# Validating and Conformance Checking EPUB - Transcript

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Full details about this webinar including links to related resources can be found on our website:  
<https://daisy.org/news-events/articles/validating-conformance-checking-epub-w>

- [Richard] Hello, everyone. And a very warm welcome to this DAISY Consortium webinar. My name is Richard Orme. I'm proud to be one of the team at the DAISY Consortium. And I'm your host for today's session. Validation and conformance checking are two critical parts of accessible EPUB creation, but what does that really mean? How can they be accomplished? And what are the common issues people encounter? The panel that we've assembled for you today should help answer these questions and many more. We have experts who created the EPUB Accessibility standards, manage the production technologies for a multi-national publisher and provide technical leadership to the ebook accessibility certification service, now operational in several countries. Over the next hour, we'll gain a deeper understanding of the standards, processes and tools that they rely on and ultimately help you to produce better and more accessible EPUB publications. We have lots to cover. So I'll hand over to our panel and ask them to please introduce themselves.

- [George] Hello, my name is George Kerscher. I'm Chief Innovation Officer with the DAISY Consortium and also Senior Officer of Global Literacy with Benetech. I am blind and use screen readers.

- [Charles] Hello everyone, my name is Charles LaPierre. I'm the technical leader of Born Accessible Initiative at Benetech and I am low vision myself.

- [James] Hello, my name is James Yanchak. I am the Production Technologies Manager at Taylor & Francis Group. In addition to researching new publishing methods and technologies. I serve as the accessibility champion for the production team, and I am part of the accessibility working group at Taylor & Francis.

- [Charles] For our overview today, what we're going to discuss, is what is an accessible EPUB? We'll go into third-party certification, developing internal standards, validating the EPUB and using various tools for checking the EPUB Accessibility, such as ACE, SMART and manual types in inspection and checking.

- [1] The first step in evaluating EPUB accessibility is understanding what is meant by accessible. Some publishing houses started their accessibility work by moving their existing content and workflows to EPUB 3, because the format was accessible. This missed the mark, since the format itself does not make a title accessible and older workflow practises like using images for tables or non-unicode text, created EPUB 3 files, which were anything but accessible.

- [2] And some of the problems that we see using the screen reader and other assistive technologies are that images are replaced by text. So if a heading is an image, or if a table is an image, you don't get that information at all. Another problem is the correct reading order, where I might have a document where it says, name, address, phone number, and as I read it, it says, Tom, Jane, Mary, Smith, Jones, Doe, 7, 2, 8, 20 30. - So that the reading order is out of whack and it causes huge problems. Finally, the sighted person looks at a page, a screen and takes in everything at once. And the eyes quickly navigate to that portion of the screen where a screen reader user only focuses on one thing at a time. This is why a comprehensive table of contents is so important to move quickly from one place in the document to the other, or to move to the next heading with a single key stroke or go to a particular page.

- [James] To reach the goal of an accessible EPUB means you have to research and educate yourself on the technical requirements and accessible landscape. Many times the first steps toward accessibility research starts with the legal requirements. Researching the law and legal landscape behind the need for accessibility provides the why. But these resources rarely have anything related to technical implementation. This does not reduce the importance of the legal side of accessibility. Knowledge of both law and technical can lead to greater success. The technical details for accessibility are centred around the W3C guidelines. At Taylor & Francis, accessibility meant a lot of research. This was initially focused on legal compliance, which led to the history of the Americans with Disabilities Act, then to information on section 508 and eventually to the Web Content Accessibility Guidelines or WCAG. WCAG hinted at the technical details we sought and led to a long list of interconnected standards, which formed a picture of what it took to create an accessible file. The legal research proved important in gaining buy-in from staff, especially when specific case law could be quoted and its implications for publishing explained. This really advanced the buildup to an accessible workflow since multiple departments could understand the need for accessibility. The technical research provided a base of knowledge to evaluate our titles and the desired formats. This quickly reinforced the difference between format and accessibility and showed while format is important, much more work must be done on a title to ensure it is really accessible. Accumulating technical knowledge takes time. And when you get into the technical details, it involves cross checking standards with each other many supporting standards are used to form the greater picture of EPUB. These govern technical aspects like HTML5, functional aspects like CSS and accessibility aspects like accessibility 1.0 specifications. There are ready-made solutions offered by third parties, which may or may not meet your corporate goals. Some of these solutions only evaluate content and provide minimal corrective instructions. This does not build a knowledge base within your company and can lead to a growing knowledge gap over time. One way to build up internal knowledge, which Taylor & Francis has recently undertaken after its initial research, has been a text Global Certified Accessible programme. Beyond providing a certification, the programme has accessibility experts who help identify shortcomings now put, but more importantly, they offer guidance on proper technical and workflow techniques.

- [Charles] Benetech has created a truly global certification programme to help publishers and conversion vendors navigate this complex task of understanding the accessibility standards and requirements to ultimately produce fully accessible EPUBs. Our Global Certified Accessible programme or GCA for short, has a dozen conversion vendors and over two dozen publishers currently in the programme right now with over a dozen publishers who have already passed certification, some of which include Macmillan Learning, House of Anansi Press in Canada, Kogan Page in the UK and the University of Michigan Press. The GCA overall process starts by, first, signing up publishers, a single production pipeline. We then take one EPUB from that publishers pipeline and run it through our GCA technical process, which includes using EPUBCheck, Ace by DAISY, manual testing and inspection, as well as using an enhanced version of SMART by DAISY, including both WCAG and EPUB conformance checks, as well as our own personal customised, Born Accessible set of touchpoints that digs deeper into the subtle nuances of accessibility. With the help of these tools mentioned, we determined both the conformance level reached, i.e, WCAG, single A double A, or if the publisher has failed and an overall Born Accessible score. We provide the publisher with a detailed set of reports that basically maps out what must be fixed second, strongly suggested improvements needed and minor improvements or best practises to help improve the overall Born Accessible score. Publishers then remediate their EPUB and pipeline then resubmits that EPUB for re-evaluation. This is like repeat until the publisher at the EPUB passes with a conformance score of WCAG-AA and Born Accessible score of at least 80% or better. Three pubs must pass certification for the publisher to become certified. Now, once certified, the publisher can stamp every book coming off that certified production pipeline as GCA certified and accessible, they do this by adding the WCAG-AA conformance metadata to their EPUB, as well as our GCA credential and certified by Benetech to help with discoverability of this accessible title. This metadata is already being used by bookstores, such as VitalSource and soon to be displayed as well is that RedShelf? In addition, there are several other benefits to becoming GCA certified, including cross-promotional marketing, the use of the Global Accessible logo, being added to our website, promoting the publisher who have passed certification and our quarterly technical bulletins for keeping the publisher up to date on the ever-changing landscape of EPUB accessibility and the evolving standards. And at least once a year, we perform spot checks to ensure the publisher is still in conformance to keep their accreditation for certification.

- [James] Interrelationship of metadata, structure, format, and content is critical for an accessible EPUB. Understanding all these things, which is generally publisher specific is crucial for success. This allows you to plan the end goal of your programme, which in simplest terms is what WCAG level are you aspiring to achieve. At Taylor & Francis, we've required many publishing lines over the years. This gives us a view into the practises of other publishers. One of the most common issues we have seen among some of the smaller publishers was the lack of internal standards when it comes to accessible ebook production. Many had EPUB 3 files, but the standards were seldom defined, leaving the vendor to implement generic standards without guidance. This made validation against anything besides the loosest of accessible standards next to impossible, and produced an inconsistent set of archive files. You cannot validate a file without a standard to hold it to, industry standards are written to work in a wide range of instances, which can create sub optimal results for specific use cases. An internal standard builds upon the broader industry standard and usually narrows the technical landscape to meet specific publisher goals. These goals usually coincide with a publisher's house style distribution methodology, brand identity or editorial needs. The internal standard should not be just a rigid set of rules. It is also an educational tool, helping your team implement changes to reach your end goal. Remember any adjustment to your standard has to remain valid within the greater industry standard. Each adjustment should be documented and explained, So others in the workflow, especially the evaluation team, knows what the adjustment is and its intended purpose. At Taylor & Francis, we knew it was common in HTML to use the div tag as a generic container for pretty much anything, like a figure, section, sidebar and so forth. After our research Taylor & Francis decided our specifications would replace the div tag with more specific tags, like figure, section, plot quote. This provides a clear purpose for the content and allowed our workflows to build and evaluate titles more efficiently. The style of the publication is important when working on your internal standards and on individual products. Presentation heavy products may require additional work to ensure full accessibility. The use of audio video, new HTML functionality, and scripting, all bring new requirements, which need to be reflected in your standards. This often results in a return to the research phase, especially when new functionality or technologies involved. As always, you have to ensure any new standard produces an acceptable EPUB. This may include adding transcripts, closed captioning, descriptions, specific structures, and ARIA roles. Developing your standards is just one step. Training on the standards is next. Internal staff should review the standard against workflows and seek clarification on any nebulous point. They need to understand the expected outcome and the reason for the internal standard. External vendors can be a bigger challenge, many serve other publishers. So they either follow more generic industry standards or they have workflows supporting specific publisher standards, ensuring they are following your set of standards is critical, since any other standard may create EPUBs, which are functionally correct, but will not pass your validation process. At Taylor & Francis, implementing accessibility standards, combined three different sets of existing instructions and added new accessibility rules. The new combined set was vetted, reviewed and released, but no queries were made. Some vendors failed to update their older workflows producing EPUB files, which could not pass our new standard. In some instances we received pushback from vendors where they noted that the existing workflow was good enough for other publishers. We found one vendor, did not even understand how to create footnotes in the HTML standard. This entire rollout produced an enormous review process to evaluate our vendor performance and educate them on our standard. It took several months of reviewing and directing vendors to the underlying industry standards, which are listed in the resources for this webinar before our vendors finally got to a good place in regards to our work. Compared to the work put into research, standards development and vendor instruction and training, the evaluation can be more demanding than all those areas combined. Fortunately, there is an impressive array of tools available to help the evaluation. EPUB reader software is the first tool in the evaluation stage. This is what the customer will use and how you will ensure what you have created will display according to your expectations. This check is more than a visual paging through of an EPUB, but should exercise the benefits of an accessible title. Change the font, the font size, the screen size and use voiceover. All these should give you an idea of the end-user's experience. A modern EPUB reader is critical to this review process and keeping an up-to-date version should help you keep pace with the evolving industry standards. Software built on older standards are not always updated. So an active development cycle for an EPUB reader is important. Distribution platforms, normally have the biggest impact on what EPUB reader software publisher uses since many platforms only allow one reading system. At Taylor & Francis, after rewriting our internal standards and adjusting our workflow to produce good accessible content we found an increasing instance of errors appearing in our titles. Despite our research and updated standard we rather embarrassingly overlook the fact that EPUB reader we used was created when the first iPhone came out. This made it impossible to test many of the technical items, since the reader was last updated several years before the features became widely used. It may have had a strong market share at the time, but it did not keep pace with the industry as a whole and delayed our efforts nearly three months, while we researched replacements. Once we updated to a modern EPUB reader, we actually use three now. Our review staff started to report mini new errors. These represented errors in the HTML coding, which the old software could not handle correctly. We not only had to correct the vendor's workflows to follow our internal standard, but then we had to retrain our review staff on the new reading systems and what to expect when reviewing our content. EPUBCheck is a command line tool, which checks the conformance to the technical EPUB standard. Since failures here represent a fundamental issue, it should be one of the first checks you execute. The EPUB check tool has some third-party development to create user interfaces. However, most of those are not regularly updated making the command line tool the best choice. Installation was fairly easy with the instructions as is its execution. Due to the command line nature, it can easily be adapted to automated solutions to handle multiple files, otherwise it runs on a single file. Using a good XML or EPUB editor, is essential in evaluating the sometimes difficult to decipher error messages this tool can create. For example, the error fragment identifier is not defined kind of curve frequently, by the way, that represents a missing destination. Success with the EPUB check gives you the bare minimum you need before you should distribute a title. Proprietary systems are developed by publishers and vendors to perform additional evaluations, usually based on modified internal standards. These systems range from simple validation of semantics and structure with XSLT to complex systems, which analyse content to determine language. reading level and intention. This can greatly improve the mechanical checks on the EPUB and help ensure a specific structure and semantic tagging is present. The customization of proprietary systems allows for workflow improvements beyond EPUB evaluations, like reporting. At Taylor & Francis, our proprietary system evaluates the public against our internal standards and flags issues. One important function it performs, is to identify which accessibility features are present for each title. This is fed into our business systems for export to our distribution partners via Onyx. DAISY ACE checks conformance to WCAG standards for accessibility, and is usually run after EPUBCheck. This evaluation will point out failures and offer suggestions based on available web resources, but it is important to have a strong understanding of accessibility standards to use this evaluation.

- [George] And over to me, I think. So when to talk about ACE, SMART and the DAISY Knowledge-Base, these are all resources that are designed to work together, and we recommend that you start with ACE and work through the errors and failures that are identified there and repair them in the EPUB itself and then rerun the ACE Checker to make sure that you get down to zero errors. This produces the report that you're going to be viewing and uploading to the SMART system. You can get a free account @smartdotDAISY.org for the system and upload that ACE report. It's a JSON file to the ACE system. And while you're working through figuring out what errors you made, pay attention to how much you're learning about accessibility and about the standards during this process. So onto the Knowledge Base, the Knowledge Base is maintained by the DAISY Consortium. It's kept up to date and there's links that guide you in the ACE report and in SMART to the correct information from a publishing perspective, we point to both WCAG information, lots of examples of what you can do. And we also include EPUB specific information in the Knowledge Base. The Knowledge Base is constantly maintained and Charles mentioned the technical bulletin they publish every quarter. We make sure that that technical bulletin and what we're saying is being updated in the Knowledge Base is synced up. So moving on to SMART customization. So SMART out of the box, and what is freely available to use on a limited basis is focusing on accessibility, but we are providing opportunities to customise SMART, to meet your specific needs. If you have specific software that you run over the EPUB files, if you have internal rules, guidelines, standards that you use, these can be included. You can provide access to the customised version of SMART to your vendors. And there's the possibility of making SMART as a hub, which integrates both the DAISY resources of ACE and the Knowledge Base together with the internal resources, and standards that you've developed software and present one easy to use and train system that both your internal staff can use and your vendors could use getting everybody synchronised to the same set of standards that you want your publications to adhere to. So if you're interested in full access to SMART, I would suggest that you visit DAISY.org/ipp. And we'd love to fill you in on all of the advantages of being a DAISY inclusive publishing partner.

- [James] Even with the software aids and despite the incredible number of checks automation can execute, the final check still falls to a person. This is usually someone well versed in the industry standards for EPUB, your internal standards and accessibility. This is a deeper check than what the EPUB reader and examines the underlying code since correct visual appearance does not necessarily mean the content is properly prepared for non visual users. This person normally uses the output from EPUBCheck, ACE, SMART, ACE and proprietary systems to start their review. They search for missed items, hidden mistakes or creative interpretations, which automation may overlook. At Taylor & Francis, we maintain an archive of older titles and files from acquired publishers. Some of these are stored EPUB 2, and we are currently taking the opportunity to add structure and semantics, to improve accessibility as we upgrade them to EPUB 3, Despite using a trusted vendor, we decided to return to a full evaluation of the submissions. We found while the files were visually correct, there were numerous errors and accessibility. A manual review of the files was able to build a profile of issues, which could be linked to specific points in the vendor's automation and workflow. This allowed us to send targeted corrections to improve their performance. Using automation alone would not have identified the points of failure as easily or quickly, and would have resulted in a much longer period of back and forth between us and the vendor. Anytime you have a new vendor or workflow, this step should be done on all titles to ensure that the standard is maintained. It is possible, once a publisher builds a trust or relationship with a vendor, their titles may not need this level of review. Getting to that level requires an in-depth evaluation and analysis to ensure the workflow, the people and the content all match this trusted status. Even when such trust is built, regular reviews should be conducted to evaluate new workflows, staff, products or standards.

- [George] I wanna focus on the word, trust that was just used today at VitalSource and at RedShelf as a blind user, I can view the accessibility metadata that is present in the EPUB file. I can read the accessibility summary and I can trust, I need to trust, that, that information is correct. I trust that GCA certification or from other companies that do certification like LIA. And that trust in Benetech's GCA programme is telling me that the publisher has certified their workflows and the publisher is trusting GCA to provide feedback on the quality of their work. Also, the publisher is putting trust in the vendors and in their internal staff that are doing the reviews. So there's this line of trust from the very beginning of the process to when I purchase that title and download it and start to read. And if all those trust points are valid, I will have a great reading experience.

- [Charles] And we also have here a link to our useful resources. There's all of the different tools, standards, mentioned in this webinar can be found @DAISY.org/vcc. And we here we've been talking about EPUB Accessibility, certification, and this trust that has to be along the way right from the publisher, from the vendors, through certification, then to ultimately, your reading experience with your assistive technology and the reading systems themselves to expose this rich accessible data. So there's a lot of moving parts here, and I hope that you've all enjoyed this little glimpse into behind the scenes of the standards and what it all means. - Charles, thank you for that. And James and George, well, we're having more than a glimpse. We now have our questions lined up. So prepare yourselves for some interesting answers, indeed, to some interesting questions. And I'm coming to you first, James, you mentioned right at the top around one of your first drivers was around legal compliance and checking for accessibility for a legal compliance in various countries. To what extent are you able to use these kinds of validation and conformance checking approaches that you've mentioned to give that assurance, now you're further down the road? And how does that vary between the different kind of territories that Taylor & Francis operates in?

- [James] Well, Taylor & Francis is fortunate because we spin the globe. So, we got into accessibility in the U.S several years before the European Accessibility Act came on the horizon. And that allowed us to build up a good, strong initial push, not only in getting our workflows designed, but what it meant to actually be accessible and following a particular WCAG output, and we go for WCAG-AA. When the European Accessibility Act came on the horizon and the EU decided that they needed to ensure all the member nations made content accessible, we fortunately were not overly concerned because we already had a system which met WCAG-AA. And our only issue was the EU would actually accept WCAG. And they're still debating exactly what accessible means. So we're watching that very, very carefully. Fortunately, most other nations have fallen back on WCAG as the standard. It makes it easy. It's already a well-known set of checks to go against, and publishers are very familiar with it already. So basically, once you get into it, it actually becomes easy because most of the nations follow pretty much the same rule set, hope that answers the question. right?

- [George] And I like to add that the EPUB Accessibility standard points to WCAG, we don't reinvent anything. So we point to WCAG and add EPUB specific accessibility requirements above and beyond WCAG. So we're well aligned with the WCAG standards.

- [Richard] And George, I was just coming to you because there's EPUB accessibility as a standard, there are different versions of this aren't they? What are the kind of current versions in their status, please?

- [George] So the EPUB 3 is the version we recommend. And currently EPUB 3.3 is being developed in the W3C, in a working group. The standard is backward compatible. One of the biggest things we've done is to make it much more readable, easy to understand, as much as you can make standards easy to understand. So I would recommend that anybody go to the current draught of the EPUB 3.3, and they'll be in good shape to be conforming to any of the earlier EPUB 3 standards.

- [Richard] And George, what about the EPUB Accessibility specifications, are there different versions of those?

- [George] 1.0 has been around since 2017, and that has been also standardised and in ISO and version 1.1 will be in the EPUB 3.3 spec it's part of the EPUB 3.3. And what we did was compared what was in the European Accessibility Act, the requirements that were there and compared it to the EPUB 1.0, and we found that there were a couple things that were lacking. And so we upgraded in the 1.1 version to perfectly align and map to the European Accessibility Act. Now publishers will be required to provide longer descriptions than what might be an ALTECS for super information, heavy carrying graphics. So extended descriptions of some of these things. And we're seeing for at least the last two years, the publishers that I see titles, with GCA certification already have these extended descriptions in higher education materials.

- [Charles] And as well, the 1.1 specification will require WCAG-AA conformance, but allows you to map to whatever WCAG version you're currently working at, be that WCAG 2.0 or 2.1 or for future versions.

- [Richard] Thanks for that, Charles. And the next question is for you actually, it's from Shantel and it relates to GCA certification. Shantel asked, for publishers who publish a variety of different genres or categories. You mentioned three EPUBS, which must pass from different genres or categories, is the idea then that if they've got three different genres, there'd be one from each genre. How does that work? That three EPUBs to pass principles.

- [Charles] Right, great question. It really depends on the backend process. If all of these genres go through the exact same workflow, then you could give us probably one from each genre, just in case there's different accessibility features in those different types of books. we really don't care as long as it's through the same process. Now if you go to different vendors, say for your one type of genre, let's say cookbooks, you go through a vendor X, and then you have romance novels going through vendor Y then yes, you would need three from both different pipelines, we call it your backend processes, your workflows. But if it's all going through the same vendors, then we just want three books and give us the most complex books, which will then cover most of the accessibility requirements.

- [George] Charles, if a publisher has different vendors, but they come into a central spot for the publisher and they all go through the same process once they hit the publishers front door, does that qualify as a single workflow?

- [Charles] Absolutely, right. So if you have all of the different vendors and then you go through a centralised choke point where you're making sure everything's harmonised, that the tables are all done the same way, the lists, the heading order, the structure of the book, et cetera, then absolutely, we would only require three EPUBs from your entire workflow. It doesn't matter what you have passed that centralised point.

- [James] And from a publisher point of view, when you do use that central review process, you will find that it actually increases the amount of training you have to do with the vendors, 'cause each vendor will do things a bit differently. And so that's where the internal standards really come into play, where you have decided that this is how it will be, this is what we're looking for. That way we can meet our GCA certification, and then you have to force the vendors to abide by those rules, and that can take a bit of time. So there is training involved with that.

- [Richard] James, the next questions coming your way. I was interested to hear how you talked about EPUB readers being an important part of your validation stat. You mentioned that you test, I think in three reading softwares at the moment, you may or may not want to mention which ones they are, but what advice or suggestion would you have for a folk in choosing which of the many EPUBs they might use as part of their testing processes?

- [James] When we had to replace our old one, we actually sat down and pulled up a group of, I think it was five, and we evaluated their technical implementation to see how well they would actually interpret our EPUBs. And then we actually put it out to the reviewers and check to see which system was best suited for the end-user or the reviewer in this case. And we rated everything. And initially we had only chosen one, but we decided that we really needed two more because that wider net of how things appear, how things will actually work, gave us a better idea of the areas we need to focus on in our specifications and everything else to make sure it worked across multiple EPUB readers.

- [Richard] So for clarification, people would be reading the EPUBs produced by Taylor & Francis on quite a wide range of EPUB readers and you get coverage by choosing kind of three different ones to look at that. Have I understood that correctly?

- [James] Yes, yes, that's correct. And we currently we currently use Thorium Reader, Bookshelf and Bluefire are the ones that we're actually doing our checks against.

- [Richard] Great, three were familiar with and many more of course it epubtest.org. We do accessibility reviews of them. I have a follow on question because you also talked, I think on the same slide about using a good EPUB or XML editor to help you dig into those errors that were thrown up by EPUBCheck. Again, any kind of suggestions on those. We have a webinar coming up on editing EPUB so, kind of curious to hear what you have to say about this.

- [James] We defaulted because we had it to Oxygen as our XML editor and EPUBChecker. So that's the one we typically use because we have a large number of licences and an actual training programme to understand how to use it. So that's why we pretty much limit ourselves in that area. There are other ones out there which are good and offer different functionality. So you don't have to feel constrained to Oxygen itself.

- [Charles] GCA, for example, uses the CGL.

- [Richard] Okay, the free tool that's available on Mac and windows and as well, thanks for that Charles. George, question coming to you, James gave an example of an error in EPUBCheck. What kind of errors might ACE help you with? I wonder if you could just give us a couple of examples, just to add a little bit more depth and colour to what ACE does.

- [George] So, the ACE is performing automated checks, and we've licenced, we DAISY have licenced the Axe checker from DQ. And so we've got that producing the error statements for things that are HTML, and then we've written our own for EPUB specific things that go beyond HTML testing. So colour contrast is always seems to be something that comes up, there's table issues. If table heads are missing, it's pretty much a wide range and it's divided into minor issues, critical issues. And I think there's four or five categories of those issues. So I would always suggest starting with the critical errors, see what they produce. It also shows, it does a data visualisation of the structure of the book. So it shows you where there's missing headings, or you jumped from an H2 to an H5, which you know that's not appropriate, and that's an error. And it'll visualise that and show you, and it shows the accessibility metadata. And when I see EPUBS and open it up and see that there's no accessibility metadata. Well, of course, I know it does not conform to the EPUB spec because that is the EPUB Accessibility spec, that accessibility metadata is a requirement. And so I'm a little leery. I know that the EPUB is more accessible out of the box than other publishing formats, but I really do like to see that accessibility metadata there. I know that the publishers are taking the extra steps necessary and I've opened books and run them on ACE, and I've had thousands of errors sometimes. So if a publisher sees that they know they've got a problem.

- [Richard] And George went talking about kind of key principles of accessibility towards the beginning, you talked about images and text as a ACE help with images and old texts tools.

- [George] So, it creates a list of all the images, this is an aid part of the visualisation in helping you to check the book more quickly. So all of the images are pulled out with the all text and surrounding, and it makes it pretty easy for you to review whether this image is decorative, whether it is sufficiently described with all texts, or if it's one of those ones that needs a longer description with an extended description. So they're all laid out right there for you, you can walk through the entire book.

- [Charles] It's also important to point out that just running ACE in EPUBCheck won't guarantee that this EPUB is fully accessible. ACE can only check about less than 20%, 10 to 15, is what I've been heard, quoted for accessibility, the rest has to be done manually. And that's why getting in, with a partner that understands accessibility to help you through and getting that book up to the a hundred percent, fully accessible.

- [George] Go to smart@DAISY.org and read the user guide associated with smart. It really does a great job of laying out the relationship between automated test, manual tests and how you can set up a process for doing those manual inspections. It's recommended, required reading, I would say.

- [Richard] We still got some questions here and only about five minutes left. Next question is coming your way, James. You talked about upgrading content from EPUB 2 to EPUB 3 Could you quickly help us with the technical reasons and the accessibility reasons for doing that? Or is that just about making sure you're using the latest standards?

- [James] It's a bit more than using just the latest standards. As I noted, a lot of files we've picked up over the years from different publishing lines and our standards have changed over the years. Some of the old EPUB 2s were flat, it was just a bunch of paragraphs and there was no structure added or no semantic detail added. And so they're frankly a mess and we need to update them and make sure they're ready to get back out into the world and get to people where they can use them.

- [George] And page numbers, page navigation. If you've got a print equivalent of this book, I think is really important. And EPUB 2 did not support page navigation, but if you have a print version and a digital version, the way that people get on literally on the same page and are synchronised is through the page navigation and you put a page break marker in your EPUB, it's got a number associated with it, it's in the Nav dock. And all these readings, modern reading systems have a go to page function, and it takes you right to the top of that ink print page.

- [Richard] George, the next question is coming your way. James talked about how different reading systems maybe went through generations and they need to detect he had a difference anyway, when he tried titles between different versions of different reading systems. Roger's question though relates to the assistive technology. What about when assistive technology changes? What's the role of checking on assistive technology and thinking about different versions that people might have when it comes to checking the validity of the EPUB files that are coming from a publisher or a vendor?

- [George] So first all, if the content is accessible and conforms to the standards, that is the fundamental thing that must be in place before access technology is going to be able to use it. If that's an image of a table, there's no access technology out there that's going to make it work. @epubtest.org, we test a whole range of reading systems with access technology. So we test on windows, within VDA and JAWS, we test for low vision requirements, on the iphone and iPad, we're testing with voiceover and on the Mac we test with voiceover, and Android, we're testing with Talkback. And when there's a new version of the reading system or of the AT we test again and now, later today, I'm going to add to the epubtests.org testing on windows 11, because my machine upgraded day before yesterday. So now we can start testing Windows 11 functionality and see if the various reading systems have changed behaviour because there's a new OS out there.

- [Richard] Well, I'm glad you were still able to join our webinar, George, it's good.

- [George] Yeah, it went well.

- [James] And I'd like to add on the publisher side to make sure you can withstand the advancement of accessibility. You need to approach your structure very carefully. More granularity is better than less, and that preps you for any changes that might come down the road. Well, most of the changes that come down the road and then you can regenerate. I mean that's what we're doing with our upgrade from EPUB 2 to EPUB 3, time has come to update them, get them there. And you can plan for that further down the road.

- [Richard] Now we've talked a lot in this presentation and in the questions around some of the technical side of things, but I was really interested, James, in what you told as a business story of what actually really helped Taylor & Francis get the accessibility kind of activity on the road and the combining the accessibility requirements together with your house style in your internal technical requirements seem to pretty critical part of that. It seems to me, George, that's what were hinting at in terms of SMART being extensible to go beyond the existing core set of accessibility standards, to look at other requirements that you might want to be tested all as part of one evaluation processes. Did I understand that correctly?

- [George] Well, I've seen looking at some of the metadata that a publisher will say conforms to WCAG-AA, and then it conforms to their own internal standards as well. And you can put that accessibility metadata in there, and it probably will help you in the future. So if you have your own internal accessibility standard or style guide or whatever, you can put that information in there and see that a title that you produced five years ago, conform to something that's now as outdated in your company. - Great, and so the test programme that SMART provides the kind of guided testing process could be looking not only at the accessibility sides, but some of those internal standards as well. Is this a new thing, or is there existing customizations of SMART out there?

- [George] The first customization we had was with Benetech, where they funded us to produce the GCA tab, where we put in the entire scoring system, they wanted with all the different tests, with scores of zero through four, for all these different tests, they provided the requirements and guidelines. And then we implemented that, Charles, is that about right?

- [Charles] Yeah, we have over 80 different touch points and 15 different main categories. And each of them is able to score, sum up those scores and give individual scores and then our overall Born Accessible score, which helps part of the getting 80% or better of your Born Accessible score in our certification.

- [Richard] Thank you, Charles, good to hear it's working out for you. And, well, we're coming to the end of our session. So once again, thank you to George, Charles and James for sharing such great information. These webinars are brought to you by the DAISY Consortium, a global nonprofit organisation and our expert team, and our members work on innovative and impactful initiatives to further our mission, to develop global solutions for accessible publishing and reading. And before we close, I want to tell you about some really great sessions we've put together for you in the coming weeks. On November the 17th, we dive into creating and editing accessible EPUB, exploring some of the latest tools for producing quality publications. And on December the first, we touched on this, we'll return to the topic of the EU Accessibility Act. This is legislation which is positioned to change the way that materials are published, sold, and consumed, not just within Europe, but will have implications globally. And if you have ideas for webinars or would like to suggest a topic, we'd love to hear from you. We hope you'll join us again soon, in the meantime, thank you for your time. Stay safe and well, and have a wonderful rest of your day. Take care and goodbye.