

axesWord® User Guide

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What is axesWord®

axesWord® is an add-in for Microsoft® Word that you can use to create accessible PDF documents quickly and easily. You do not need to rework the text in the Word document or perform time-consuming quality control. The conversion is reliable, and the generated documents conform to the ISO 14298 (PDF/UA) standards.

For best results, use Word templates and styles, which are optimized for accessibility. When the Word document is ready, you can then use axesWord® to complete the process.

Accessible PDF documents

You can create two different types of PDF documents: PDF/UA and PDF/A.

PDF/UA

Originally published in August 2012, and updated in 2014, the global ISO standard 14289-1:2014 – commonly known as PDF/UA (Universal Accessibility) – defines the requirements for accessible PDF documents. Some of the requirements include:

- Content must be tagged in a logical structure or reading order.
- Each tag represents the document's semantic structure (headings, tables, lists, etc.)
- Graphics that contribute to the meaning of the content must have associated alternative text. Others must be marked as decorative elements.

PDF/UA also defines the requirements for software, including authoring tools, PDF viewers, assistive technologies, and evaluation tools.

The PDF association so aptly sums it up:

“The primary purpose of ISO 14289 (known as PDF/UA) is to define specific use of the structure and tagged PDF features in PDF 1.7, which provide a mechanism for reuse of PDF page content, especially in the accessibility context.”¹

¹ PDF association. (2014, October 7). ISO 14289 (PDF/UA). Retrieved from <https://www.pdfa.org/resource/iso-14289-pdfua/>



PDF/A

PDF/A is a file format that is used for archiving digital documents, ensuring that the documents are readable, presentable, and usable over the long term. This format is standardized by the International Organization for Standardization (ISO) as a subset of the Portable Document Format (PDF).

PDF/A documents do not contain audio, video, executable content, or links to external references. Any graphics or fonts must be embedded in the file, and encryption of the content is not allowed. These measures ensure that the document can be opened and read, regardless of the tools used or the age of the document.

PDF/A provides several conformity levels:

- a (accessible)
- b (basic)
- u (Unicode)

Level “a” is the highest level. It contains the other levels, and like PDF/UA, requires the use of tags. Level “b” and level “U” do not require tags.

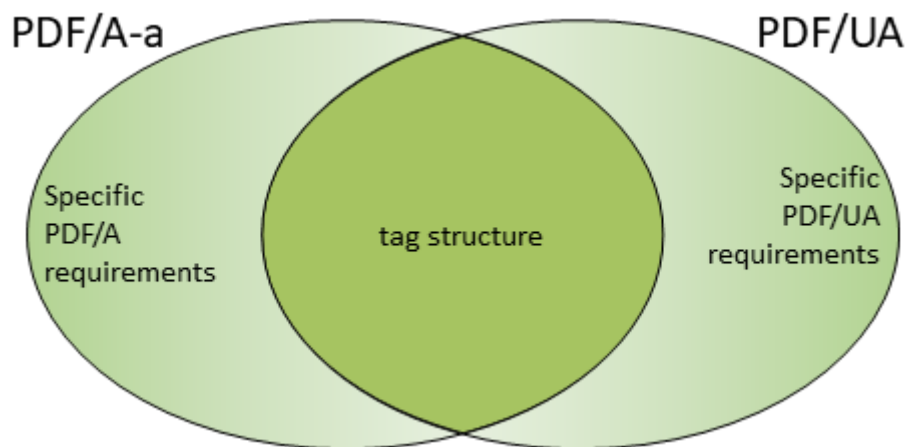


Figure 1: Relationship between PDF/A-a and PDF/UA.

In axesWord®, if you choose to create a PDF/A document, the result is a document that conforms to PDF/A-2a. However, if the source Word document contains characters that cannot be mapped to Unicode, the generated document contains the complete logical structure tree and conforms to PDF/A-2b.

The number “2” in PDF/A-2a or PDF/A-2b refers to the PDF version 1.7.



Want to learn more?

For more information about the PDF/UA and the PDF/A standards, check out the list of resources in the [PDF Association website](#).²

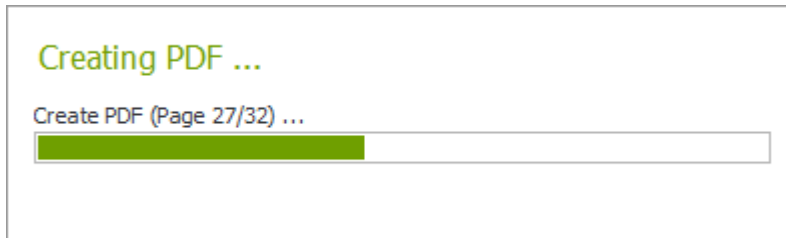
² <https://www.pdfa.org/resource/>



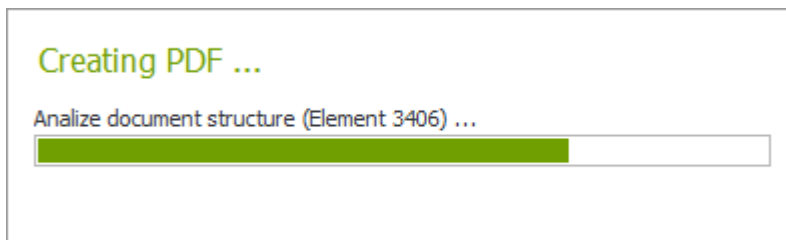
How does axesWord® work?

When you convert a Word document, axesWord® performs a three-step process.

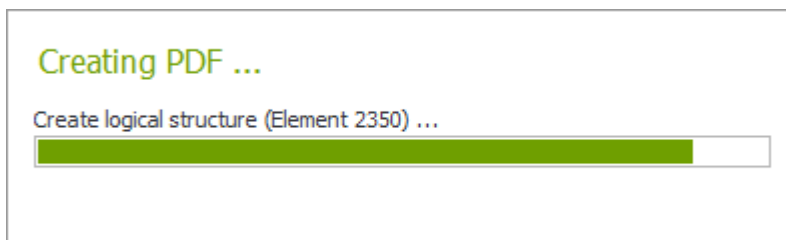
1. A PDF document is created, using the axesWord® conversion.



2. The Word document structure and content is analyzed.



3. The logical structure of the PDF is created, based on the Word function styles and role mappings that are used.



Note: If the Word document is large, this process can take some time.

Role mapping

During the conversion process, the elements in the Word document are mapped to roles for use in the PDF document. To achieve a fully accessible document, each element must be mapped to the correct role.

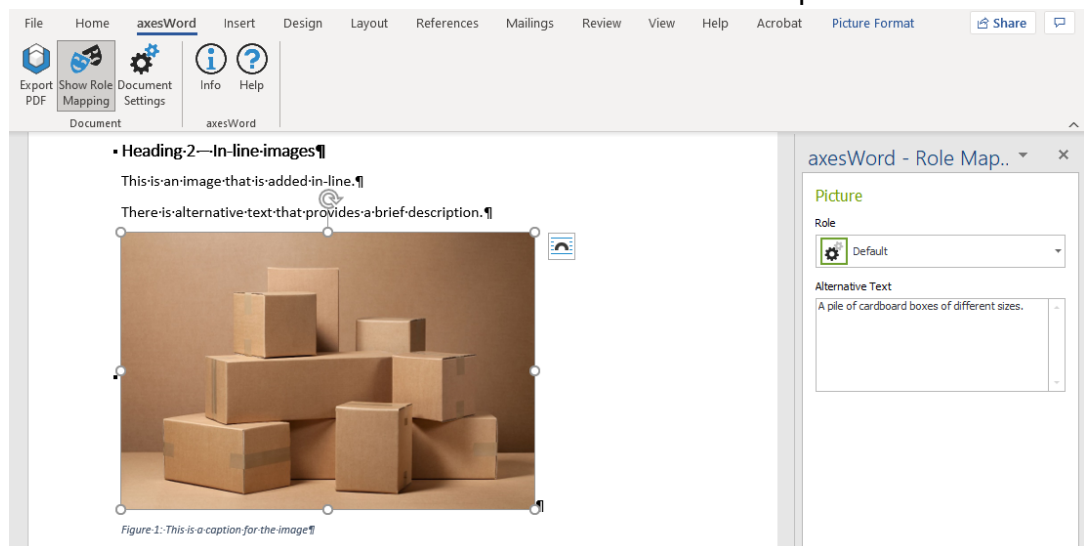
- **Paragraph styles** – These Word styles are mapped to the **Default** role. In most cases, the standard role is sufficient; however, you can change the role if required.
- **Word functions** – These elements, which include captions, footnotes, tables of contents, links, references, and hyphenation, are mapped to the **Default** role.



- **Document elements** – These elements are mapped to the **Default** role. axesWord® automatically recognizes the natural semantics of these elements and assigns the corresponding role.
- **Figures, tables, and text boxes** – These elements are mapped to their standard roles.

If the natural semantics detected by axesWord® is not appropriate, you can adjust the role mapping. For example, you might have to adjust the role mappings for layout tables, definition lists, artifacts, and formulas. In general, the standard Default role is appropriate. An element owns the role that corresponds to the natural semantics.

The following screenshot of the axesWord® Role Mapping pane shows how the selected picture in the Word document is automatically mapped to the Default role. You can also see the alternative text for the picture.





Installing axesWord®

System requirements

axesWord® works with the following operating systems and Microsoft® Word versions.

Supported operating systems:

- Microsoft Windows 8.1 Service Pack (SP) 1
- Microsoft Windows 10

Supported versions of Microsoft Word:

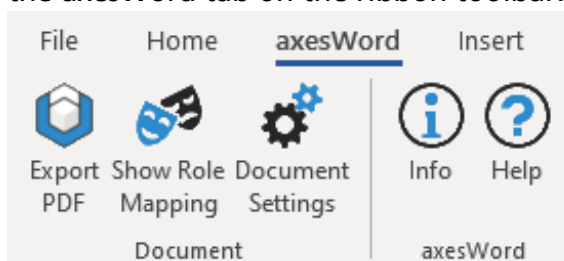
- Microsoft Word 2016
- Microsoft Word for Microsoft 365
- Microsoft Word for Office 365
- Microsoft Word 2019

Downloading and installing axesWord®

To install axesWord®:

1. Go to the [product download page](#)³ and click **Download**.
Note: If you have a previous version installed, you must uninstall it first.
2. Start the setup program by navigating to where you saved the downloaded file and double-click **axesWord.Setup.exe**.

The installation wizard guides you through the rest of the process. After the installation is finished, when you start Microsoft Word, you will see the axesWord tab on the ribbon toolbar:



³ <https://www.axes4.com/en/products-services/axesword>



Activating axesWord®

You can use axesWord® in Trial Mode or activate a license to use all the available features. You can set up licenses for individuals or organizations.

If you choose to run the add-in in Trial Mode, when you create a PDF, each page will have a watermark, and some characters will be randomly colored.

Setting up a personal license

To activate axesWord® for one person to use, you can set a personal license. For detailed instructions, go to the [Activate Personal License](#)⁴ article in the axes4 Help Center. The article also includes a link to download a PDF version of the instructions.

Setting up licenses for several people in an organization

To activate axesWord® for several people in an organization, you can set up access using either axes4 IDs or a domain. For detailed instructions, go to the corresponding articles in the axes4 Help Center. Each article also includes a link to download a PDF version of the instructions.

- [Set up access via axes4 IDs](#)⁵
- [Set up access via a domain](#)⁶

⁴ <https://support.axes4.com/hc/en-us/articles/360013781220-Activate-Personal-license>

⁵ <https://support.axes4.com/hc/en-us/articles/360013781020-Activate-team-or-flat-license-Access-via-axes4-ID->

⁶ <https://support.axes4.com/hc/en-us/articles/360013849319-Activate-Team-or-Flat-Licenses-Access-via-Domain-Local-Server-required>



Preparing for the conversion

Word document requirements

To ensure that axesWord® can create a document that conforms to the PDF/UA standards, the source Word document must satisfy several requirements:

- Each element has an appropriate role mapping.
- Each element has a defined position in the logical order of the document structure. This means that the reading order of the elements in the document must make sense.
- Figures have alternative text or are marked as decorative elements.
- Formulas have alternative text, which is usually the linearized form of the formula.
- Tables are data tables and not pictures.
- Columns and row headers in tables are marked accordingly.

Using templates

For the best conversion results, start with Microsoft Word documents that are accessible. To achieve this, work with documents that are created from templates that include the essential settings and conversion rules.

When you create a new document in Word, by default, the Normal.dotx template is used. This default template contains all the common styles, such as headings, lists, and captions.

Templates make it easier to create accessible documents because they use the styles that are available in the templates.

By using templates, document authors simply complete the following tasks:

- Use appropriate paragraph styles.
- Use corresponding Word functions for specific elements, such as creating captions, footnotes, or a table of contents.
- If required, add information to the roles, such as alternative text for figures or formulas.
- If required, change the standard role for specific elements, such as definition lists or formulas.

You can create your own template that contains only the paragraph and character styles that you use. You can also define the axesWord® document settings.



Mapping Word elements to PDF roles

During a document conversion, the styles in the Word document are converted to the corresponding roles in the PDF document. If the role mappings are complete and accurate, the resulting PDF document has the correct logical structure. Therefore, it is important to ensure that you correctly set up the role mappings in Word.

Reviewing and assigning roles at a document level

With axesWord®, you can assign roles to styles at the document level so that every time the style is used in a document, the role mapping is consistent.

You can assign a specific role to each type of style:

- Microsoft Word paragraph styles – These styles are already mapped to corresponding roles and changes are not required.
- User-defined paragraph styles – These custom styles must be manually mapped to the appropriate roles. This is typically done by the creator of the custom template.

Automatic role assignments

axesWord® automatically assigns roles to paragraph styles when no other assignments are available. For example:

- Headings, level 1 to 9 - based on outline levels
- Captions - based on the Insert Caption Word function
- Quotes - those assigned to the Quote or Cite paragraph styles
- Tables of contents - those created by the corresponding Word function
- Lists – those created with the Bullets, Numbering, or Multilevel functions in Word, or if they were assigned to special user-defined paragraph styles.

User-defined role assignments

For each user-defined paragraph style that you create, you must assign the corresponding semantic role. This role is based on the natural semantic of the element. In most cases, the role is Paragraph; however, you can change the automatic assignment to the following roles:

- Paragraph
- Heading - outline level 1 – x
- List continue – outline level 1 – 10
- Caption
- Blockquote
- Table header – complex table

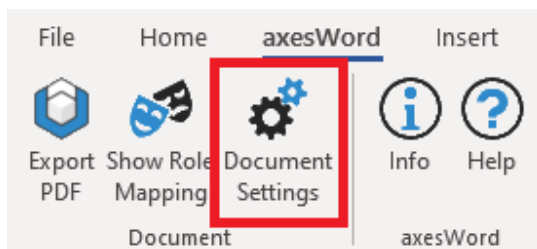


- Table header – simple table
- Artifact

Typical examples of user-defined paragraph styles that must be mapped are column or row headers in tables.

Assign a role mapping to a paragraph style:

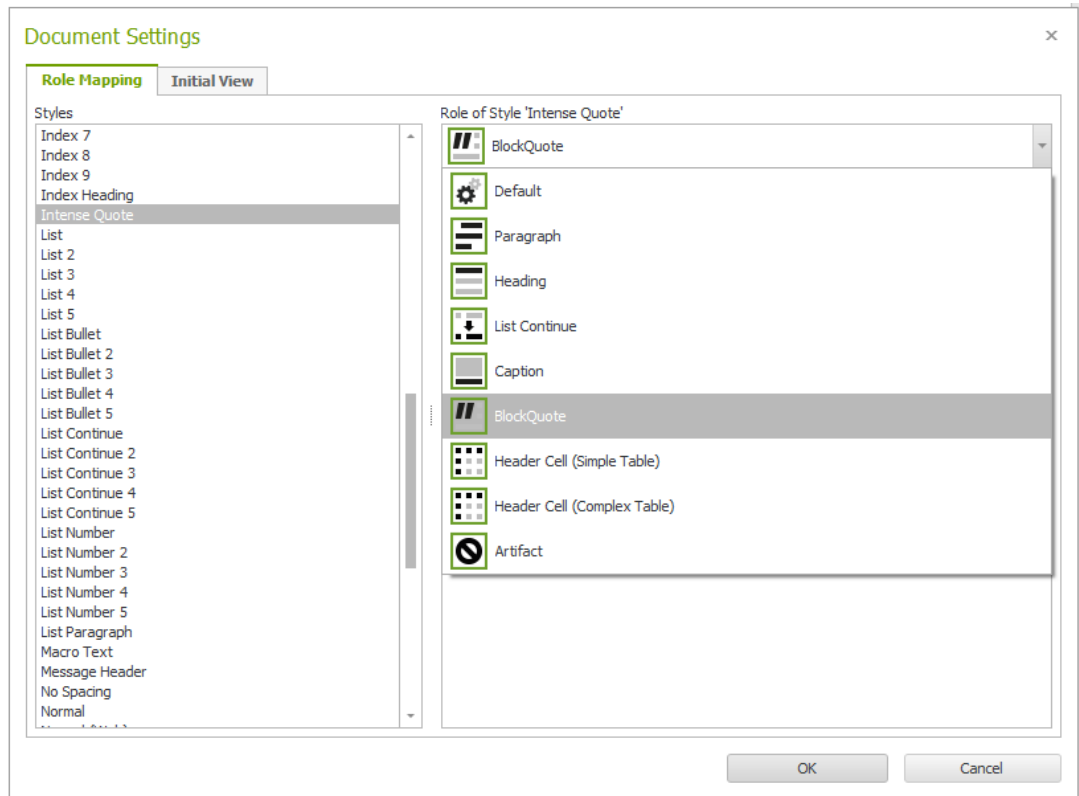
1. In the **axesWord** ribbon tab, click **Document Settings**.



2. In the **Document Settings** dialog box, on the **Role Mapping** tab, click a style.
3. In the **Role** list, choose the role that you want to assign to the selected style.

The Role list is context-sensitive; it shows the choices based on the style that you selected. Depending on the role that you choose, you can also define specific settings.

The following screenshot shows the Intense Quote style selected in the Styles list and the corresponding BlockQuote role selected in the Role list.



4. Click **OK** and repeat the steps for each style that you want to map.



Reviewing and changing role mappings at the object level

With axesWord®, you can review the role mapping for a specific element, such as figures or text boxes. If the role mapping for an element is not appropriate, you can manually change it.

You can change the standard role mapping for the following elements in your document:

- Figures
- Tables
- Text boxes
- Headers or footers

Role mappings for Figures

You can map the pictures, shapes, SmartArt, diagrams, and WordArt in your document to the following roles:

- Default – The selected element is handled according to the information delivered by Word. With figures, the default is normally the Figure role.
- Figure
- Formula
- Artifact

Remember: You must add alternative text to these roles.

Tip: If you have a figure that consists of several individual graphics, you should group them as one figure. Then you can change the role of the figure and add the required alternative text.

Role mappings for Tables

You can map a table in your document to the following roles:

- Default – The selected element is handled according to the information delivered by Word. With tables, the default is normally the Table role.
- Table
- Layout table – For a layout table, make sure that you define the correct reading order (Direction) for the rows and columns. The elements in the table are taken into the logical structure tree based on the direction that you set.

The structure of the layout table does not appear in the PDF document.

- Definition list – Select this role for tables that have two columns; for example, a glossary or a list of abbreviations. The left column is the label, and the right column is the corresponding list entry.



Role mappings for Text boxes

You can map a text box in your document to the following roles:

- Default -The selected element is handled according to the information delivered by Word. With tables, the default is normally the Textbox role.
- Figure
- Formula
- Textbox
- Artifact

Remember: You must add alternative text to the Figure, Formula, and Artifact roles.

Role mappings for Headers and Footers

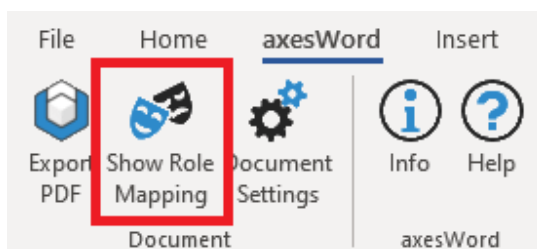
You can map headers and footers to the following roles:

- Default – The selected element is handled according to the information delivered by Word. With headers and footers, the default is normally the Artifact role. This means that they are not included in the logical tree structure of the PDF document.
- Section Header – Select this setting if you want to include the header or footer at the beginning of a section in the logical structure tree.
- Section Trailer – Select this setting if you want to include the header or footer at the end of a section in the logical structure tree.
- Artifact

Note: You can define the roles for headers and footers separately for each section in a document.

Change the role mapping for figures, formulas, tables, or text boxes

1. In the **axesWord** ribbon tab, click **Show Role Mapping**.



The axesWord – Role Mapping pane opens.

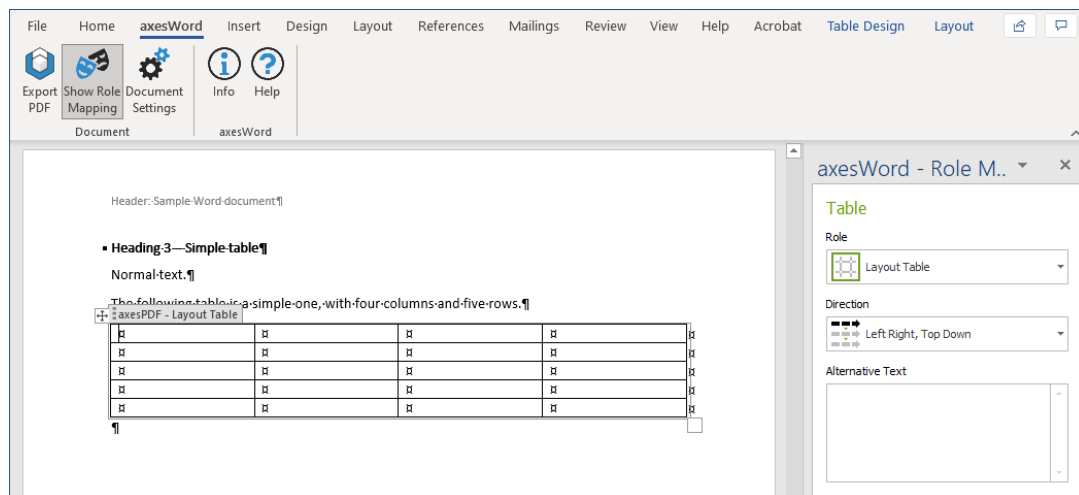
2. In the document, click a figure, table, or text box.

The automatically assigned role is displayed in the Role Mapping pane.



3. Choose a role for the selected element and specify any associated settings.
4. If required, add alternative text to the element. (Figures, graphs, and formulas should have associated alternative text.)

The following screenshot shows how the selected table in the Word document is mapped to the **Layout Table** role. The **Direction** is set to Left Right, Top Down, and there is no alternative text for the table.





Tips for using axesWord® effectively

Styles

It is important to use styles when you create your documents. Use the styles that are available in Word or the user-defined styles for which you have assigned roles.

Headings and other paragraph styles

Use the available styles to define the layout and appearance of paragraphs, headings, lists, indentations, and spacing in your documents. If you use heading styles, make sure that you use correct outline levels.

Character styles

Use character styles to emphasize individual elements in your documents. They affect the visual appearance of the content and have no impact on the logical structure tree.

Figures

When you add figures to your documents, consider whether they contribute relevant content or are simply decorative.

Relevant content

Ideally, figures should be added in-line with the text. If this is not an option, anchor them in the document.

Remember to add alternative text that describes the information being conveyed by the figure.

Decorative elements

Change the role mapping for decorative elements to **Artifact**.

Tables

When adding tables to your documents, decide what type of table to use and assign the corresponding role.

Data tables

Mark the column and row headers by using the corresponding user-defined paragraph styles.

Layout tables



Change the role mapping for these tables to **Layout Table** and define the **Direction**.

Definition lists

Change the role mapping of tables with two columns to **Definition List**.

Text boxes

By default, text boxes have the **Textbox** role; however, you can change this mapping in the task pane.

Text boxes are typically used to position textual information on a page. Anchor the text boxes to set their position in the reading order.

Note: In Microsoft Word 2010, axesWord® does not support text boxes. If you want to use text boxes, we recommend that you use Word 2013 or Word 2016.

Links

Create active links to move within your document or to open web pages.

Test the links to make sure that they work correctly in the Word document.

Enumeration and lists

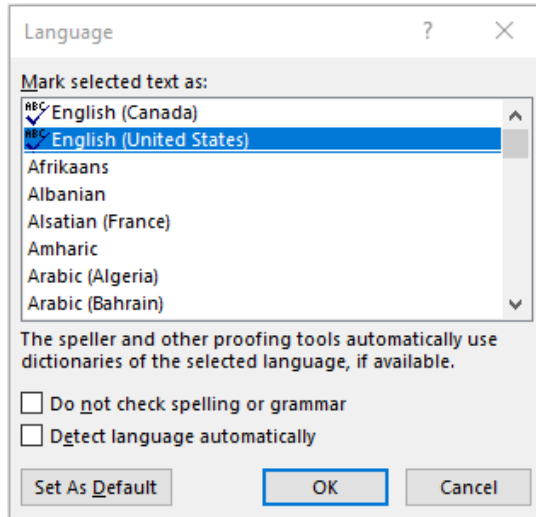
Simple lists with only one level are converted correctly. However, the following elements require user-defined styles:

- Multilevel lists
- List Continue

Language of the content

Define the language of the content.

1. In the document, select the content.
2. In the Word Status Bar, click the language control.
3. In the **Language** dialog box, choose the respective language and click **OK**.



Document title

You should define a title for the document before converting it to a PDF document.

The title is one of the properties that you can set for the document. The location of the Properties information differs, depending on the version of Word that you are using.

For Office 365:

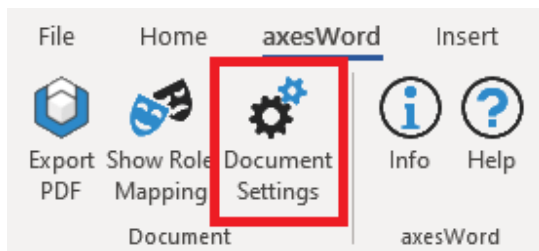
1. Click the **File** ribbon tab.
2. Click **Info**, and under **Properties**, in the **Title** field, add or update the document title.



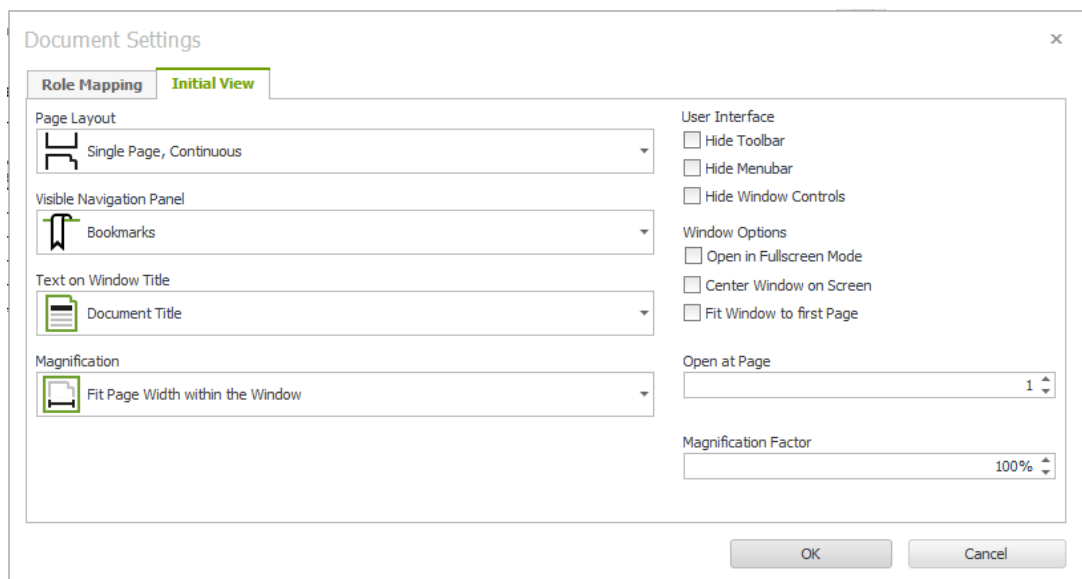
Setting up the initial view of the PDF document

You can specify what the PDF document looks like when it opens. For example, you can set the page layout for the document, reveal the bookmarks in the Navigation pane, and define a magnification factor.

1. In the **axesWord** ribbon tab, click **Document Settings**.



2. In the **Document Settings** dialog box, click the **Initial View** tab.



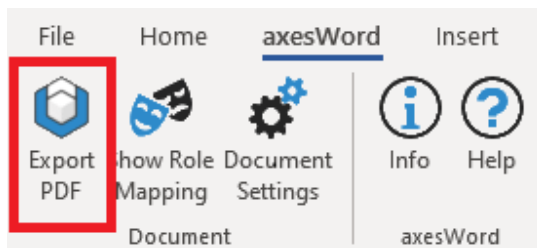
3. Specify how you want to display the new PDF document when it is created, and then click **OK**.



Creating an accessible PDF

With axesWord®, it is easy to create an accessible PDF from your Word document. You start by setting the properties for the document, and then begin the conversion.

1. In the **axesWord** ribbon tab, click the **Export PDF** button.



The Create accessible PDF dialog box opens.

The image shows the 'Create accessible PDF' dialog box. It contains the following fields and options:

- PDF Filename:** A text box containing the path 'C:\Data\AbleDocs_work\axes4_apps\Sample_documents\Sample_Word_c ...'.
- Document Title:** A text box containing 'Sample Word document'.
- Main Document Language:** A dropdown menu set to 'English (USA)'.
- Open PDF Document in Default Viewer:** A checked checkbox.
- PDF/A:** An unchecked checkbox.
- Buttons:** 'Create' and 'Cancel' buttons at the bottom right.

2. In the **PDF Filename** field, specify the file name and location for the new PDF document.
3. In the **Document Title** field, add an appropriate title.
4. In the **Main Document Language** list, choose the language for the PDF document.
5. To view the document after the conversion is finished, select the **Open PDF Document in Default Viewer** check box.
6. To create an archival version of the PDF document, select the **PDF/A** check box.
7. Click **Create**.



Checking the accessibility of the PDF document

After you create the PDF document, it is important to verify that it is accessible and compliant with the PDF/UA standards. There are a couple of tools that you can download and use to check your document:

- PDF Accessibility Checker (PAC) – Freeware that checks all machine-testable checkpoints. For information and a link to download the tool, go to [this article in the axes4 Help Center](#).⁷
- AXESPDF – A tool for checking and remediating PDF documents according to PDF/UA and WCAG 2.1. (You can use the free trial version.) For information and a link to download the tool, go to this article in the axes4 Help Center.

Evaluating the results

If you created the source Word document correctly, axesWord® will create an accessible PDF document that passes an automatic PDF/UA check. The automatic check examines all the requirements that can be checked by a machine.

The following screenshot shows the AXESPDF results for a Sample Word document. The Checker pane shows how all the applicable checkpoints were successful.

The screenshot displays the AXESPDF application interface. The main window shows a PDF document titled "Sample Word document" with a header and a main content area containing the text "Title: Sample Word document" and an image of a red balloon and four white balloons. The interface includes a menu bar with options like Logical Structure, Content, Font, Extras, and Viewer. Below the menu is a toolbar with various icons for actions such as Rename Tags, Fix Roles, Apply Standard Tags, Delete Empty Tags, Add Note IDs, Fix Placement, Remove broken MCRs, Repair Parent Keys, Remove Corrupt Elements, Rebuild Structural Parent Tree, and Remove Logical Structure. On the right side, there is a "Checker" pane with a table showing the results of the accessibility check.

Issue	Count
PDF/UA	44
Basic requirements	1
ISO 32000-1	0
Fonts	1
Content	0
Embedded Files	0
Natural language	0
Logical Structure	42
Structure Elements	15
Structure Tree	6
Role mapping	0
Alternative Descriptions	21
Metadata and Settings	1
Metadata	1
Document settings	0

⁷ <https://support.axes4.com/hc/en-us/articles/201957988-PDF-Accessibility-Checker-PAC->



The following screenshot shows the PAC results for the same Sample Word document. The Summary Report tab shows how all the applicable checkpoints were successful. You can also open a detailed report, view the logical structure of the document, or examine the screen reader view of the structure.

PAC 3 - PDF Accessibility Checker 3
Version: 3.0.7.0

PDF Accessibility Checker 3

Title
Sample Word document

Filename
Sample_Word_document.pdf

Language en-US **Tags** 337 **Pages** 7 **Size** 227 KB

Summary Report

✓ The PDF/UA requirements checked by PAC are fulfilled.

Checkpoint	Passed	Warned	Failed
✓ PDF Syntax	355	0	0
✓ Fonts	28	0	0
✓ Content	26914	0	0
⊘ Embedded Files	0	0	0
✓ Natural Language	13056	0	0
✓ Structure Elements	272	0	0
✓ Structure Tree	674	0	0
✓ Role Mapping	692	0	0
✓ Alternate Descriptions	1348	0	0
✓ Metadata	6	0	0
✓ Document Settings	10	0	0

Sponsors

- Access1 - Accessible documents for everyone
- BITV CONELLT
- axes PDF
- printsatz DRUCKVORSTUFE
- SZBLIND - Schweizerischer Zentralverein für das Blindenwesen

**Zugang für alle
Accès pour tous
Accesso per tutti
Access for all**

Buttons: Results in Detail, Summary Report as PDF, Screen Reader Preview, Logical Structure, Document Statistics



Glossary

Here is a list of terms that are used in the tools that you use to create and check PDF documents.

Anchor	Assignment of a figure or a text box (which are not used inline) to a paragraph in the main content. The anchoring defines the position of the element in the logical structure tree.
Artifacts	All elements in a document that are decorative and/or are not relevant content. Artifacts are not part of the logical structure tree and are not processed by assistive technologies. Examples include background images, page numbers or text in headers and footers, and printer's imprints.
Assistive Technologies (AT)	Technical aids that people with disabilities use to consume digital content. Examples include screen readers or Braille displays.
Button	An interactive element that performs a specific function or starts a tool.
Caption	Text that describes a table or a figure. Captions are positioned below or above the corresponding element and are often numbered. In Microsoft® Word, you can create tables of contents based on these captions.
Context-sensitive	A representation or a function that is displayed differently, depending on the context.
Data table	A grid or matrix that is used to present data.
Definition list	A special form of list with individual labels. Each label can be an expression or an abbreviation. The related list entry provides the corresponding explanation.
Dialog box	An element of the user interface that appears after starting a function. It requires interaction, such as an input or confirmation.



	<p>An example is the window that you use to create an accessible PDF document in axesWord®.</p>
Element	<p>Generic term for all possible objects in a document, including paragraphs, figures, formulas, etc.</p>
Figure	<p>Generic term for all pictographic objects in Microsoft® Word.</p>
Layout table	<p>A table that is used for layout purposes, rather than for the presentation of data.</p>
Linearized view	<p>A view of contents that are ordered sequentially – one after another.</p>
Link	<p>Connection between a source element (text or figure) and a destination element (footnote, endnote, reference, website, or email address.)</p>
List continue	<p>Further paragraphs within one list item.</p>
Logical document structure	<p>The hierarchical structure of all the tags in a document. This structure does not necessarily correspond with the appearance of the document, but with the division into meaningful units and elements.</p> <p>The logical document structure is the basis for a machine-readable document. It is also a precondition for an accessible document. A PDF document that has a logical structure is called a “tagged PDF”.</p>
Logical order	<p>An unambiguous linearized order of all content elements so that there is a logical information flow.</p> <p>The logical order results from the logical structure tree. It is independent of the position of the object on the respective page, even though logical order and visual positioning should ideally be identical, particularly in documents with a simple layout.</p> <p>You can check the logical order by viewing the structure tree.</p>



	<p>The logical order corresponds to the reader order, which is important for assistive technologies.</p>
Machine-readable	<p>Structured data that is can be processed by a machine, such as assistive technology. Tags are used to structure the data. See also: Tag</p>
Multilevel list	<p>A list that contains more than one outline level. Also referred to as a nested list.</p>
Table header	<p>Heading of a data cell, column, or row in a table. A data cell has a corresponding column heading or row heading, which helps you understand its purpose and content.</p>
Tag	<p>Tags are invisible labels that mark content elements as a special structure types; also called semantic markup. The tags indicate the role of each content element in the context of the document.</p>
Task pane	<p>A task pane in the user interface shows a specific perspective of a document and provides options for analysis and evaluation, editing, or for changing settings.</p>
Text box	<p>A container for text that can be positioned anywhere in a document.</p>
Tool group	<p>A group of tools that is available in the ribbon tabs. Each group of tools has a common theme; for example, the Document tool group.</p>