CreativePro

Foundations of Accessibility

Tuesday, August 12
10:00 am PT

Dax Castro

WEBINAR

The Foundations of Accessibility

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YouTube: @A11y (Chax) | @PDFA (Dax)
Accessibility Podcast: ChaxChat (+60 hours of content)
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Facebook: https://www.facebook.com/groups/PDFAccessibility

A little about Dax

Dax Castro is an award-winning, Adobe Certified PDF Accessibility Trainer and certified Accessible Document Specialist (ADS) with more than two decades of experience in the marketing and communications industry. In addition to providing accessibility training to companies worldwide, he and Chad Chelius host a weekly accessibility podcast Chaxchat and PDF Accessibility Facebook group. Dax's training style focuses on fundamentals in a clear and simple way that is both engaging and informational. Whether you're a seasoned professional or new to accessibility, you can always count on learning something new from Dax.

ADHD and Me

As an adult with ADHD, my condition often misunderstood as just a limitation—but for me, it's also a superpower. It fuels my creativity, quick thinking, and passion for making complex topics easier to understand. At the same time, it brings real challenges with focus and structure. Embracing this duality helps me connect authentically with others and stay driven in the work I do. If you're curious, I created this poem in honor of Global Accessibility Awareness Day this year.

Untied Shoes:

https://youtu.be/SNkTuUF1xG8?si=TpqMA6EcmrVLkttO

What is Digital Accessibility?

Digital accessibility is the process of making digital products (documents, websites, mobile apps and other digital tools and technologies) accessible to everyone, It is about providing all users access to the same information, regardless of the method they may use to perceive the content.

The POUR Principles are the foundation of accessibility

Perceivable

The data presented must be available for access by sight ANDthrough assistive technology like screen readers.

Operable

At minimum, the user must be able to navigate through the data presented with a keyboard or assistive technology

Understandable

The data presented must be clear and understandable. The use of color only or complex symbols without secondary means of interpretation should be avoided.

Robust

There should be multiple ways for the user to interpret the data and navigate through the document or web page.

What makes a document accessible?

Creating accessible documents means designing content that everyone—including people with disabilities—can peceive, understand, navigate, and interact with effectively. Three core principles guide this process:

1. Structure and Relationships

Use proper headings, lists, tables, and reading order to reflect the document's logical structure. This helps screen readers and other assistive technologies present the content in a meaningful way.

2. Descriptive Content

Write clear link text, informative image descriptions (alt text), and label form fields. Descriptive content ensures users know what elements do or represent without needing visual cues.

3. Equitable Access

Choose readable fonts, ensure good color contrast, and avoid relying solely on color to convey meaning. Provide alternative formats or accessible PDFs to meet diverse user needs and ensure everyone can access the same information, regardless of ability.

Why Headings are important

Imagine trying to cross a stream by stepping on randomly placed stones—without structure, it's easy to slip or lose your way or to end up taking the long way around to get to your destination. That's what reading a document without proper headings feels like for someone using assistive technology.

Headings are the stepping stones of accessible content.

They guide users through your document in a logical, predictable order, making it easier to scan, understand, and navigate. Just like the stepping stones across the waterelp you cross safely, headings help users move from one section to the next with confidence.

When you use proper heading levels (H1 through H6), you're not just choosing a font size—you're defining structure that screen readers and other assistive tools rely on to make sense of the content.

Choosing the Right Heading Level

Start with a single <H1>—your document's main title. From there, use <H2> for primary sections, <H3> for subsections, and continue nesting only when the content requires it. Think of heading levels like a table of contents: they should reflect the document's structure, not just how something looks.

Start with an H1, typically the title. Then each of your chapter headings can also be an H1. If they are broken down into smaller topics, those would be considered the H2s and so on. It is best practice to never skip a heading level. Presenting a predictable user experience helps make the content more understandable.

Pro Tip: If your cover design is created in photoshop or illustrator, be sure the title text remains live text or added in InDesign so it can be tagged appropriately.

Common Mistakes to Avoid

▸ **Using bold or large font as a substitute for headings:** Visual styling alone doesn't define structure. Always apply the correct tag or paragraph style. InDesign users can map a heading level at the bottom of the Paragraph Style.

▸ **Skipping levels:** Don't jump from <H1> to <H4> if you are required to pass an automated accessibility checker*.

*While it is not against WCAG to skip heading levels when none exist, you will not find an accessibility checker that will let you get away with it.

▸ **Marking everything that looks important as a heading:** Not all prominent text is a heading.

Example:

Training Schedule
Attendance is mandatory for all sessions

That second line is important, but it's not a heading—it's supporting content. It should be styled as a paragraph <P>, not a heading <H1>.

9 Key Heading Takeaways:

1. Headings are structural elements that separate content into logical blocks.
2. Many assistive technology users navigate using heads as anchor points to move from section to section.
3. Headings must stay in logical order. H1, H2, H3
4. Contrary to popular belief you CAN have more than one H1 in a document as long as the structure is consistently applied.
5. An organization can choose to assign the Title as the only H1 but it is not a voilation to have more than one H1.
6. The Title Tag is not an H1. Currently it is only voiced as a Paragraph in PDF documents by NVDA and JAWS.
7. Like the rungs on a ladder, Heading Levels cannot be skipped. H1 to H3 would create a confusing user experience.
8. More than 3 headings in a row should always be carefully inspected for accuracy when evaluating the accessibility tags. Most likely one or more should just be a <P> Paragraph tag.
9. Meaningful Headings improve the accessibility of a document. "Chapter 1" is not as accessible as "Chapter 1 Introduction."

10 things you can do to improve accessibility without being an expert

1. **Title your Documents**
Choose a meaningful title that identifies the document or its content.

2. **Describe your images**
It is pretty easy to right click on an image and enter a descriptive sentence or two. Answer the questions "What is important in this image? What do they need to know?"

3. **Use Headings**
Headings are anchors or outline levels for content that people using assistive technology use to navigate by. Keep your headings logical and in order. Heading Level 1, Heading Level 2, etc. Headings make your document more readable for everyone.

4. **Avoid bullet levels deeper than 2 levels when possible**
Every list level change is announced by a screen reader. Imagine having to keep track of where you are when you hear "List Level 1, List Level 2, List Level 3, List Level 2, List Level 3, List Level 4, List Level 3."

5. **Use descriptive links**
Use meaningful link text instead of "Click Here" or long URLs. "Download the Checklist" is far more accessible than download http://www.accessibilityunraveled.com/content/PDFs/Checklists/MSWord_071222.PDF

Abbreviations & Symbols

▸ Excessive acronyms, abbreviations, and symbols are often not read correctly by screen readers, and can make it harder for a user with cognitive disabilities to follow.

▸ $1m will read "1 million dollars"

▸ $1 m will read "One dollar M"

▸ Hashmarks (6' 5") instead of inches and feet can also be interpreted by a screen reader inconsistently.

▸ Using 'No.' or # instead of number. No. would be read as a tiny sentence, and # may be read as 'pound' or 'hashtag.'

Pro Tip: When your document uses a lot of symbols consider creating a two-colum table in the begining that defines each abbreviation and its full text definition.

6. **Avoid images of text**
   Images may make our text look fancy with drop shadows and bevels or highlights but screen readers cannot detect the text inside a jpg or png. If you forget to add descriptive text sometimes title.jpg is all the user gets for a description.

7. **Keep tables simple**
   This is a much deeper subject but at its core, keep your tables simple. Heading rows at the top or in the first column instead of using them to visually separate rows of content will make your table much more accessible without any heavy accessibility work in the PDF.

8. **Avoid faded color schemes**
   People with low vision are a substantial portion of those with disabilities. Use darker colors for headings and meaningful content. Avoid pastels, faded colors, and oranges or yellows for headings as they can be hard to see.

9. **Avoid red and green indicators**
   As many as 1 in 8 males are Colorblind. Avoid using red or green as differentiators. Example: "Items in red are required." If you have to use them consider adding a symbol or other method to help differentiate them.

10. **Use simple language**
    Use plain language when possible. It will improve the reading rate for everyone. In item 9 we used "differentiate." We could have used "tell them apart" to be more accessible!

What are the potential barriers we need to consider?

1. Font
2. Language
3. Color Contrast
4. Color as a Differentiator
5. Structural Relationships
6. Reading Order
7. Text as Images
8. Formulas
9. Tables
10. Images

Speak the Lingo: 10 Key Accessibility Terms to Know

1. Tag
The invisible code (like HTML) that labels a piece of content—like a heading, paragraph, list, or image—so assistive technology knows what it is.

2. Tags Tree
A structured outline of all tagged elements in a document. Like HTML, this tree shows the coded tags in reading order as identified by the author.

3. Figure
Any non-text element in a document—images, charts, diagrams, and graphics—all fall under the tag type "Figure."

4. Alternate Text (Alt text)
A concise, meaningful description of a figure that conveys its essential purpose or content for someone who cannot see it.

5. Artifact
Decorative or redundant content that is hidden from assistive tech users. Artifacts are not announced and are considered non-essential to understanding the document.

6. Heading
A tag that identifies section titles. Headings (H1–H6) define document structure and should not appear inside tables.

8. Reading Order
The sequence in which content is read by assistive technology. Logical reading order ensures content is understood as intended.

7. Column/Row Header
Special tags assigned to the first row or column of a table to identify and describe the data that follows.

9. Table Scope
Defines how header cells relate to the data cells in a table—either by row, column, or both. Proper scope makes tables easier to navigate. Scope provides context for data.

10. Color Contrast
The visual difference between text and its background. High contrast improves readability for users with low vision or color blindness.

Types of Basic Tags

Container Elements

▸ Document <Document>
▸ Part <Part>
▸ Article <Art>
▸ Section <Sect>
▸ Division <Div>
▸ Block Quote <BlockQuote>
▸ Caption <Caption>
▸ Table of Contents <TOC>
▸ Table of Contents Item <TOCI>
▸ Index <Index>

Heading Elements

▸ Heading Level l <H1>
▸ Heading Level 2 <H2>
▸ Heading Level 3 <H3>
▸ Heading Level 4 <H4>
▸ Heading Level 5 <H5>
▸ Heading Level 6 <H6>

Block-level Elements

▸ Paragraph <P>
▸ Figure <Figure>
▸ Formula <Formula>
▸ Form <Form>
▸ List <L>
▸ List Item <LI>*

Inline-level Elements

▸ Span <Span>
▸ Quote <Quote>
▸ Note <Note>
▸ Reference <Reference>
▸ Bib. Entry <BibEntry>
▸ Code <Code>
▸ Link <Link>
▸ List Label <Lbl>
▸ List Body Text <LBody>

Table Elements

▸ Table <Table>
▸ Table Header <Thead>
▸ Table Body <TBody>
▸ Table Footer <TFoot>
▸ Table Row <TR>
▸ Table Data Cell <TD>
▸ Table Header Cell <TH>

NOTE: <LI> is also treated as a block-level element, even though it contains both block and inline children.

Both <Lbl> and <LBody> can contain block or inline elements like <P> or <Span>

EXAMPLE STRUCTURE:

<L> List
    <LI> List Item
        <Lbl> Label
        <LBody> List Body Text
            <P> Second paragraph

Why are tables so hard to make accessible?

There are three main reasons many people consider tables the hardest thing to make accessible. It boils down to designing with accessibility in mind, understanding table structure and the user experience. My session and this document will help clear up some of the table basics you should be aware of when tackling your next table. Lets look at the three most common reasons tables are considered "difficult."

1. **Poor table design:** People tend to design a table to fit a page and dump everything they can into one layout without consideration for how the content will be read or compartmentalized. They use blank columns to space out content. They use merged rows to separate blocks of content into groups

2. **Lack of table structure understanding:** I hear it all the time, "This table is impossible to make accessible!" I have yet to meet a table that I could not make accessible. It really comes down to understanding the relationship between structure, scope and data. There are tools we can use to clear away the confusion and help reveal the problems with our tables. Once we have a clear picture of what is happening we can take steps to correct it.

3. **Screen Reader Knowledge:** Knowing how to navigate a table and how things will sound given a specific presentation really helps when designing or correcting a table for assistive technology.

The #A11Y Hashtag

A11y is the hashtag associated with accessibility because the word accessibility has 11 letters and begins with an A and ends with a Y.

Parts of a Table

A well-formed table starts with understanding the parts and pieces. You also need to be familiar with the tagging structure of a regular table. InDesign will create the basic structure as long as you do not nest tables inside other tables or use blank columns or rows as spacing elements.

Tag	Name	Definition
<Table>	**Table**	Specifies a Table Object
<Thead>	**Table Header**	Specifies the Header section of a table (not always be present)
<TBody>	**Table Body**	Specifies the Body section of a table (not always be present)
<TFoot>	**Table Footer**	Specifies the Footer section of a table (not always be present)
<TR>	**Table Row**	Specifies a table row
<TH>	**Table Header Cell**	Specifies a Heading Cell in a row or column
<TD>	**Table Data Cell**	Specifies a Data Cell in a row or column

See my session Accessible Forms and Tables for more detailed information

Table Terminology

Summary	A table summary provides descriptive context for complex tables. Think alt text for tables. You can only set this using the Reading Order tool in Acrobat.
Scope	Which direction a heading cell controls (Row or Column)
Span	The number of cells a merged cell spans
ColSpan	Columns a cell spans
RowSpan	Rows a cell spans
Cell ID	Unique name given to a cell for the purpose of establishing relationships with other cells

Accessible Color Contrast

Large Text Color Contrast:
3 to 1 for Anything 18pt Reg. or
14pt + Bold or greater.

Small Text Color Contrast:
4.5 to 1 for Anything 14pt regular and smaller.

Accessible Color Palettes

Starting with accessible colors ensure the final product meets WCAG and avoids tiem spent on redesign or possible release of non-compliant artwork/content.

Creating a sample combinations chart like the one below can help designers learn what combinations are accessible without having to be an accessibility exper. But, make sure you test the combinations correctly. Can you spot the mistakes?

Tools and Resources

Color Playground
Adobe Color Accessibility Tools

Colorblind Simulators
Sim Daltonism
Microsof Color Simulations

Color Contrast
8-shapes Contrast Grid
TPGI Color Contrast Analyzer
InDesign Color Contrast Validator
WebAIM Color Contrast Checker

Adobe Illustrator Secret:
Did you know that Illustrator has a colorblind simulator built in?

Set Proof Color to Deuteranopia
<View><Proof Setup>
Turn on Proof Colors
<View><Proof Colors>

Pssst... Photoshop has one too!

What should I say?

1. What are the important features of the setting, if any?
   A canal with high vertical metal walls.
2. Are there actions or interactions?
   Fast moving water
3. Does describing the subjects add value to the description?
   A ladder and saftey chain are shown
4. Avoid adding non-descriptive data unless it would be obvious to the visual reader.
   as escape methods should someone fall in.

Now put it all together:

A canal with high vertical metal walls and fast moving water. A ladder and saftey chain are shown as escape methods should someone fall in.

Alternate Text Best Practices

Writing effective alt-text does not have to be difficult. As remediators and content creators there will be times when you might not be the best person to write the description for the chart, graph, image or infographic. Getting feedback or context from the subject matter expert is always best. But, when you don't have that option how do you go about answering the question "What should I write?" Use the tips on the next page to help you form meaningful descriptions that will provide text alternatives for your content.

7 Tips for writing effective Alt Text

1. **Don't start with "Image of…"**
   Unless otherwise stated, it is assumed that alt-text is describing a photo. It is not necessary for alt-text to include phrases such as "This is an image that shows…" It is sufficient to use wording such as "Bar chart shows…" or "Aerial map showing…" "Photo of" is assumed and should not be used in the description. Alt text should simply describe the meaningful elements of the photo.

2. **Be brief but meaningful**
   Although alt text should be brief, if your graphic displays numbers or a trend or quantitative information, your alt-text should as well. "Bar chart showing sales for 2022" is not enough. Alt text should convey in words the same information that is communicated by the image. There is a reason that bar chart was placed in the document. "Bar chart showing a steady increase in sales from 2011 to 2021 ending with a high of $1.3 million."

3. **Do not include figure numbers or titles in alt text unless the label is part of the graphic image (images of text).**
   The screen reader will read the figure number and title before it announces an image so the information would be redundant. If, however, the figure number and title is embedded (such as on a map), then include the number and title in the alt text (because the screen reader does not read every word on an image). Continue by adding alt text to describe the meaning of the image.

4. **Avoid color-based alt-text descriptions**
   "The red sign on the right of the photo indicates…." or "the yellow and orange bars indicate…." An example of a better alternative for alt text could be, "Overhead freeway signage with flashing lights indicates that lane changes are ahead."

5. **Be quantitative when it matters**
   For bar charts, the appropriate alt text could be: "Bar chart shows traffic significantly increases on Thursdays and Fridays between 5:00 p.m. and 6:00 p.m."

6. **Keep punctuation simple**
   When writing alt text, use correct punctuation (so the screen reader knows when to pause). Commas are short pauses and periods are long pauses.

   Avoid excessive punctuation such as colons, semicolons, vertical lines, parens, en-dashes or em-dashes, bullets or other line formatting.

7. **Do not include URLs**
   Alt-text should not include URLs unless common or very short as the user will have no way to activate any urls voiced in alt-text. They would have to rely on memory and type them in a browser.

5 Questions for effective Alt-text

1. **If this image weren't here would the reader miss important information?**
   If the image is purely decorative marking them as artifacts in your source file will cut down on extra steps later for accessibility.

2. **What type of object is it?**
   Declare non-photo figure types. Aerial, heat map, county map, state map, regional map, bar chart, line graph, pie chart, Organizational chart, Infographic. If it is a photo do not begin the text with "Photo of…"

3. **What is the scope?**
   The next thing you describe is the limits of the object. If it is a bar/pie chart or line graph, what are the date ranges, values, etc.

4. **What are the key elements?**
   Usually, the legend will give you this type of in-formation. Look there to get direction on what meaningful elements should be discussed.

5. **What are the key data points or main takeaways?**
   In the case of charts and graphs, what are the key data points? What is the overall trend? What infor-mation is most important to know (the takeaway). Remember, if the chart/graph contains quantitative info, the alt-text should contain at least one datapoint or trend.

Example Alt Text: Bar Chart showing 5 times more people listen to the Chax Chat Podcast versus watching the podcast on YouTube.
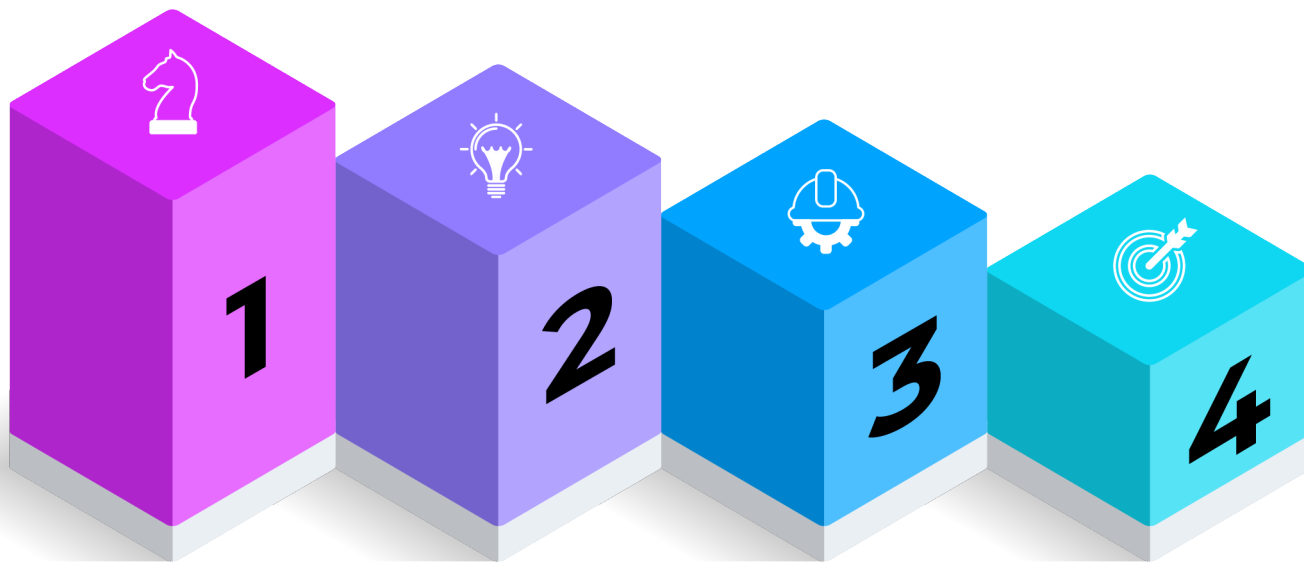
5x

Listen to the Chax Chat Podcast

Watch the Chax Chat Podcast on YouTube

The Foundations of Accessibility

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1　2　3　4

Accessibility is divided into four key areas: Percievable, Operable, Understandable, and Robust. These four categories are used to evaluate all digital content for accessibility. They are more simply known as the POUR Principles.

Accessibility is to hard?
Most of the barriers we encounter when trying to create accessible documents comes from "work-arounds" instead of keeping with the best practices and standards of solid design and a good understanding of how to use the programs correctly. Starting with these key principles will launch you on your way to an accessible destination regardless of the source program* or final format.

To schedule training for your team or for more info visit: accessibility Unraveled.com

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1　Headings Accessible documents have meaninful and logical heading structure that starts with H1. Remember: Just because a block of text is large doesn't automatically mean it should be tagged as a heading.

3　Styles Accessible documents use styles in the source application to ensure the accessibility tags are present in the resulting PDF.

2　Image Descriptions (Alt-text)
Alternate text is a short 2 to 3 sentence description that describes the meaningful elements of a visual object for those with low or no vision.

4　Color Contrast

Large Text	Regular Text	Graphics
3 to 1	4.5 to 1	3 to 1

Making sure the text and graphic elements are dark enough for everyone to see them falls into 3 categories: Headings, Body and graphics.

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3 WCAG Success Criteria to get you started:

1.3.1 Info and Relationships

The accessibility tag and the visual intent of that item should match. Headings and lists should be tagged as a list, etc.

1.3.2 Meaningful Sequence

When the order the items are read on a page matter, make sure the tags follow that same sequence.

1.4.1 Use of Color

Do not use color as the only way to tell one item from another. Use shape, symbols, line styles, fills and patterns as a secondary marker.

For more detailed information visit https://www.w3.org/TR/WCAG22/

CHAX Training and Consulting
< Accessibility for All >

Useful WCAG/A Links

Current Version of WCAG 2.2
https://w3.org/TR/WCAG22

How to Meet WCAG (Quick Reference)
https://.w3.org/WAI/WCAG21/quickref

New Techniques for Accessible PDF(PDF Association)
https://pdfa.org/new-techniques-for-accessible-pdf/

Web Accessibility Laws & Policies
https://w3.org/WAI/policies

How People with Disabilities Use the Web
https://w3.org/WAI/people-use-web

International Association of Accessibility Professionals
https://www.accessibilityassociation.org/

PDF/UA Standards & Manuals

PDF 1.7 (ISO 32000-2)
https://pdfa.org/resource/iso-32000-2/

Matterhorn Protocol 1.1 PDF/UA Conformance Testing
https://www.pdfa.org/resource/the-matterhorn-protocol

Tagged PDF Best Practice Guide: Syntax
https://pdfa.org/resource/tagged-pdf-best-practice-guide-syntax/

Useful Accessibility Tools

Color Contrast Analyzer
https://developer.paciellogroup.com/resources/contrastanalyser/

Contrast Grid (Web)
https://contrast-grid.eightshapes.com/

NVDA Screen Reader (PC)
https://www.nvaccess.org/download/

Pac 2024 Accessibility Checker
https://pac.pdf-accessibility.org/en

Colorblind Simulation (Windows)
https://www.microsoft.com/en-us/p/coloursimulations/9nblggh4385h

Daltonizer (MAC)
https://apps.apple.com/us/app/sim-daltonism/id693112260

Callus PDF Go (Structure Checker)
https://www.callassoftware.com/en/products/pdfgohtml

Made to Tag InDesign plugin for Accessible Tables
https://www.axaio.com/doku.php/en:products:madetotag

Axes PDF Quickfix (PC remediation tool)
https://www.axes4.com/en/products-services/axespdf

CommonLook (PC remediation tool)
https://commonlook.com/accessibility-software/pdf/

PDFix (Mac remediation tool. Yep there is only one!)
https://pdfix.net/

The Design + Accessibility Summit

It's no secret that accessibility is a hot topic. In fact, ensuring your documents are accessible is not just a good idea: it's the law!

Today, creative professionals must learn how to design accessible documents that are inclusive for people with vision and hearing impairments, cognitive and mobility challenges, as well as other disabilities.

That's why we created **The Design + Accessibility Summit**—the essential HOW-TO event for design professionals who need to master accessibility—being held online **September 16–19, 2025**.

In just four days, you'll learn practical techniques for building accessible documents with InDesign, Acrobat, PowerPoint, and other tools used by creative professionals.

Make a difference to your audience by learning how to create documents that are accessible to everyone.

"CreativePro conferences are always top notch. I would consider my 508 compliance knowledge intermediate level, and I learned at least one mind-blowing thing each day!"

—Christa Pijacki, Technical Editor/ 508 Compliance Specialist, HNTB Corporation

"I felt a new sense of purpose for my career by focusing on accessibility and how I can help make the world a more accessible place for all."

—David Gries, Graphic Designer and Digital Media Specialist, MESSA Specialist

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Get year-round access to resources that will keep you current and strengthen your skills
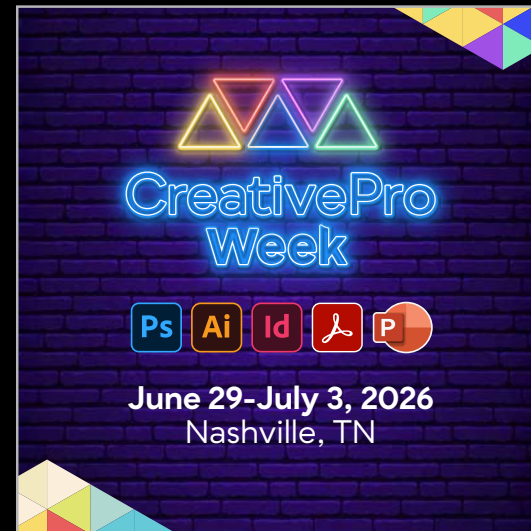
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Upcoming Events

Design + Accessibility Summit
September 16–19, 2025
AN ONLINE EVENT

Design + AI Summit
November 13–14, 2025
AN ONLINE EVENT

The InDesign Conference
December 9–12, 2025
AN ONLINE EVENT

CreativePro Week
June 29-July 3, 2026
Nashville, TN

Learn more about our events and explore the full calendar at
CreativePro.com/events