

Meet a Member of Our Staff



Patrick Sheehan joined the Department of Veterans Affairs after 12 years in support of Foreign Counter-Intelligence efforts at the Federal Bureau of Investigation. His career change was prompted by two things: he was hoping for a promotion, and he wanted to be closer

to his wife, Jane. Fostering professional opportunity, and the understanding that doing so increases well-being for individuals and their communities, has been a driving force for Patrick in his career where he has served in leadership roles for the American Council of the Blind, the Washington Metropolitan Area Transit Authority (WMATA), and as Director of the VA Section 508 Program Office.

Patrick's work in the VA began with training employees with disabilities to use VA systems with assistive technology like JAWS for DOS, Business Vision, and Arctic Vision. Then training was expanded to teaching Veterans how to perform computing tasks like making and changing directories, erasing files, and composing documents using WordPerfect 5.1. At the time, VA also adopted early Optical Character Recognition (OCR) technology, which enabled employees with print disabilities to work with electronic copies of scanned documents. Today, the VA Section 508 staff teaches thousands of agency stakeholders how to create accessible content, both through an instructor-led curriculum and through self-paced tutorials.

Although the technology used by the agency has evolved during Patrick's tenure, the Section 508

INSIDE THIS ISSUE

Meet a Member of Our Staff	1
Zebra Stripes of A Different Color	2
Avoiding Section 508 Violations	3
Methods for Mobile Input & Navigation	5
We're Getting A Makeover!	6
Get Onboard!	7
Which Tool Should I Choose for PDF Content?	7
Feature Table: PDF Authoring Tools Comparison	8

standards remain unchanged. "Today, we use open-source software and mobile applications," Patrick said. "There were no web-based applications. There was a clear difference between where software was used and what web pages could do. Now, with web pages behaving more like applications, being able to give our 28,000 employees with disabilities comparable access to those applications so they can be promoted, too, is the most important thing."

The VA serves agency stakeholders in helping them understand and achieve their obligation to create systems that meet the 508 standards, no matter how complex. "We're a service organization," Patrick asserted. "We work with project managers. Sometimes we sit on calls with project managers and beat them up a little bit. Sometimes we're talking them down off the ledge. Sometimes we hold their hand and walk people through, step by step, how to use assistive technology. We have a group around us that is self-motivated, capable, and takes pride in the fact that it's helping customers."

Patrick thinks the biggest gap in our current service level is our inability to tell a compelling story – part of the reason he agreed to this interview. “People know that 508 is a law,” he said. “They know that it’s a requirement. But how do we get stakeholders to want to do the work associated with 508? We need to create a way for them to be successful; we need to explain how designing to meet the 508 standards will enhance the functionality – and improve the usability – of all agency technology.” As an example, Patrick offers lessons from his work with WMATA:



“We added truncated domes to the edges of train platforms so that blind people would be alerted as they

were approaching the tracks. We used accessibility standards to advocate for this feature, but it turns out that the alert is useful for everyone! Having tactile feedback – whether it’s a different texture underneath your shoe if you’re walking, or it’s the feeling of a wheeled bag or suitcase hitting those domes – everyone gets notified that they’re approaching the end of the platform.”

Subtle design features that increase accessibility is not the only parallel Patrick recognizes between his work at WMATA and his work at VA. “People take public transportation in order to live their lives. People need to get out, go shopping, schedule appointments, and see friends and family. Like any project, public transit has a budget. Whenever you’re performing a cost-benefit analysis, you have to consider incidental benefits – sometimes those are the most extraordinary.” Section 508 plays a similar role. 508 is about improving infrastructure, too – except instead of being about trains and busses, it’s about information and technology.

“Now we can participate. Now we can have meaningful careers. We can be social. We can pay taxes. We can be part of families and communities. That’s amazing.”

Zebra Stripes of Different Colors

Table formatting is a common struggling point for a lot of people and can make a big difference not only in how readable the information is but how accessible the information is as well. In the past, folks believed that “zebra striping”, the common practice of displaying alternate rows in a table with different background colors, made a table easier to read, allowing users to find information more accurately and efficiently. Lately, studies are showing that zebra striping does not really help readers improve accuracy or speed, although readers still preferred the striped tables. In the example table, the blue and white stripes (a pattern recognizable by anyone who has used a playlist in iTunes), are aesthetically pleasing and guide the eyes – and become more useful as the gaps between the columns increases.

1	✓ Whistling Away The Dark (from 'Darling Lill')	2:27	Stefano Nanni
2	✓ Infiltrado	3:39	Bajofondo
3	✓ Dont Know What I Was Doing Then	4:12	Johnny Boyd
4	✓ Let Go	3:01	Toby Lightman
5	✓ Ladyhawk	2:22	Claudio Novelli
6	✓ Winter Waltz	2:36	Stefano Nanni

So, let’s make sure those pretty zebras are accessible so that everyone can find the data accurately and efficiently. Keep a few things in mind: choose a larger font, loose spacing, pay particular attention to the color contrast between your text and the shaded background – no busy pattern or gradients, and that should take care of it. Read more about the impact of zebra formatting at:

- [Zebra Tables, A List Apart](#)
- [Zebra Striping: Does It Really Help?, A List Apart](#)
- [Zebra Stripes, Visual Display of Quantitative Information](#)



Avoiding Section 508 Violations

Below are the top Section 508 violations for each of five media types – Adobe PDF, Adobe Flash, Web/HTML, Microsoft PowerPoint and Mobile apps. These violations were recorded by VA Section 508 testing teams during the past three months.

ADOBE PDF – ENSURE LIST ITEMS ARE STRUCTURED PROPERLY

It is important for related items in a document to be structured and tagged as a list. This structure allows people using assistive technology to recognize when items are intended to be grouped together, and to navigate efficiently through the grouped items.

It may be helpful to think of the structure of lists as a family tree. There are the parents, which are the main list items. Then there are the children, or sub-lists, grouped together under the parents. All list items contained at the same level can be thought of as siblings. If you're using Adobe Acrobat, you'll find that each list structure must consist of a parent `<L>` tag and subsequent list item `` tags for each item in the list. For example, if there are a total of eight fruits in a list, then there need to be eight `` tags in the structure. Each list item `` tag must contain a label `<Lbl>` tag that includes the number or bullet and a list item body `<LBody>` tag that contains the text of the item. Below is an example of proper list structure:

- Oranges
- Grapes
- Apples

A sub-list, as a child of the list item to which it is related, must structurally appear under it. It is placed after

the text of the parent list item. Below is an example of a sub-list structure:

- Oranges
- Grapes
- Apples
 - Granny Smith
 - Orchard
 - Sour Apple
- Strawberries
- Cherries
- Cantaloupe
- Mangos
- Peaches
- Blackberries



Resource:

[Creating Accessible PDFs with Adobe Acrobat Pro](#)

WEB/HTML – ENSURE THAT THE READING ORDER OF CONTENT IS LOGICAL

The “reading order” of a page is the order in which information is read by a screen reader to a user. This is not exactly the same as the tab- or focus-order, which concerns the order in which interactive elements are encountered while using the tab key with the keyboard. A screen reader reads content in the order in which it appears in the Document Object Model (DOM), which is determined by the order in which the content occurs in the page source. So even when items may have been styled to visually appear in a particular order, they may not be read in the same order by Assistive Technology.

The easiest way to check this is to test how the screen appears without stylesheets. When a page is viewed without style sheets, all meaningful content must be readable and displayed in a logical order. The easiest way to verify this requirement is by disabling the style sheets in the browser. You can disable style sheets directly in your browser or by using the Web Accessibility Toolbar. Styles can be disabled through the Style option in the View menu in various browsers. To disable style sheets using the Web Accessibility Toolbar, choose Disable CSS from the CSS menu.

Note: Don't use the option to disable inline styles; this option will not disable document-level style sheets or external style sheets.

The reading order of content is also visually apparent with CSS disabled; however, disabling CSS will not linearize layout tables. It may be useful to view the page linearized to properly understand and verify the correct reading order for people who use assistive technology (AT) and/or have CSS disabled.

To linearize the page using the Web Accessibility Toolbar, first disable CSS and then, from the Table menu, choose Linearize.

Another way to get a sense of whether the content appears in the correct order is by using a screen reader to hear it read aloud. The screen reader will read content in the order in which it appears in the document object model. Understand that the screen reader will honor other style sheet settings, such as display and visibility properties. These properties are used to hide content from all users. Developers should not use the display:none or visibility:hidden CSS properties to provide special hidden instructions to people who use screen readers as most screen readers will not announce this information.

- Resource: [Introducing the Web Accessibility Toolbar](#)
- Resource: [Developing Section 508 compliant HTML*](#)

MICROSOFT POWERPOINT – ENSURE IMAGES PROVIDE INFORMATIVE ALTERNATE TEXT

Images used in PowerPoint presentations, such as photos, clip art, diagrams and charts, need to be accompanied by alternate text. Without a text alternative, people who can't see or interpret images may not be able to access everything in the presentation.

Consider the following when creating alternate text:

- The textual descriptions need to be short and concise while still being meaningful and informative.
- The alternate text should stand alone; it should provide the same information as the image if the image was removed.
- Text should not include the words "picture of" or "image of" unless it is important for users to know that this is a particular type of image such as a photograph, painting, or chart.

Alternate text should not include visual details that are only decorative and do not convey meaning. Alternative text is not required if the text in the body of the slide fully describes the image. If an image is decorative or described elsewhere, an empty space should be entered into the alternate text description field.

To add alternate text:

1. Select the image
2. Activate the context menu or press SHIFT+F10
3. Select "Format Picture"
4. Confirm the "Format Picture" dialog appears
5. Select the Alt Text tab from the options on the left
6. Enter appropriate alternate text for the image in the Description field.
Note: Do not place alternate text in the Title field. The Title field is not read by assistive technologies.
7. Navigate to and activate the Close button
8. Confirm the alternate text has been applied by hearing it spoken by AT or navigate back to the Format Picture options and confirm that the text is visible on the Alt Text screen.

- Resource: [Creating Accessible Presentations with Microsoft PowerPoint 2010 \(self-paced tutorial\)](#)

*Links designated with an asterisk are available to VA internal users only.

MOBILE APPS – ENSURE TEXT AND IMAGES OF TEXT PROVIDE SUFFICIENT COLOR CONTRAST

Sufficient contrast allows people with low vision or color perception deficiencies, people viewing the screen without color, and people with monochrome screens to understand app content. Contrast ratios must be tested to verify that text and images of text meet specific contrast requirements. The minimum ratios for contrast used by the testing team are:

- A contrast ratio of 4.5:1 for text with a size less than 18 points (or less than 14 points if bolded) or
- A contrast ratio of 3:1 for text with a size of 18 points (14 points if bolded) or larger.

Because it can be difficult to determine the font size of text in mobile apps, we recommend that the 4.5:1 contrast ratio be used as the default, unless you are certain that the lower ratio applies.

If the background and text vary in contrast (i.e., when a pattern, gradient, or background image is used), make sure the contrast with the background immediately surrounding the text has the ratio of 4.5:1 even if the contrast is not high enough for the entire background.

You can use a contrast checking tool such as the Colour Contrast Analyser to determine sufficient contrast between foreground and background colors. The tool displays the contrast ratio between the foreground and background colors that are entered or obtained from the eye dropper tool. This ratio, along with the size of the text, is used to determine whether the content complies with the contrast requirements.

iOS and Android: Testing for Sufficient Contrast

Follow these steps to test for sufficient contrast:

1. View text and images of text in the app and visually inspect the ones that may have low contrast between the background and foreground.
2. While using a keyboard, tab to an actionable control (such as a button, link, etc.) to view the focus rectangle.
 - Take a screenshot of that screen and transfer it to a desktop or laptop computer.
 - Use the Colour Contrast Analyser to obtain the foreground and background colors for text, images of text, and focus indicators of the screenshot.
3. Verify that text, images of text and focus indicators provide sufficient contrast:
 - Text smaller than 18 points has a contrast ratio of at least 4.5:1.
 - The focus rectangle and the background color of each element that receives keyboard focus meets the minimum 4.5:1 contrast ratio.
 - Text measuring 18 points (14 if bolded) or larger has a contrast ratio of at least 3:1.

Note: For application content that is provided to an organization other than VA, refer to the organization's minimum contrast ratio requirements.

- Resource: [The Colour Contrast Analyzer](#)
- Resource: [Best Practices for Mobile Content](#)*
- Resource: [Mobile Software Checklist](#)*

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Alternative Methods for Mobile Input and Navigation

As the VA continues to find new and innovative ways to serve Veterans, the Section 508 Team has become part of the Mobile Development Explosion which is occurring throughout the agency on a large scale. We're excited to be playing an integral role in ensuring that the mobile apps that are being developed and deployed by the VA and its strategic partners are Section 508 compliant.

Technology and the ways in which we use it have changed drastically since Section 508 regulations became Federal Law in 1998. In regard to accessing mobile apps on tablets and phones, the means of navigating through and inputting data into apps significantly differ from traditional computer keyboards and mice utilized by users of desktop and laptop computers, especially when compared to PC users during the late '90s. These mobile devices are smaller, more versatile, and have a great deal of access built into their operating systems, thus promoting three new ways that mobile users can flourish within these ever-changing environments.

EXTERNAL DEVICES

One of the ways users interact with their mobile devices is with wireless, external keyboards. Simply purchase one of these keyboards that range in price from \$30-\$100, connect it via Bluetooth to your tablet or phone and effortlessly enter text into a desired edit field. Apple's Voiceover screen reader provides a heightened level of functionality for keyboard navigation within the iOS operating system, so much so that it is not unheard of for fully sighted users to mute the Voiceover speech and simply utilize all of the built-in navigation options when performing tasks such as surfing the web or navigating through fairly complex apps while Voiceover runs in the background. Google has built quite a bit of functionality directly into the operating system so that its Talkback screen reader does not provide any additional functionality to the external keyboard user. In keeping with both Apple and Google's commitment to supporting external devices for optimized navigation and input, both companies provide support for external Braille input/output devices. This means that readers who have visual impairments and writers of the Braille code, as well as individuals who are hard of hearing and visually impaired may choose from a variety of external Braille displays with Braille keyboards that allow them to read the information presented on their mobile screen in Braille, as well as navigate and input using Braille while interacting with apps.

ONSCREEN KEYBOARDS

For those who may not wish to carry around such devices and would rather perform the same functions using the phone's touch screen, both Apple and Google have provided an alternative series of gestures within their respective screen readers. These gestures are necessary for people who have visual impairments and need to explore and navigate the device's screen by touching it. Also, when using an onscreen keyboard, these VoiceOver and TalkBack screen readers allow the user to touch a key, listen to confirm that it is the letter or character they want, and then either lift their finger off that specific character, or tap the screen twice to enter the character into the apps edit field. The process sounds much more difficult than it is, and it's an ingenious strategy for vision impaired users to interact with a touch screen.

DICTATION

A third and final way for mobile users to input information into a mobile device is by "dictation". This feature allows for text to be spoken into an edit field either by tapping the microphone icon located to the left of the spacebar on the onscreen keyboard. Vision impaired users may use two fingers to double tap anywhere within the edit field to start and stop the dictation process. Simply activate this microphone, speak your text, and repeat the gesture to stop the dictation process. At this stage, the dictation feature is merely a means of inputting information and doesn't provide a way to navigate through the apps on a device.

We're sharing these three methods for navigating through and inputting information into mobile devices to help you understand how we test mobile apps for Section 508 compliance. In the next issue of this newsletter, we'll take a look at how best practices such as reading order, focus, and avoiding keyboard traps are imperative in order for a mobile app to be Section 508 conformant.

Our Website is Getting a Makeover!

In our last newsletter we announced the realignment of the VHA Section 508 Office with the OI&T Product Development Section 508 Office, creating a single team of professionals committed to providing exceptional Section 508 guidance and support. We're hard at work combining our Section 508 resources for our customers on our new website. We have thoroughly reviewed our online content, and we plan to announce the launch of our new combined home in the next newsletter. The new site will have updated checklists for you, an improved training page with links to live webinars, courses on the Talent Management System, online tutorials for creating accessible documents, and more. We know that having all things Section 508 consolidated in one place will help you find what you need to make your documents and content accessible to everyone.

If there is information that you would like us to consider including on our website, please contact us at section508@va.gov and put "Website Update" in your subject line.

Which Tool Should I Choose for PDF Content?



Since we started our Bring Your Own Document, BYOD, program, we've certainly seen a lot of PDF documents! It's clear that VA employees want to produce eye-catching and attractive PDF documents. It's equally clear that document authors want to reach their entire audience by producing documents that comply with Section 508 of the Rehabilitation Act. We're helping document authors do both.

This article will examine three source applications commonly used to produce PDF documents, Microsoft Word 2010, Adobe InDesign, and Microsoft Publisher. We'll take a look at how well these programs do in producing accessible PDF documents. Regardless of which source application you use, once you've published to PDF, you're going to need to do some remediation in Adobe Acrobat Pro. VA has an enterprise license for Acrobat Pro. If you produce PDF documents as part of your job responsibilities, you can request that Acrobat Pro be installed on your computer. All that is required is a business reason for the installation and the approval of your supervisor. Visit the link below to request your copy of Acrobat Pro.

- Resource: [Desktop Productivity Tools](#)*

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USING MICROSOFT WORD

Microsoft Word 2010 is possibly the easiest document authoring application for creating PDF documents. It's on all VA computers and is commonly used by employees for document creation. Good authoring practices need to be followed in the creation of the Word source document. Please see our Word tutorials for guidance in producing accessible Word documents.

Word styles should be used throughout your document. You can deploy the Apply Styles dialog by pressing CTRL+Shift+S on the keyboard or by activating the Styles button on the Home ribbon.

USING MICROSOFT PUBLISHER

Microsoft Publisher is readily available on VA computers and is a basic desktop publishing application. Although it is closely associated with Microsoft Word and enables the user to create interesting print materials, it is only possible to create fully accessible PDFs for very basic layouts.

USING ADOBE INDESIGN

Adobe InDesign requires a bit of a learning curve to fully appreciate all that the application can do as an authoring tool, but if you have mastered a few of the basic concepts it is a great choice as an authoring tool for advanced documents. Styles, page structure, content order, and images are handled with ease within the latest versions of the product. Adobe InDesign handles the heavy lifting of the workflow, leaving just a few finishing touches when you get to Adobe Acrobat.

Get Onboard!

It is now possible to be alerted when a new edition of the 508 XPress becomes available. Just visit www.section508.va.gov/support/newsletter and activate the link to subscribe to our list.

Visit the VA Section 508 Website to review Section 508 checklists; training materials for developing accessible content in Flash, HTML, Word, PDF and PowerPoint; register for courses and to locate additional resources.

Internet: www.section508.va.gov

Intranet: vaww.vista.med.va.gov/508workgroup* || vaww.section508.va.gov*

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Feature Table: Comparison of Three PDF Creation Tools

ELEMENT	MS WORD	MS PUBLISHER	ADOBE INDESIGN
TEXT	<ul style="list-style-type: none"> » Text will export with <P> tags » Reading order is maintained 	<ul style="list-style-type: none"> » Text will export with <P> tags » Reading order is maintained 	<ul style="list-style-type: none"> » Text will export as custom tags mapped to <P> tags » Reading order is maintained
HEADINGS	<ul style="list-style-type: none"> » Headings transfer » Levels are maintained 	<ul style="list-style-type: none"> » Each heading element must be manually selected to ensure the correct heading style is assigned » After conversion, open the document in Adobe Acrobat and inspect the object properties to be sure heading style and level have been maintained 	<ul style="list-style-type: none"> » Headings transfer » Levels are maintained
LISTS	<ul style="list-style-type: none"> » Lists and list items export with appropriate <L> and tags » Bullets and numbers are left in the <LBody> tag and should be moved to their own <LBL> tag 	<ul style="list-style-type: none"> » There is no way to make lists accessible directly within the application » List elements must be tagged in Adobe Acrobat 	<ul style="list-style-type: none"> » When appropriately styled, lists and list items export with appropriate <L> and tags » Bullets and numbers are placed in <LBL> tags
GRAPHICS	<ul style="list-style-type: none"> » Alt text exports with images » Images are given <Figure> tags 	<ul style="list-style-type: none"> » Alt text exports with images » Images are given <Figure> tags » Alt text cannot be set to an empty string for a decorative image » Decorative images should be set as background objects in Adobe Acrobat 	<ul style="list-style-type: none"> » Alt text exports with images » Images are given <Figure> tags
READING ORDER	<ul style="list-style-type: none"> » Reading order is maintained for all elements except the figures » Figures are placed at the beginning of the tags tree and need to be moved to the appropriate place within the tags tree 	<ul style="list-style-type: none"> » Reading order of objects is not automatically maintained » Systematic review of the entire document prior to conversion is required to select each object individually and choose to "Bring to front", starting with the item that should be read first by a screen reader, and ending with the last item to be read 	<ul style="list-style-type: none"> » Reading order can be directed on export » Figures maintain placement within the text and within tags tree

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