methodology

### Acrobat Reader 9 and 10 (X)

**Accessibility Quick Check Tool**

Acrobat 9 - Select DOCUMENT from the top menu, then select ACCESSIBILITY QUICK CHECK  
Acrobat X - Select EDIT from the top menu, then select ACCESSIBILITY > ACCESSIBILITY QUICK CHECK

* Pass (P): A dialog box will appear stating “No accessibility problems were detected in this quick check”
* Fail (F): Dialog box or reports errors in conjunction with the item being tested
* Pass with exceptions (W): tool does not offer a “warn” option
* Product Does Not Test For (NT): The tool did not provide a manner to evaluate for this test

### Acrobat Pro 9 and 10 (X)

**Built in Accessibility Checker**

Acrobat Pro 9 - Select ADVANCED from the top menu, then select ACCESSIBILITY > FULL CHECK  
Acrobat Pro X - Select EDIT from the top menu, then select ACCESSIBILITY > ACCESSIBILITY QUICK CHECK

The default Adobe PDF checking options were used.

* Pass (P): A dialog box will appear stating “The checker found no problems in this document”
* Fail (F): Dialog box or reports errors and the accessibility report notes problems in conjunction with the item being tested
* Pass with exceptions (W): tool does not offer a “warn” option
* Product Does Not Test For (NT): The tool did not provide a manner to evaluate for this test

### Acrobat Pro 9 and 10 (X) – Batch Processing

Acrobat Pro 9 and 10 (X) provide an option for batch processing of PDF documents. This additional test will be performed to see if the test outcomes will differ from the single file tests. The results will not be recorded on the spreadsheet of results, but any differences will be reported in the summary of findings.

Acrobat Pro 9 - Advanced > Document Processing > Batch Processing > Edit Sequence > Select Commands > Add Accessibility Checker

Acrobat Pro X – Action Wizard > Create New Action > Select Accessibility Full Check from More Tools > Edit Sequence > Select Commands > Add Accessibility Checker

### EGovMon PDF Checker

Web based tool at <http://accessibility.egovmon.no/en/pdfcheck>

* Pass (P): Results show in the “Passed applied tests” section
* Fail (F): Results show in the “Failed applied tests” section or the test (if available) did not give an outcome
* Pass with exceptions (W tool does not offer a “warn” option
* Product Does Not Test For (NT): The tool did not provide a manner to evaluate for this test

### PDF Accessibility Checker (PAC)

Downloaded tool at <http://www.access-for-all.ch/en/pdf-werkstatt/pac-pdf-accessibility-checker/downloading-pac.html>

* Pass (P): Results show with a green checkmark icon in summary screen
* Fail (F): Results show with a red x mark icon in summary screen
* Pass with exceptions (W): Results show with a yellow triangle icon in summary screen
* Product Does Not Test For (NT): The tool did not provide a manner to evaluate for this test

### CommonLook by NetCentric

Plugin > CommonLook > Verify and Remediate to scan the document.

* Pass (P): Results show as “Passed”
* Fail (F): Results show as “Failed”
* Pass with exceptions (W): Results show or include “User Verify”
* Product Does Not Test For (NT): The tool did not provide a manner to evaluate for this test

## Test File Creation Methodology

### 2003 PDF Files

Files created in Word 2003 and converted to PDF Using the PDF creator add-in that installed with the installation of Acrobat Pro 9

* Adobe PDF menu option on the main top menu
* Convert to Adobe PDF
* Options – accepted defaults
* Convert Document Information – checked
* Enable Accessibility and Reflow with tagged Adobe PDF
* Create Bookmarks – Convert Word Headings to Bookmarks

### 2010 PDF Files

Files created in Word 2010 and converted to PDF using the built in PDF creation tool

* File > Save and Send
* Create PDF/XPS Document
* Create PDF/XPS
* Options
* Page range – all (default)
* Publish what – Document (default)
* Include non-printing information
* Checked: Create bookmarks using: headers
* Document Properties (default)
* Document structure tags for accessibility (default)
* PDF Options – Bitmap text when fonts may not be embedded (default)

### No Tag PDF Files

“No Tag” PDF files are created from the Word 2010 documents by selecting the “print to PDF” option. Since the resulting documents were untagged, the original “print2pdf” and “headers-incorrect” were not recreated (as the “complete” and “headers-correct” documents would mirror the resulting documents).

### Re-Tagged PDF Files

“Re-tagged” PDF files are created from 2010 PDF files, clearing the page structure, and correctly tagging the PDF to match the originally intended structure of the document. Some files resulted in different tagging structure from the original file. These are explained below:

**Title-tag**: There is not a PDF tag for “title” so this file was not recreated.

**Lists:** The re-tagged list files contain 3 lists. The first list is tagged with each parent and child list element as <LI>. The list items in the second list are combined as the <L> element. The third list is marked up as text. The reason for this was to see the difference between lists that were marked up as <LI> versus <L>, something that could not be done in Word. Acrobat pro does not provide tags to differentiate between <UL> and <OL>.

**Print2PDF:** as this was an untagged version of complete.pdf, it was not recreated.

## Tests, Associated Files, Anticipated Outcomes

### Tagging Structure

1. **Contains Tags:** Anticipated result will report a tagging structure is found in the document
   1. **Files:** “complete.pdf”
   2. **File Description:** These documents contain correctly marked up elements for title, headers, images, lists, tables, and form elements.
2. **Find No Tags:** Anticipated result will report no tagging structure is found in the document
   1. **Files:** “print2pdf.pdf”
   2. **File Description:** These documents were created using the “print to PDF” function, not the convert function.
3. **PDF as Image:** Anticipated result will report that document contains a scanned image or no text is present.
   1. **Files:** “scanned.pdf”
   2. **File Description:** This document contains a scanned image of the “complete” PDF file.

### Images

1. **Number of non-text elements (images) in document:** Anticipated result will report the number of non-text elements found in the document.
   1. **Files:** “images.pdf”
   2. **File Description:** These documents contain four images. Two elements have alternate text associated with them, two do not.
2. **Alt text found:** Anticipated result will report the document contains non-text elements that do not have alt-text.
   1. **Files:** “images.pdf”
   2. **File Description:** These documents contain four images. Two elements have alternate text associated with them, two do not.

### Heading Strucutre

1. **Number of Headings in document (C):** Anticipated result will report the number of headings in the document developed with a correct heading hierarchy structure.
   1. **Files:** “headers-correct.pdf”
   2. **File Description:** These documents contain H1, H2, and H3 elements as well as normal text developed in a correct logical structure.
2. **Heading Hierarchy (C):** Anticipated result will report that the hierarchy of headings matches the logical reading order of the document.
   1. **Files:** “headers-correct.pdf”
   2. **File Description:** These documents contain H1, H2, and H3 elements as well as normal text developed in a correct logical structure.
3. **Number of Headings in document (I):** Anticipated result will report the number of headings in the document developed with an incorrect heading hierarchy structure.
   1. **Files:** “headers-incorrect.pdf”
   2. **File Description:** These documents contain H1, H2, and H3 elements as well as normal text developed in an incorrect logical structure.
4. **Heading Hierarchy (I):** Anticipated result will report that the hierarchy of headings does not match the logical reading order of the document.
   1. **Files:** “headers-incorrect.pdf”
   2. **File Description:** These documents contain H1, H2, and H3 elements as well as normal text developed in an incorrect logical structure.
5. **Fool test with blank header:** Anticipated result will report the presence of an H1 element which has been developed by styling a blank area.
   1. **Files:** “falseheader.pdf”
   2. **File Description:** These documents were created by using the space bar to create a blank area that was then styled with an H1 element.
6. **Header as text:** Anticipated result will report no issues although the “headers” are just styled text
   1. **Files:** “headers-astext.pdf”
   2. **File Description:** These documents contain all text styled to give the appearance of a heading structure.

### Title

1. **Shows as tag**: Anticipated result will report the text marked as “title” in the native application as “title” in the tagging structure of the PDF document
   1. **Files:** “title-tag.pdf”
   2. **File Description:** These documents have the first line in the document (CSUN Presentation Test File) marked up with the “Title” style.
2. **Shows in properties:** Anticipated result will report that the text entered in the title area of the native document’s property feature will show in the properties feature of the PDF file.
   1. **Files:** “title-property.pdf”
   2. **File Description:** These documents have added text in the Properties box under the Title area (CSUN Presentation Test File).

### Lists

1. **Number of Lists:** Anticipated result will report the number of list elements found in the document.
   1. **Files:** “lists.pdf”
   2. **File Description:** These documents contain one ordered list with child elements, one unordered list with child elements, text that has been styled using the tab key to appear as a list with child elements, and text that has used list elements for the parent items and the tab key to create the positioning of the child elements.
2. **Tagged as list:** Anticipated result will report that the list items are tagged as list items
   1. **Files:** “lists.pdf”
   2. **File Description:** These documents contain one ordered list with child elements, one unordered list with child elements, text that has been styled using the tab key to appear as a list with child elements, and text that has used list elements for the parent items and the tab key to create the positioning of the child elements.
3. **Lists: UL v OL:** Anticipated result will report the correct usage of UL and OL lists.
   1. **Files:** “lists.pdf”
   2. **File Description:** These documents contain one ordered list with child elements, one unordered list with child elements, text that has been styled using the tab key to appear as a list with child elements, and text that has used list elements for the parent items and the tab key to create the positioning of the child elements.
4. **Children:** Anticipated result will report the correct tagging structure for children elements in a list of items.
   1. **Files:** “lists.pdf”
   2. **File Description:** These documents contain one ordered list with child elements, one unordered list with child elements, text that has been styled using the tab key to appear as a list with child elements, and text that has used list elements for the parent items and the tab key to create the positioning of the child elements.

### Table

1. **Number of Tables:** Anticipated result will report the number of table elements found in the document.
   1. **Files:** “tables.pdf”
   2. **File Description:** These documents contain four tables: one simple table created with the first row being a header row, one simple table with no heading structure, one complex table with heading rows and one complex table with no heading rows.
2. **TH usage:** Anticipated result will report the absence of TH elements in the table.
   1. **Files:** “tables.pdf”
   2. **File Description:** These documents contain four tables: one simple table created with the first row being a header row, one simple table with no heading structure, one complex table with heading rows and one complex table with no heading rows.
3. **Col-Row Spans:** Anticipated result will report the absence of rowspan and colspan elements in complex tables.
   1. **Files:** “tables.pdf”
   2. **File Description:** These documents contain four tables: one simple table created with the first row being a header row, one simple table with no heading structure, one complex table with heading rows and one complex table with no heading rows.

### Forms

1. **Number of Elements:** Anticipated result will report the number of form elements found in the document.
   1. **Files:** “forms.pdf”
   2. **File Description:** These documents contain simple form elements of textbox, checkbox, and combo box and easily inserted from the application menus. In 2003, “help text” was added in the property box for each element. In 2010, both “title” and “tag” were added in the property box (given “-title” and “-tag” as to note which is showing in further testing) as no “help text” area was available.
2. **Type of Element:** Anticipated result will report the type of form elements present in the document.
   1. **Files:** “forms.pdf”
   2. **File Description:** These documents contain simple form elements of textbox, checkbox, and combo box and easily inserted from the application menus. In 2003, “help text” was added in the property box for each element. In 2010, both “title” and “tag” were added in the property box (given “-title” and “-tag” as to note which is showing in further testing) as no “help text” area was available.
3. **Label (Tooltip):** Anticipated result will report the presence of text in the tooltip option of the form properties
   1. **Files:** “forms.pdf”
   2. **File Description:** These documents contain simple form elements of textbox, checkbox, and combo box and easily inserted from the application menus. In 2003, “help text” was added in the property box for each element. In 2010, both “title” and “tag” were added in the property box (given “-title” and “-tag” as to note which is showing in further testing) as no “help text” area was available.
4. **Tab Order:** Anticipated result will report that the tab order of form elements matches the logical reading order of the document
   1. **Files:** “forms.pdf”
   2. **File Description:** These documents contain simple form elements of textbox, checkbox, and combo box and easily inserted from the application menus. In 2003, “help text” was added in the property box for each element. In 2010, both “title” and “tag” were added in the property box (given “-title” and “-tag” as to note which is showing in further testing) as no “help text” area was available.

## Test Results – Tagging Structure

### Category: 2003 PDF

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Test | Reader 9 | Reader X | Pro 9 | Pro X | EGovMon | PAC | CL |
| Contains Tags | Pass | Pass | Pass | Pass | Pass | Pass | Pass |
| Finds No Tags | Pass | Pass | Pass | Pass | Pass | Pass | Pass |
| PDF as image (scanned) | Pass | Pass | Pass | Pass | Pass | Pass | Pass |

### Category: 2010 PDF

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Test | Reader 9 | Reader X | Pro 9 | Pro X | EGovMon | PAC | CL |
| Contains Tags | Pass | Pass | Pass | Pass | Pass | Pass | Pass |
| Finds No Tags | Pass | Pass | Pass | Pass | Pass | Pass | Pass |
| PDF as image (scanned) | Pass | Pass | Pass | Pass | Pass | Pass | Pass |

### Category: Retagged PDF

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Test | Reader 9 | Reader X | Pro 9 | Pro X | EGovMon | PAC | CL |
| Contains Tags | Pass | Pass | Pass | Pass | Pass | Pass | Pass |
| PDF as image (scanned) | Pass | Pass | Pass | Pass | Pass | Pass | Pass |

### Category: No Tags PDF

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Test | Reader 9 | Reader X | Pro 9 | Pro X | EGovMon | PAC | CL |
| Finds No Tags | Pass | Pass | Pass | Pass | Pass | Pass | Pass |
| PDF as image (scanned) | Pass | Pass | Pass | Pass | Pass | Pass | Pass |

## Test Results – Images

### Category: 2003 PDF

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Test | Reader 9 | Reader X | Pro 9 | Pro X | EGovMon | PAC | CL |
| Images: # img in document | No Test | No Test | No Test | No Test | Pass | No Test | No Test |
| Images: Alt text found | Pass | Pass | Pass | Pass | Pass | Pass | Pass |

### Category: 2010 PDF

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Test | Reader 9 | Reader X | Pro 9 | Pro X | EGovMon | PAC | CL |
| Images: # img in document | No Test | No Test | No Test | No Test | Pass | No Test | No Test |
| Images: Alt text found | Pass | Pass | Pass | Pass | Pass | Pass | Pass |

### Category: Retagged PDF

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Test | Reader 9 | Reader X | Pro 9 | Pro X | EGovMon | PAC | CL |
| Images: # img in document | No Test | No Test | No Test | No Test | Pass | No Test | No Test |
| Images: Alt text found | Pass | Pass | Pass | Pass | Pass | Pass | Pass |

### Category: No Tags PDF

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Test | Reader 9 | Reader X | Pro 9 | Pro X | EGovMon | PAC | CL |
| Images: # img in document | No Test | No Test | No Test | No Test | Fail | No Test | No Test |
| Images: Alt text found | Fail | Fail | Fail | Fail | Fail | Fail | Fail |

## Test Results – Heading Structure

### Category: 2003 PDF

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Test | Reader 9 | Reader X | Pro 9 | Pro X | EGovMon | PAC | CL |
| Headers (C): # img in document | No Test | No Test | No Test | No Test | No Test | No Test | No Test |
| Headers (C): Hierarchy | Pass | Pass | Pass | Pass | Warn | Pass | Warn |
| Headers (I): # img in document | No Test | No Test | No Test | No Test | No Test | No Test | No Test |
| Headers (I): Hierarchy | Pass | Pass | Pass | Pass | Warn | Warn | Warn |
| Blank Header | Pass | Pass | Pass | Pass | Pass | Pass | Pass |
| Header Styled as Text | Pass | Pass | Pass | Pass | Pass | Pass | Pass |

### Category: 2010 PDF

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Test | Reader 9 | Reader X | Pro 9 | Pro X | EGovMon | PAC | CL |
| Headers (C): # img in document | No Test | No Test | No Test | No Test | No Test | No Test | No Test |
| Headers (C): Hierarchy | Pass | Pass | Pass | Pass | Warn | Pass | Warn |
| Headers (I): # img in document | No Test | No Test | No Test | No Test | No Test | No Test | No Test |
| Headers (I): Hierarchy | Pass | Pass | Pass | Pass | Warn | Warn | Warn |
| Blank Header | Pass | Pass | Pass | Pass | Pass | Pass | Pass |
| Header Styled as Text | Pass | Pass | Pass | Pass | Pass | Pass | Pass |

### Category: Retagged PDF

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Test | Reader 9 | Reader X | Pro 9 | Pro X | EGovMon | PAC | CL |
| Headers (C): # img in document | No Test | No Test | No Test | No Test | No Test | No Test | No Test |
| Headers (C): Hierarchy | Pass | Pass | Warn | Warn | Warn | Pass | Warn |
| Headers (I): # img in document | No Test | No Test | No Test | No Test | No Test | No Test | No Test |
| Headers (I): Hierarchy | Pass | Pass | Warn | Warn | Warn | Warn | Warn |
| Blank Header | Pass | Pass | Pass | Pass | Pass | Pass | Pass |
| Header Styled as Text | Pass | Pass | Pass | Pass | Pass | Pass | Pass |

### Category: No Tags PDF

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Test | Reader 9 | Reader X | Pro 9 | Pro X | EGovMon | PAC | CL |
| Headers (C): # img in document | No Test | No Test | No Test | No Test | No Test | No Test | Fail |
| Headers (C): Hierarchy | Fail | Fail | Fail | Fail | Fail | Fail | Fail |
| Headers (I): # img in document | Fail | Fail | Fail | Fail | Fail | Fail | Fail |
| Headers (I): Hierarchy | Fail | Fail | Fail | Fail | Fail | Fail | Fail |
| Blank Header | Fail | Fail | Fail | Fail | Fail | Fail | Fail |
| Header Styled as Text | Fail | Fail | Fail | Fail | Fail | Fail | Fail |

## Test Results – Title Elements

### Category: 2003 PDF

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Test | Reader 9 | Reader X | Pro 9 | Pro X | EGovMon | PAC | CL |
| Title Shows as Tag | No Test | No Test | No Test | No Test | No Test | No Test | Pass |
| Title Shows in Properties | Pass | Pass | Pass | Pass | Pass | Pass | No Test |

### Category: 2010 PDF

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Test | Reader 9 | Reader X | Pro 9 | Pro X | EGovMon | PAC | CL |
| Title Shows as Tag | No Test | No Test | No Test | No Test | No Test | No Test | Pass |
| Title Shows in Properties | Pass | Pass | Pass | Pass | Pass | Pass | No Test |

### Category: Retagged PDF

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Test | Reader 9 | Reader X | Pro 9 | Pro X | EGovMon | PAC | CL |
| Title Shows as Tag | No Test | No Test | No Test | No Test | No Test | No Test | Pass |
| Title Shows in Properties | Pass | Pass | Pass | Pass | Pass | Pass | No Test |

### Category: No Tags PDF

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Test | Reader 9 | Reader X | Pro 9 | Pro X | EGovMon | PAC | CL |
| Title Shows as Tag | No Test | No Test | No Test | No Test | No Test | No Test | Fail |
| Title Shows in Properties | Pass | Pass | Pass | Pass | Pass | Pass | No Test |

## Test Results – List Elements

### Category: 2003 PDF

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Test | Reader 9 | Reader X | Pro 9 | Pro X | EGovMon | PAC | CL |
| # of Lists | No Test | No Test | No Test | No Test | No Test | No Test | Warn |
| Tagged as List | Pass | Pass | Pass | Pass | No Test | No Test | Warn |
| UL v OL | No Test | No Test | No Test | No Test | No Test | No Test | Warn |
| Children | No Test | No Test | Pass | Pass | No Test | No Test | Warn |

### Category: 2010 PDF

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Test | Reader 9 | Reader X | Pro 9 | Pro X | EGovMon | PAC | CL |
| # of Lists | No Test | No Test | No Test | No Test | No Test | No Test | Warn |
| Tagged as List | Pass | Pass | Pass | Pass | No Test | No Test | Warn |
| UL v OL | No Test | No Test | No Test | No Test | No Test | No Test | Warn |
| Children | No Test | No Test | Pass | Pass | No Test | No Test | Warn |

### Category: Retagged PDF

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Test | Reader 9 | Reader X | Pro 9 | Pro X | EGovMon | PAC | CL |
| # of Lists | No Test | No Test | No Test | No Test | No Test | No Test | Warn |
| Tagged as List | Pass | Pass | Pass | Pass | No Test | No Test | Warn |
| UL v OL | No Test | No Test | No Test | No Test | No Test | No Test | Warn |
| Children | No Test | No Test | Pass | Pass | No Test | No Test | Warn |

### Category: No Tags PDF

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Test | Reader 9 | Reader X | Pro 9 | Pro X | EGovMon | PAC | CL |
| # of Lists | No Test | No Test | No Test | No Test | No Test | No Test | Fail |
| Tagged as List | Fail | Fail | Fail | Fail | No Test | No Test | Fail |
| UL v OL | No Test | No Test | No Test | No Test | No Test | No Test | Fail |
| Children | No Test | No Test | Fail | Fail | No Test | No Test | Fail |

## Test Results – Table Elements

### Category: 2003 PDF

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Test | Reader 9 | Reader X | Pro 9 | Pro X | EGovMon | PAC | CL |
| # of Tables | No Test | No Test | No Test | No Test | No Test | No Test | Warn |
| TH Usage | Pass | Pass | Pass | Pass | No Test | No Test | Warn |
| Col-Row Spans | No Test | No Test | Pass | Pass | No Test | No Test | Warn |

### Category: 2010 PDF

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Test | Reader 9 | Reader X | Pro 9 | Pro X | EGovMon | PAC | CL |
| # of Tables | No Test | No Test | No Test | No Test | No Test | No Test | Warn |
| TH Usage | Pass | Pass | Pass | Pass | No Test | No Test | Warn |
| Col-Row Spans | No Test | No Test | Pass | Pass | No Test | No Test | Warn |

### Category: Retagged PDF

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Test | Reader 9 | Reader X | Pro 9 | Pro X | EGovMon | PAC | CL |
| # of Tables | No Test | No Test | No Test | No Test | No Test | No Test | Warn |
| TH Usage | Pass | Pass | Pass | Pass | No Test | No Test | Warn |
| Col-Row Spans | No Test | No Test | Pass | Pass | No Test | No Test | Warn |

### Category: No Tags PDF

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Test | Reader 9 | Reader X | Pro 9 | Pro X | EGovMon | PAC | CL |
| # of Tables | No Test | No Test | No Test | No Test | No Test | No Test | Fail |
| TH Usage | Fail | Fail | Fail | Fail | No Test | No Test | Fail |
| Col-Row Spans | No Test | No Test | Fail | Fail | No Test | No Test | Fail |

## Test Results – Form Elements

### Category: 2003 PDF

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Test | Reader 9 | Reader X | Pro 9 | Pro X | EGovMon | PAC | CL |
| # of Elements | No Test | No Test | No Test | No Test | No Test | No Test | Warn |
| Type of Form Element | No Test | No Test | No Test | No Test | No Test | No Test | Warn |
| Tooltip Exists | No Test | No Test | No Test | No Test | No Test | No Test | Warn |
| Tab Order | No Test | No Test | No Test | No Test | No Test | No Test | Warn |

### Category: 2010 PDF

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Test | Reader 9 | Reader X | Pro 9 | Pro X | EGovMon | PAC | CL |
| # of Elements | No Test | No Test | No Test | No Test | No Test | No Test | Warn |
| Type of Form Element | No Test | No Test | No Test | No Test | No Test | No Test | Warn |
| Tooltip Exists | No Test | No Test | No Test | No Test | No Test | No Test | Warn |
| Tab Order | No Test | No Test | No Test | No Test | No Test | No Test | Warn |

### Category: Retagged PDF

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Test | Reader 9 | Reader X | Pro 9 | Pro X | EGovMon | PAC | CL |
| # of Elements | No Test | No Test | Pass | Pass | No Test | No Test | Warn |
| Type of Form Element | No Test | No Test | Pass | Pass | No Test | No Test | Warn |
| Tooltip Exists | No Test | No Test | Pass | Pass | No Test | No Test | Warn |
| Tab Order | No Test | No Test | Pass | Pass | No Test | No Test | Warn |

### Category: No Tags PDF

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Test | Reader 9 | Reader X | Pro 9 | Pro X | EGovMon | PAC | CL |
| # of Elements | No Test | No Test | Fail | Fail | No Test | No Test | Fail |
| Type of Form Element | No Test | No Test | Fail | Fail | No Test | No Test | Fail |
| Tooltip Exists | No Test | No Test | Fail | Fail | No Test | No Test | Fail |
| Tab Order | No Test | No Test | Fail | Fail | No Test | No Test | Fail |

## Summary of Findings

Based upon the test files created, evaluation tools, and testing scenarios, the following can be concluded:

* Aside from if a document is tagged, not tagged, or a scanned image, no single automatic test or tool can test for all aspects necessary for a PDF to be completely accessible
* All tools require manual follow up to ensure a PDF to be completely accessible
* Each tool returned at least one “false positive”
* Very little consistency of reporting methods is present between tools
* Each tool has a different learning curve to use properly
* Each tool can report false positives for an element
* Only Acrobat Pro offered a batch testing option

*How effective and reliable is each tool in analyzing the accessibility of a PDF file?*

These tools are effective in reporting if a document is tagged, not tagged, or a scanned image. Beyond these tests, they are unpredictable in the accuracy of their findings. Although automatic checking tools can give you a starting point when working toward PDF accessibility, they are not meant to be the only option. Manual checking is needed to verify correct structure and tagging markup.

*Are the results of the tool’s evaluations consistent with one another?*

The tools did give consistent results in each test. Although tools may have used different nomenclature in the reports, it was clear to the user what was being reported.

*Is one tool better than another?*

It cannot be determined that one tool is better than another when reporting if a document is tagged, not tagged, or a scanned image. As each tool had limitations to the items it could test for, the use of just one tool would leave the user without a full representation of accessibility issues.

Tools such as Acrobat Pro and CommonLook may be considered better tools as they offer environments to fix the accessibility of a PDF document as well.

*Does the use of these tools save the developer time over manually checking for PDF accessibility?*

It is determined that the knowledge base of PDF accessibility and personal preferences of the developer would contribute to the answer of this question. For the testing scenario of someone with little to no experience, the tools may save some time as to give the individual a quick idea of the accessibility of the document. For a user who has experience working with the manual checks and remediation of PDF files for accessibility, the tools may not save the developer time as they would be manually testing the same items the tools are checking for.

In summary of the project, the hardest part placing a “pass” rating into a test result of a document I knew should fail because that is what the tool reported. “Stepping back” into the scenario of the project has brought to light not only the issues with the tools themselves, but the importance of teaching the elements that should be looked at and that you must manually check a document no matter what the tool says.

## Summary of Testing Tools

### Word to PDF Conversion Notes

Form elements created in Word 2003 and 2010 are not converted to interactive form elements when a PDF is produced through conversion or print to PDF. Therefore, form element tests in the PDF 2003, PDF 2010, and No Tag categories were not performed.

Although an item can be styled as “title” in Word 2003 and 2010, PDF does not offer a default tag for a “title” element. Therefore, “title as tag” element tests in all categories were not performed with the exception of the CommonLook tool. This tool was able to show that the “title” styling had been applied in the original file, but there was no association to a PDF tag.

The document title when placed in the properties box in Word 2003 and 2010 did not seem to be affected by any of the conversion formats. It remained the same no matter how the PDF was created.

For tables, Word 2003 and 2010 only allow for the the top row of a table to be marked up as TH cells. Any additional editing, such as rowspans and colspans, must be done in the PDF file.

### Acrobat Reader 9 and 10 (X)

The *Accessibility Quick Check Tool* was not an effective tool for evaluating the true accessibility of the PDF. The tool could recognize if a document contained tags, did not contain tags, or was a scanned image. For all other tests, if the document contained tags (correct or incorrectly structured) the test returned “no problems found.” These tools were not able to test for the number of times an element occurred in a document.

### Acrobat Pro 9 and 10 (X)

The *Accessibility Full Check* tool using the default Adobe PDF checking options covered all items being checked for in these tests, but reported “no errors” in files that were known to have accessibility issues. The tool did recognize if a document contained tags, did not contain tags, or was a scanned image. It was misleading in areas such as headers, as it passed the document whether there were headers in the correct logical order or headers in the wrong logical order or text that looked like headers. Acrobat Pro does not include separate tags for UL and OL by default, therefore this test could not be performed.

### Acrobat Pro 9 and 10 (X) – Batch Processing

Acrobat Pro 9 returned the same results in the batch processing as it did when the files were checked in a single manner.

Acrobat 10 (X) returned two error items that were not indicated in the single tests. Each file in the 2003 PDF files batch test returned:

* None of the comments or other types of annotations on this page are contained in the structure tree
* All of the pages in this document have tab order that may be inconsistent with the structure order

The batch tests for the files in the 2010 PDF, PDF retag, and PDF no-tag folders resulted in the same test outcomes as when the files were checked in a single manner.

### EGovMon PDF Checker

The tool could recognize if a document contained tags, did not contain tags, or was a scanned image. The tool could not test for lists, tables, or form elements. Although it did not report differences in correct and incorrect heading structure, it did report the presence or absence of headings. Since it tested for limited items, this tool in conjunction with the PAC tool would provide a good starting point for accessibility checking of a document.

### PDF Accessibility Checker (PAC)

Similar to EGovMon, the tool could recognize if a document contained tags, did not contain tags, or was a scanned image. The tool could not test for lists, tables, or form elements. The tool provided a warning result and allowed the user to download a summary report of the findings. Since it tested for limited items, this tool in conjunction with EGovMon would provide a good starting point for accessibility checking of a document.

### CommonLook by NetCentric

This is the only pay tool in the testing set. Reports provide mostly items indicating “user verify” as the result. Items such as headers fall under “logical structure” and always give the “user verify” result. The tool does not have a test for list usage or markup. In regards to tables, the tool recognized issues with the TH elements, but had no reporting elements for colspan/rowspans. Although an initial “verify” report can be ran, the tools appears to be designed more for the correction of the PDF once accessibility has been determined.

## Summary Charts

In reality, the automatic checking of the tools in this test are limited. For most of the tests, the tools either could not check for the test or required a manual followup after the test was performed.

### Tagging

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Test | Reader 9 | Reader X | Pro 9 | Pro X | EGovMon | PAC | CL |
| Contains Tags | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Finds No Tags | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| PDF as image (scanned) | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

### Images

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Test | Reader 9 | Reader X | Pro 9 | Pro X | EGovMon | PAC | CL |
| Images: # img in document | No | No | No | No | Yes | No | No |
| Images: Alt text found | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

### Headings

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Test | Reader 9 | Reader X | Pro 9 | Pro X | EGovMon | PAC | CL |
| Headers (C): # img in document | No | No | No | No | No | No | No |
| Headers (C): Hierarchy | No | No | Manual | Manual | Manual | Manual | Manual |
| Headers (I): # img in document | No | No | No | No | No | No | No |
| Headers (I): Hierarchy | No | No | Manual | Manual | Manual | Manual | Manual |
| Blank Header | No | No | Manual | Manual | Manual | Manual | Manual |
| Header Styled as Text | No | No | Manual | Manual | Manual | Manual | Manual |

### Title

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Test | Reader 9 | Reader X | Pro 9 | Pro X | EGovMon | PAC | CL |
| Title Shows as Tag | No | No | No | No | No | No | Yes |
| Title Shows in Properties | Yes | Yes | Yes | Yes | Yes | Yes | No |

### Lists

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Test | Reader 9 | Reader X | Pro 9 | Pro X | EGovMon | PAC | CL |
| # of Lists | No | No | No | No | No | No | No |
| Tagged as List | No | No | Manual | Manual | No | No | No |
| UL v OL | No | No | No | No | No | No | No |
| Children | No | No | Manual | Manual | No | No | No |

### Tables

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Test | Reader 9 | Reader X | Pro 9 | Pro X | EGovMon | PAC | CL |
| # of Tables | No | No | No | No | No | No | Manual |
| TH Usage | No | No | Manual | Manual | No | No | Manual |
| Col-Row Spans | No | No | No | No | No | No | Manual |

### Forms

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Test | Reader 9 | Reader X | Pro 9 | Pro X | EGovMon | PAC | CL |
| # of Elements | No | No | No | No | No | No | Manual |
| Type of Form Element | No | No | Manual | Manual | No | No | Manual |
| Tooltip Exists | No | No | Manual | Manual | No | No | Manual |
| Tab Order | No | No | Manual | Manual | No | No | Manual |