

# ACCESSIBLE DIGITAL PUBLICATIONS

ACCESSIBLE PUBLICATIONS: MS WORD AND PDF



July 5, 2022 | Maria Jerez & Raimonds Erts

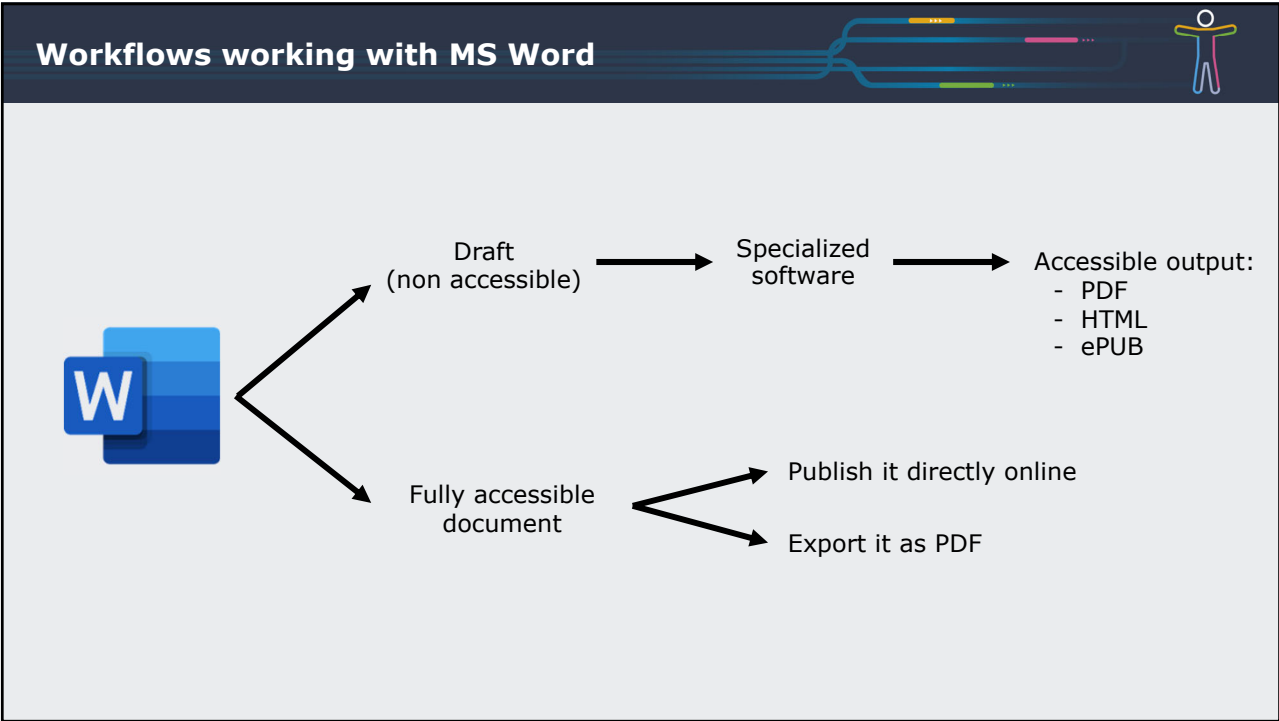
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## Contents

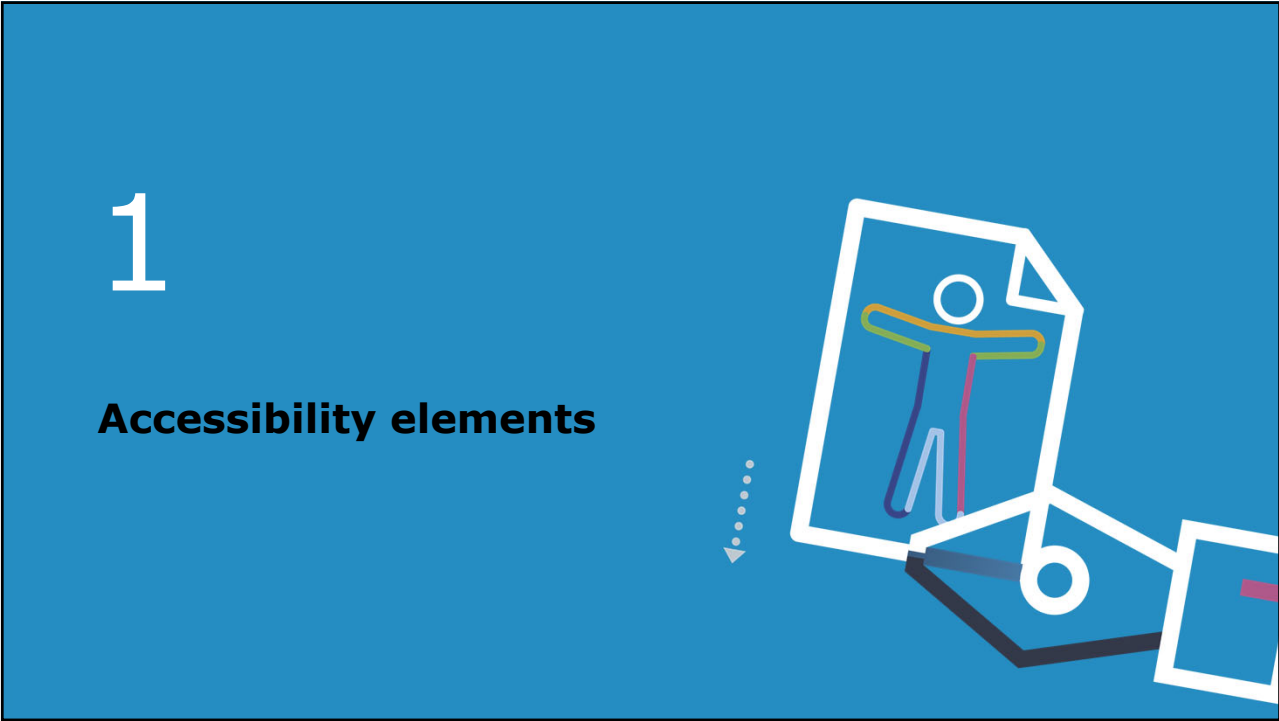
- Accessibility elements
  - For all publications
  - For accessible Word files
  - For accessible PDF exported from Word
- Exporting from MS Word to PDF
- Checking the colour contrast
- Checking the accessibility of a PDF file
- Analysis of some publications in Word and in PDF



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## Accessibility elements



- Structure
- Navigation
- Lists
- Tables
- Fonts
- Figures
- Reading order
- Colour
- Metadata


Elements identical in a manuscript or in an accessible publication

Elements that need to be treated differently when creating an accessible MS Word publication




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## Structure



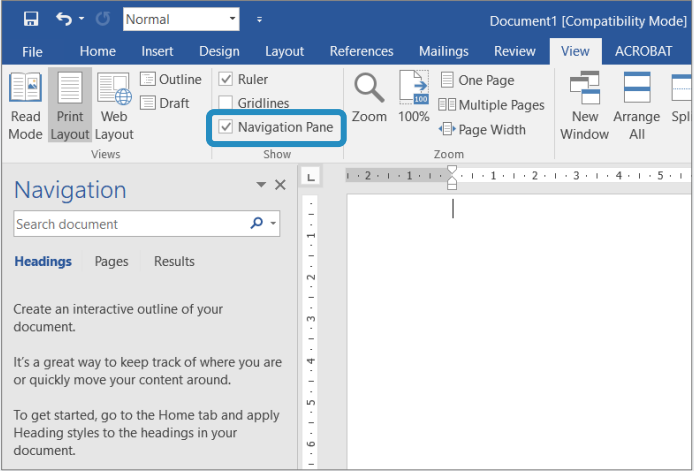
- **Publication structure:** built with many elements:
  - Chapters, sections...
  - Headings with the correct nested order: H1 > H2 > H3...
  - Paragraphs
  - Lists
  - Tables
  - Footnotes or endnotes...
- Screen readers and assistive technology use the semantic roles of those elements to navigate efficiently in the document.



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## Structure

View > Navigation Pane



The screenshot shows the Microsoft Word interface with the 'View' tab selected. In the 'Navigation Pane' group, the 'Navigation Pane' checkbox is checked and highlighted with a blue box. Below the ribbon, the 'Navigation' pane is open, showing a search bar and instructions: 'Create an interactive outline of your document. It's a great way to keep track of where you are or quickly move your content around. To get started, go to the Home tab and apply Heading styles to the headings in your document.'

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## Navigation


- **Navigation panel**

To verify the document structure when the headings are applied in the document.
- **Table of contents**

To verify that it generates correctly and represents the document structure when the headings are applied in the document.
- **Internal crosslinks**

Use the MS Word integrated functionality to create index, list of tables, list of boxes, references to charts...
- **External hyperlinks**

Ideally the hyperlink is applied to a text describing the link.



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## Accessible Hyperlinks best practices



- Unless the file is going to be printed, do not use the URL.
- Use a meaningful, descriptive and concise text that clearly identifies the content of the resource being linked to.
- Avoid ambiguous text, such as "click here" or "more information".
- Write out full email addresses:
  - Example: Send an email to [OP-ACCESSIBLE-PUBLICATIONS@publications.europa.eu](mailto:OP-ACCESSIBLE-PUBLICATIONS@publications.europa.eu)
- If a hyperlink downloads a file, mention it:
  - Example: [OP map \(PDF, 5.62 MB\)](#)
- If a hyperlink opens in a new browser tab or window, mention it:
  - Example: [Accessibility website \(opens in new tab\)](#)



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## Accessible Hyperlinks best practices



- Visually:
  - Underline hyperlink text.
  - Give hyperlink text a different colour from surrounding text.
    - Hyperlink text is usually blue, but may be any colour that contrasts sufficiently with surrounding colours.
    - Use the same colour for all hyperlinks in a given document.

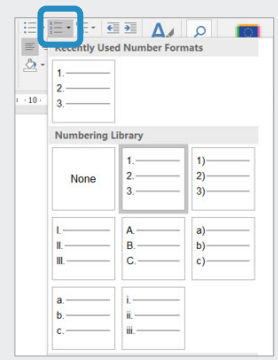
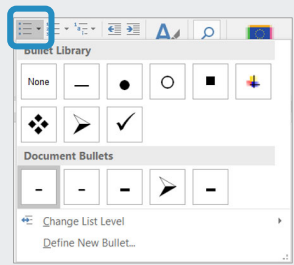
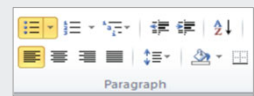


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# Lists

- Format using MS Word’s list styles.
- For complex lists (more than one paragraph for a single list item), use different formats to indicate those paragraphs which belong to the list and those which belong to the main text.

Home > Paragraph

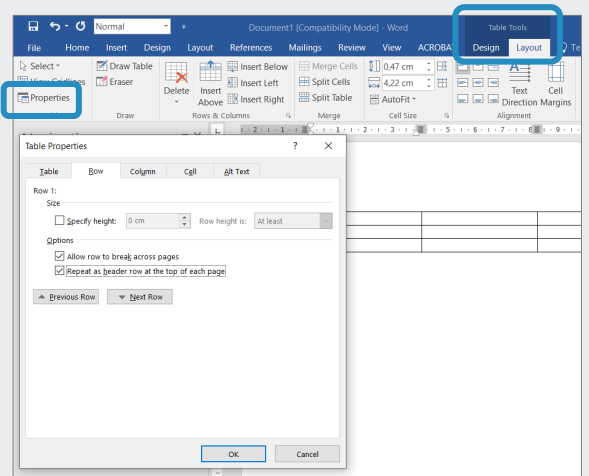
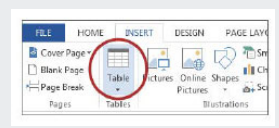


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# Tables

- Do not use them for decorative purposes.
- Insert tables as tables and not as drawings or tab-separated items.
- Avoid merging cells and creating complex structures.
- Identify the heading row.
- If needed, provide alternative text for the complex tables.

Table Tools > Layout > Properties

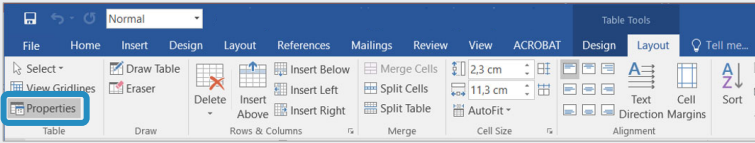
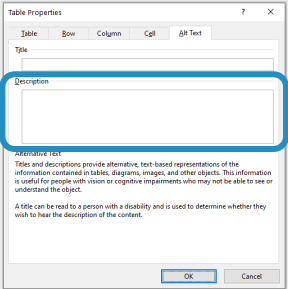


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## Tables with alternative text

**Accessible MS Word publication**

- Alternative text has to be added using Alt text description field in the Table properties.






**Accessible PDF exported from an accessible Word**

- Alternative text to be added manually after exporting to PDF.


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## Fonts


Serif


Sans-serif


- Sans-serif fonts recommended for digital publications.

Gill Sans


Verdana




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## Fonts



- Avoid cursive and fantasy fonts, as well as capital letters.
- Limit the number of fonts to a maximum of 2 or 3.
  - Use them to express different functionalities, such as headings or comments.
- Font size
  - Font size is readable.
  - Recommended minimum size 

}	Body text: Arial 12 pt.
	Footnotes: Arial 9 pt.
- Left alignment.

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## Images and charts



### Alternative text

- Provide alternative text to describe meaningful images and charts.
- Do not duplicate the text in the caption.
- Take into account the context of that publication.

### Artefacts

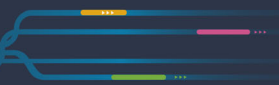

- Indicate which images are decorative and must be excluded from the reading order.



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## Images

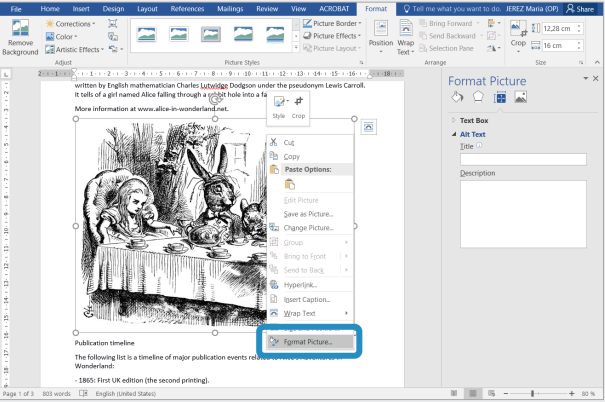
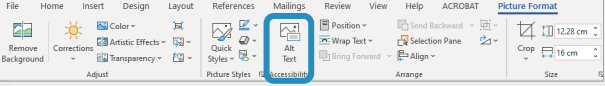



**Accessible MS Word publication**

- Alternative text has to be added using Alt text field in Format Picture.
- Only when using MS Word of Office 365 images can be marked as decorative artifacts.

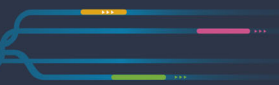

**Accessible PDF exported from an accessible Word 2016**

- Tag decorative images as artifacts in Acrobat Pro.

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## Reading order

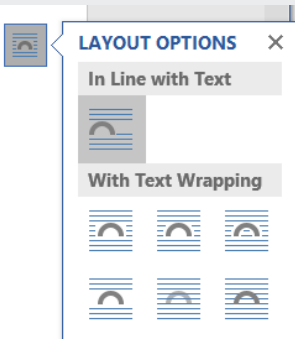
Reading order is the sequence in which the content is read out by screen readers.

**Accessible MS Word publication**

- Images and text boxes have to be inserted as inline objects.

**Accessible PDF exported from an accessible Word**


- Before exporting to PDF, images and text boxes have to be inserted as inline objects or anchored relative to a paragraph or page.



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## Metadata

- [Short] title
- Author
  - Usually the name of the institution, agency or DG.
- Subject and keywords
- Apply correct language for all text.



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## Metadata

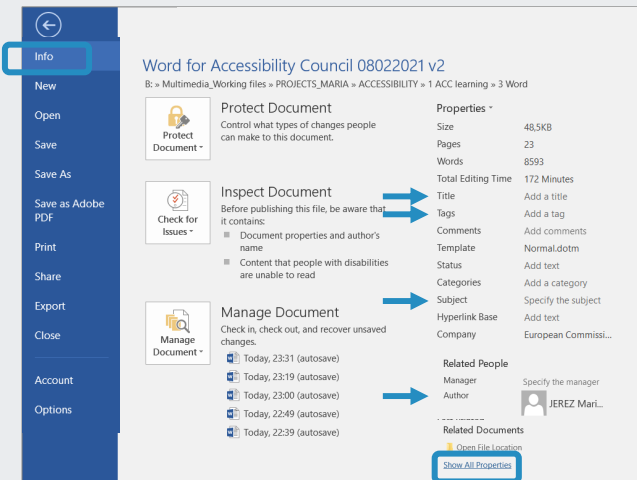
### Accessible MS Word publication

Add metadata in File > Info

- Short title in the **Title** field.
- Name of institution in the **Author** field.
- Subject in the **Subject** field.
- Keywords in the **Tags** field.

### Accessible PDF exported from an accessible Word 2016

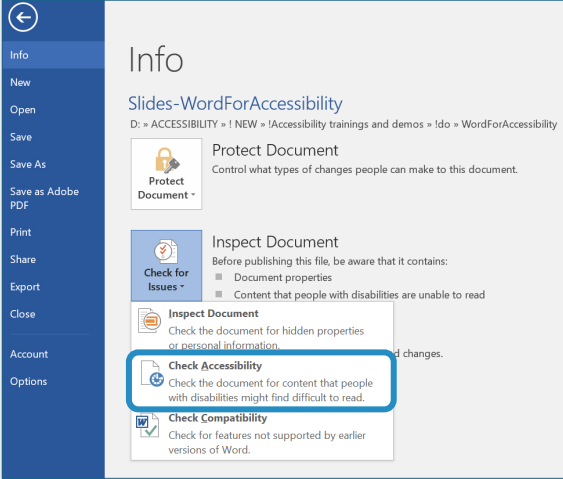
- Metadata need to be included again (not exported).



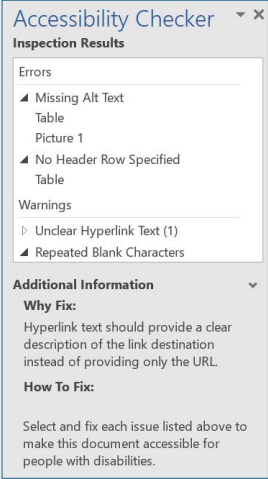
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# MS Word Accessibility checker

File > Info > Check for Issues > Check Accessibility



The screenshot shows the MS Word 'Info' pane. The 'Check Accessibility' option is highlighted with a blue box. The pane includes sections for 'Protect Document', 'Inspect Document', and 'Check Compatibility'. The 'Check Accessibility' section states: 'Check the document for content that people with disabilities might find difficult to read.'



The 'Accessibility Checker' pane shows the following results:

- Errors**
  - Missing Alt Text
    - Table
    - Picture 1
  - No Header Row Specified
    - Table
- Warnings**
  - Unclear Hyperlink Text (1)
  - Repeated Blank Characters

**Additional Information**


**Why Fix:**  
Hyperlink text should provide a clear description of the link destination instead of providing only the URL.

**How To Fix:**  
Select and fix each issue listed above to make this document accessible for people with disabilities.

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# 2

## Exporting from MS Word to PDF



The illustration shows a white document icon with a blue gear in the center, surrounded by several small white circles connected by lines, suggesting a process or export function.

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## Export from MS Word to PDF

Save as PDF using Acrobat PDFMaker plugin for Word

The screenshot shows the MS Word ribbon with the 'ACROBAT' tab selected. The 'Create PDF' button is highlighted. To the right, the 'Acrobat PDFMaker' dialog box is open, showing 'PDF Options' with several checked items: 'Convert document information', 'Enable Accessibility and Reflow with tagged Adobe PDF', 'Create Bookmarks', 'Convert Word Headings to Bookmarks', 'Convert Word Styles to Bookmarks', and 'Convert Word Bookmarks'. The 'Page range' section has 'All' selected.

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## Export from MS Word to PDF

Save as PDF  
(Word 2016)

The 'Options' dialog box for Word 2016 shows 'Include non-printing information' with 'Create bookmarks using' set to 'Headings'. 'Document structure tags for accessibility' is also checked.

Save as PDF  
(Word 365)

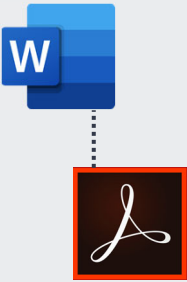
The 'Options' dialog box for Word 365 shows 'Include non-printing information' with 'Create bookmarks using' set to 'Headings'. 'Document structure tags for accessibility' is checked.

Print as Adobe PDF creates a non-accessible PDF!

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## Post-processing in Acrobat Pro

- Check and modify metadata.
- Set the initial view with bookmarks and page.
- If tables had alternative text, add to table summary.
- Set decorative images as artefacts.
- Check and fix the reading order:
  - In Tags panel.
  - In Order panel.



The image shows a Microsoft Word icon (a blue square with a white 'W') connected by a dotted line to an Adobe Acrobat icon (a black square with a white 'A' logo). The Acrobat icon is highlighted with a red border.

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# 3


## Checking the colour contrast



The image features a white document icon with a gear symbol in the center. Four colored circles (orange, purple, green, and blue) are connected to the corners of the document by thin lines, suggesting a process of inspection or adjustment.

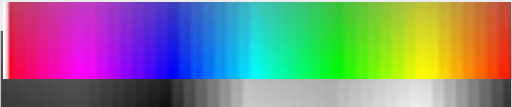
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## Colour contrast




The WCAG define contrast as a measure of the difference in perceived brightness between two colours.

- Text contrast ratio 4.5 : 1 (WCAG AA)
  - Contrast for regular text against the background.
- Text contrast ratio 3 : 1 (WCAG AA)
  - Contrast for large text against the background.
  - Large text is a text that is larger than 18 pt or larger than 14 pt if bold.
- Non-text contrast ratio 3 : 1 (WCAG AA)
  - Contrast of graphical objects against adjacent colours.

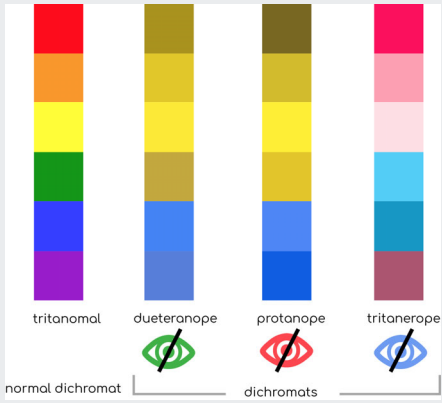


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## Colour

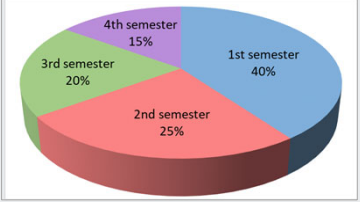


- When choosing colours, take into account that not every body can see them.



normal dichromat    tritanomal    dueteranope    protanope    tritanerope

dichromats

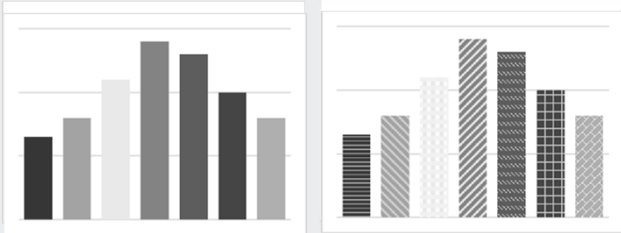


Semester	Percentage
1st semester	40%
2nd semester	25%
3rd semester	20%
4th semester	15%

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## Colour

- To convey information do not use only colour:
  - Instead of ● ●
  - Use ✗ ✓
  - Add other information (such as patterns).

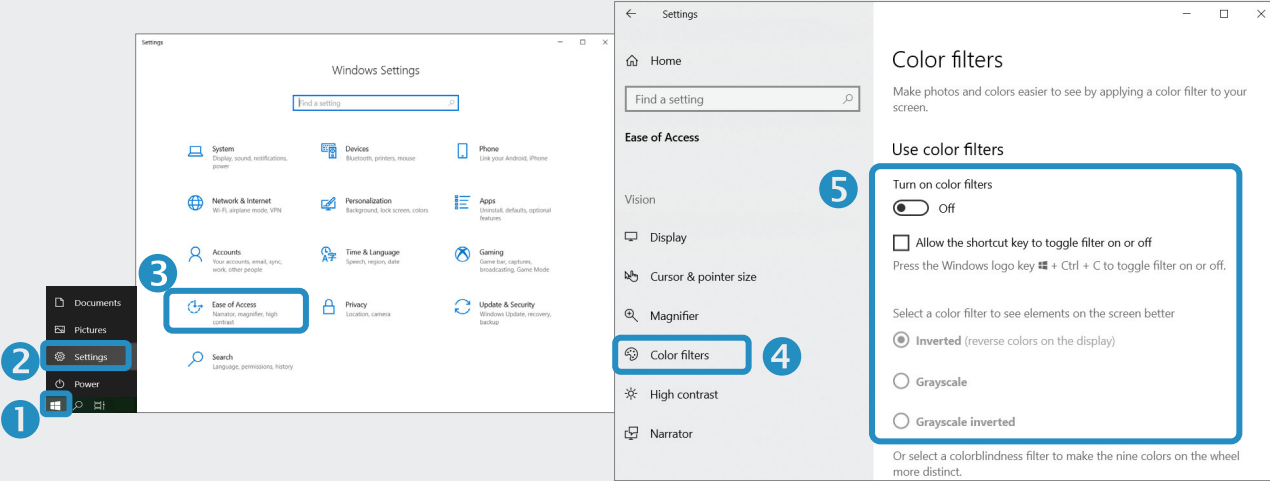


- To verify, switch it to greyscale.

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## Color filters in Windows 10 OS

**Start > Settings > Ease of Access > Color filters**



**Color filters**  
Make photos and colors easier to see by applying a color filter to your screen.

**Use color filters**


- Turn on color filters
  - Off
  - Allow the shortcut key to toggle filter on or off  
Press the Windows logo key + Ctrl + C to toggle filter on or off.
- Select a color filter to see elements on the screen better
  - Inverted (reverse colors on the display)
  - Grayscale
  - Grayscale inverted

Or select a colorblindness filter to make the nine colors on the wheel more distinct.

**Shortcut for filters: Win + Ctrl + C**


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## Some tools to check the colour contrast



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**Adobe Color** [online]  
(<https://color.adobe.com/create/color-contrast-analyzer>)




.....

**GIMP** [Windows and MacOS]  
(<https://www.gimp.org/>)

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## Adobe Color



Adobe Color

CREATE EXPLORE TRENDS LIBRARIES

Color Wheel Extract Theme Extract Gradient Accessibility Tools **New**

Tools Contrast Checker WCAG 2.1 Level AA Import Colors

Text Color #1B365C Background Color #7EA1C4 Contrast Ratio 4.5 : 1

Preview

- Regular Text: A high color contrast makes anything easier to read. **Pass** for 17pt and below
- Large Text: A high color contrast makes anything easier to read. **Pass** for 18pt and above / 14pt bold and above
- Graphic Components: **Pass** for icons and actionable graphics

Recommendations Save

Contrast Suggestions

- Apply Contrast Ratio 6.0:1
- Apply Contrast Ratio 6.0:1
- Apply Contrast Ratio 7.0:1

Set a Contrast Ratio

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### WebAIM Contrast Checker and GIMP colour picker

1. Adobe Color Contrast Checker interface showing a contrast ratio of 3.73:1 for black text on a red background (#000000 on #CD171A).

2. GIMP interface showing the color picker tool selected.

3. Magnifying glass icon.

4. Change Foreground Color dialog box showing the color code #CD171A.



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# 4


## Checking the accessibility of a PDF file

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## Some tools to check a PDF




**Adobe Acrobat Pro** [Windows and MacOS]  
(<https://acrobat.adobe.com/lu/en/acrobat/acrobat-pro.html>)



Plug-in **Callas pdfGoHTML 2** [Windows and MacOS]  
(<https://www.callassoftware.com/en/products/pdfgohtml>)

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## Characteristics of accessible PDF publications



- Basic requirements
- Metadata
- Navigation
- Figures
- Structure
- Reading order
  
- Text
- Colour contrast



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## Accessibility: Basic requirements



- Document is tagged.
- No encryption / No password protection.
  - Except if specially configured for reader devices.
- Initial view: Bookmarks panel and page.
- Magnification: Fit page.
- Document title displayed in the PDF title bar.



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## Accessibility: Metadata



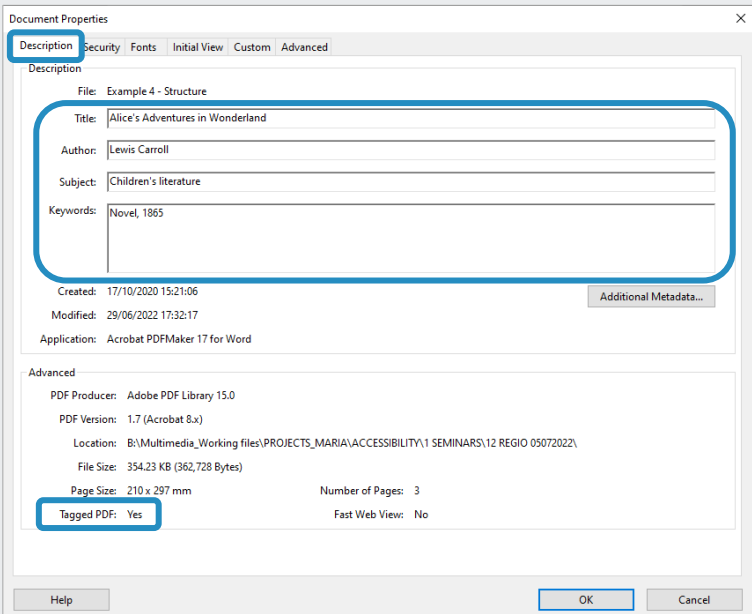
- Title
- Author
  - Usually the name of institution, agency or DG.
- Primary language of the publication
  - A PDF document can only have one primary language.
- Subject and keywords



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### Acrobat Pro > File > Properties > Description

- Metadata**
  - Title
  - Author
  - Subject
  - Keywords
- Basic requirements**
  - Tagged PDF

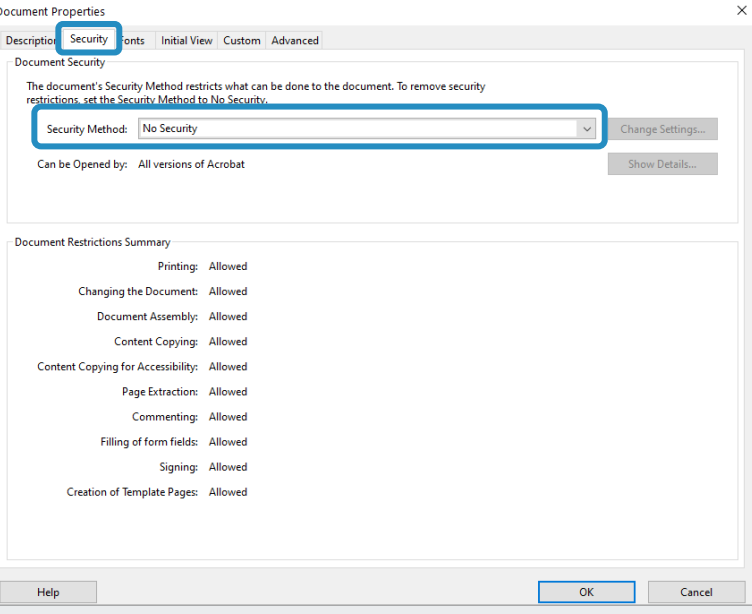


The screenshot shows the 'Document Properties' dialog box with the 'Description' tab selected. The 'Description' section contains fields for Title, Author, Subject, and Keywords. The 'Advanced' section shows 'Tagged PDF: Yes' highlighted with a blue box. The 'Description' tab is also highlighted with a blue box.

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### Acrobat Pro > File > Properties > Security

- Basic requirements**
  - No encryption
  - No password protection



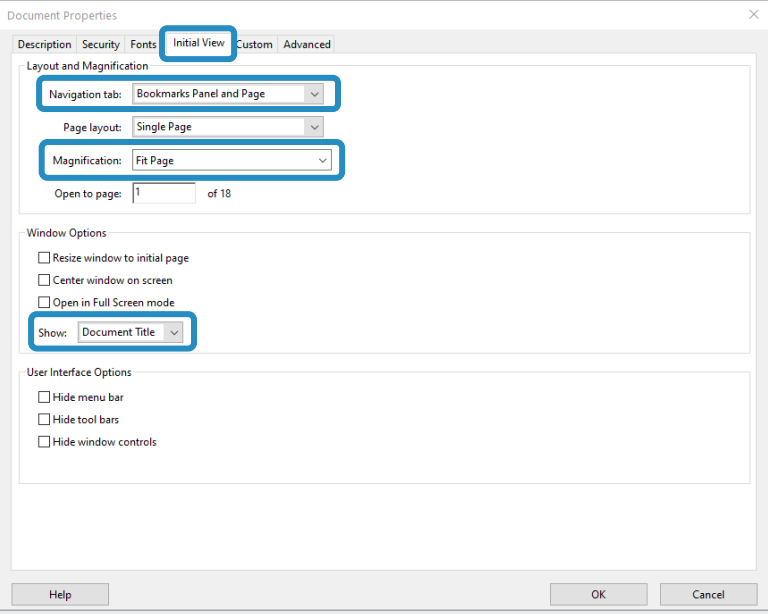
The screenshot shows the 'Document Properties' dialog box with the 'Security' tab selected. The 'Security Method' dropdown is highlighted with a blue box and set to 'No Security'. The 'Document Restrictions Summary' section shows various permissions are allowed.

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### Acrobat Pro > File > Properties > Initial View

**Basic requirements**

- Navigation tab: Bookmarks panel and page
- Magnification: Fit page
- Show: Document title



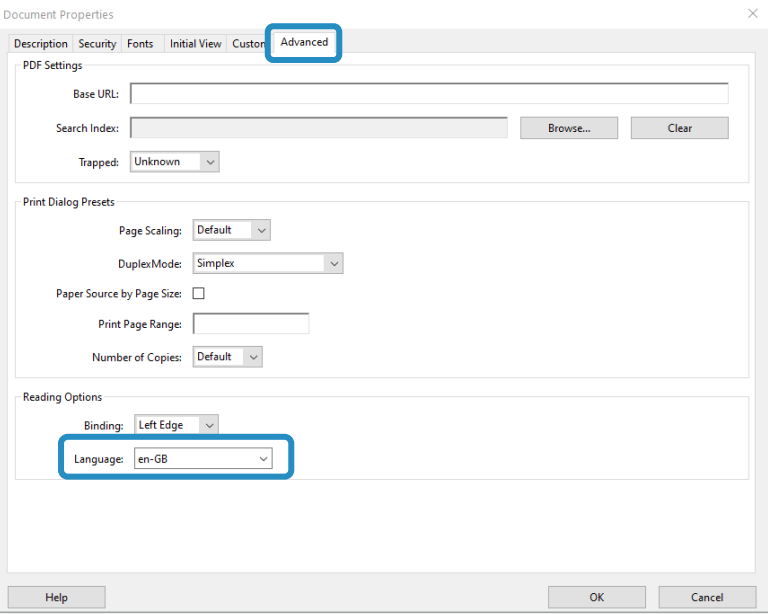
The screenshot shows the 'Document Properties' dialog box with the 'Initial View' tab selected. The 'Navigation tab' dropdown is set to 'Bookmarks Panel and Page'. The 'Page layout' dropdown is set to 'Single Page'. The 'Magnification' dropdown is set to 'Fit Page'. The 'Open to page' field is set to '1 of 18'. Under 'Window Options', the 'Show' dropdown is set to 'Document Title'. The 'Advanced' tab is also visible and highlighted with a blue box.

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### Acrobat Pro > File > Properties > Advanced

**Metadata**

- Primary language of the publication



The screenshot shows the 'Document Properties' dialog box with the 'Advanced' tab selected. The 'Language' dropdown is set to 'en-GB'. The 'Advanced' tab is highlighted with a blue box.

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## Accessibility: Navigation



- Table of contents
  - Represents the structure of the publication and have links to the content.
- Bookmarks
  - Represent the structure of the publication and have links to the content.
- Internal crosslinks
  - Index, list of tables, list of figures...
- External hyperlinks
  - Applied to a meaningful text describing the link.
  - Not just to the web address.
  - Not “link to”, “click here” or “more information”.



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## Accessibility: Figures



- Meaningful images
  - With an alternative text to describe them.
- Artifacts
  - Decorative images excluded from the reading order.



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### Checking alternative text for images

1. Activate the Order panel
2. Open Accessibility tools panel from the Tools tab
3. Activate the Set Alternate Text tool
4. Select next or previous image
5. Full control over the alternative text

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### Checking alternative text for images

1. Activate the Order panel
2. Open Accessibility tools panel from the Tools tab
3. Activate the Reading order tool
4. Right click on the image
5. Select "Edit Alternate Text..."
6. Full control over the alternative text

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### Tagging an image as an artefact

The screenshot illustrates the steps to tag an image as an artefact in a software application:

- 1** The 'Order' panel is open, and the 'Image' item is selected.
- 2** A context menu is shown over the image, with 'Tag as background/artifact' highlighted.
- 3** The 'Reading Order' dialog box is open, and the 'Figure' button is selected.

The 'Accessibility' panel on the right shows various options, including 'Autotag Document', 'Autotag Form Fields', 'Reading Options', 'Full Check', 'Accessibility Report', 'Identify Form Fields', 'Set Alternate Text', 'Setup Assistant', and 'Reading Order'.

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### Accessibility: Structure

- **Headings**
  - Tagged as headings.
  - Their levels represent the main document structure.
- **Lists**
  - Tagged with list tags.
  - The nesting of list items represent the list structure.
- **Tables**
  - Tagged as tables.
  - With a header row.
  - Not used for the layout purposes.
  - With alternative text if necessary.

The diagram illustrates the visual representation of heading levels:

- Heading level 1** (blue text)
- Heading level 2** (green text)
- Heading level 3** (red text)

Below the text, there are horizontal lines representing the structure of the headings. A tree structure below shows the nesting of heading levels:

- Heading level 1 (blue line)
- Heading level 2 (green line, nested under level 1)
- Heading level 3 (red line, nested under level 2)

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# Tables with alternative text




- Alternative text to be added manually in the PDF (Table Summary).

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# Checking the structure with Callas pdfGoHTML 2

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### Accessibility: Reading order

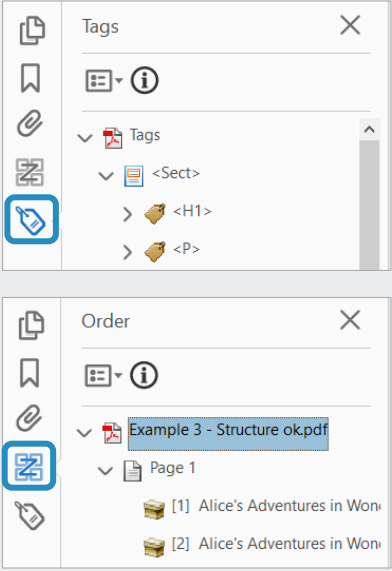


A photograph of a sign on a building. The sign is white with black text. The text is arranged in two lines: 'YOU DONT' on the top line and 'MATTER GIVE UP' on the bottom line. The sign is mounted on a black metal frame. The background shows a clear blue sky and a yellow building.

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### Accessibility: Reading order

- Tags reading order
  - The order of tags in the Tags panel of Acrobat Pro represents the logical reading sequence.
- Layer reading order
  - The order of elements in the Order panel of Acrobat Pro represents the logical reading sequence.



The image shows two panels from the Acrobat Pro interface. The top panel is the 'Tags' panel, which displays a tree structure of document tags. The 'Tags' panel is expanded to show a list of tags: '<Sect>', '<H1>', and '<P>'. The 'Tags' icon in the left sidebar is highlighted with a blue box. The bottom panel is the 'Order' panel, which displays a list of document elements. The 'Order' panel is expanded to show a list of elements: 'Example 3 - Structure ok.pdf', 'Page 1', '[1] Alice's Adventures in Won', and '[2] Alice's Adventures in Won'. The 'Order' icon in the left sidebar is highlighted with a blue box.

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### Checking the reading order

Callas pdfGoHTML 2

Order panel  
Tags panel

Order panel:  
1 Alice's Adventures in Won...  
2 Alice's Adventures in Won...  
3  
4 Publication timeline  
5 The following list is a time...  
6 - 1865: First UK edition (th...  
7 Image

Tags panel:  
H1 Alice's Adventures in Wonderland  
P Alice's Adventures in Wonderland (commonly shortened to Alice in Wonderland) is an 1865 novel written by English mathematician Charles Lutwidge Dodgson under the pseudonym Lewis Carroll. It tells of a girl named Alice falling through a rabbit hole into a fantasy world.  
P More information at [Website of Alice](#) .  
P  
Fig-

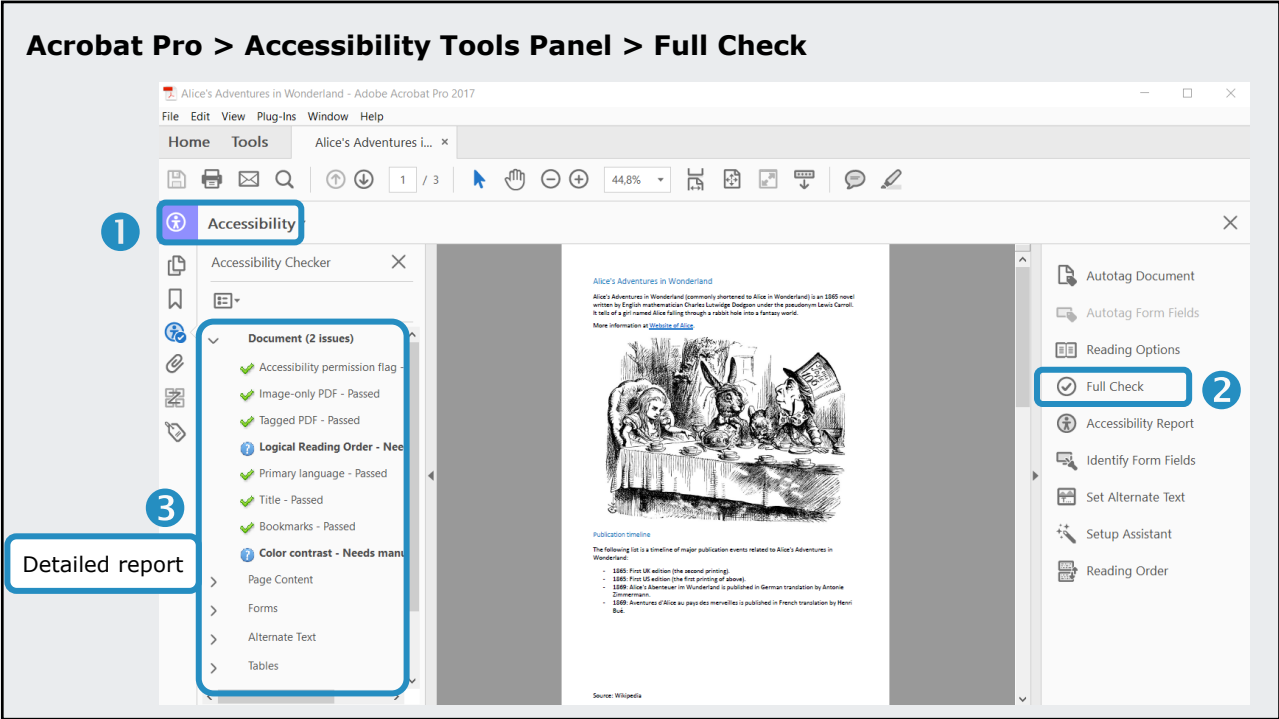
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### An automatic tool to check accessibility in PDF

Adobe Acrobat Pro Accessibility Checker

Full Check

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