Date: April 26, 2018

Customer: Northwestern University

Subject: Compliance with W3C Web Accessibility Initiative (WAI) Web Content Accessibility Guidelines (WCAG) 2.0

Product: SAS® Enterprise Miner software, version 14.1 for version 9.4 of the SAS® platform

Contact: accessibility@sas.com

The information in this document is provided by SAS Institute Inc.

1. Summary

This report describes the conformance of SAS® Enterprise Miner, (hereafter “the software”) with the W3C Web Content Accessibility Guidelines (WCAG) 2.0, and U.S. Section 508 accessibility guidelines for software (1194.22) and Web-based Internet Information and Applications (1194.21) The review process is described in Evaluation Process below.

Based on this evaluation, the software is close to meeting WCAG 2.0, Conformance Level Double A. Detailed review results are described in Result below.

Feedback on this evaluation is welcome; please send comments to accessibility@sas.com.

Note: This comprehensive accessibility statement is a combination of the suggested template from the W3C WAI available: http://www.w3.org/WAI/WCAG20/quickref/ and the Section 508 Voluntary Product Accessibility Templates developed by the IT Industry Council on behalf of the U.S. Access Board, available http://www.itic.org/policy/accessibility.

2. Software Evaluated

SAS® Enterprise Miner™ software streamlines the data mining process to create highly accurate predictive and descriptive models based on analysis of vast amounts of data from across an enterprise.

3. Evaluation Process

To evaluate the conformance of the software with W3C WAI WCAG 2.0 Conformance Level Double A and U.S. Section 508 1194.21 and 1194.22, SAS R&D staff follows a three-phased methodology. We follow Level 1 Acceptance Tests which are designed to cover functionality that all users of the software would be expected to perform. They are not exhaustive and do not cover every aspect of the available functionality.
A. Phase I – Keyboard

Complete tests using keyboard only (no mouse) to evaluate device independence. If aspects are inaccessible via keyboard or if keyboard interaction deviates from platform standard, open a defect against the software. Investigate workarounds. If a workaround is found, open a defect with a priority of medium, note the workaround and the expected interaction. If no workaround can be found, the tester opens a defect and sets the priority to high.

B. Phase II – Color, Contrast, and Low Vision

We evaluate SAS software to determine whether it accommodates the needs of low vision users who may need higher foreground-to-background contrast and larger fonts. We also determine whether color alone is used to indicate meaning, or if color is a redundant indicator; this accommodates the needs of color blind or photosensitive users. In this phase, we:

- Activate high contrast in the operating system and evaluate the extent of inheritance and the impact of non-inheritance in the software. (On the Microsoft Windows XP operating system, we use High Contrast #2 large as our testing baseline.)


- If the software offers user preferences for color, font, or font sizes, evaluate whether sufficient variety is available to accommodate users with low vision or color blindness.

- If the software is Internet-browser-based:
  
  o Use the browser settings to increase the font size and determine whether the setting adjustment is reflected in the software.

  o Set the browser to ignore colors, font styles, and sizes specified on web pages; evaluate whether the software is still perceivable.

  o Use the browser settings to use Windows system colors. In Internet Explorer v7-9, this is in Tools > Options > General Tab, Colors window and note to what extent system colors are inherited and the impact of non-inheritance.

C. Phase III – Interoperability with Assistive Technologies

To assess the extent to which SAS software may be expected to interoperate with assistive technologies, SAS tests its software using Freedom Scientific’s JAWS screen reader, version 13. While any single assistive technology cannot be a proxy for the wide variety of assistive technologies, the JAWS market share, product maturity, and stability on the operating system warrant this use.

We repeat the Level 1 acceptance tests from Phase I, running them with JAWS with high verbosity and using keyboard only to operate the software. Any keyboard variances or cases where functional text is not read aloud are logged as defects. Using JAWS or operating system keyboard short-cuts, workarounds are investigated. If no workaround is found, defects are opened with a high priority.
## 4. Results

**SAS® Enterprise Miner, v14.1**

<table>
<thead>
<tr>
<th>Checkpoint</th>
<th>Criterion</th>
<th>WCAG2 Level</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1.1</td>
<td>All non-text content that is presented to the user has a text alternative that serves the equivalent purpose,</td>
<td>A</td>
<td>1 – Not Supported</td>
</tr>
<tr>
<td>1.2.1</td>
<td>Descriptive text transcript (including all relevant visual and auditory clues and indicators) for non-live, web-based audio (audio podcasts, MP3 files, etc.). Text or audio description for non-live, web-based video-only (e.g., video that has no audio track).</td>
<td>A</td>
<td>0 - Not Applicable</td>
</tr>
<tr>
<td>1.2.2</td>
<td>Synchronized captions for non-live, web-based video</td>
<td>A</td>
<td>0 - Not Applicable</td>
</tr>
<tr>
<td>1.2.3</td>
<td>Descriptive text transcript OR audio description audio track for non-live, web-based video</td>
<td>A</td>
<td>0 - Not Applicable</td>
</tr>
<tr>
<td>1.2.4</td>
<td>Synchronized captions for all live multimedia that contains audio (audio-only broadcasts, web casts, video conferences, Flash animations, etc.)</td>
<td>AA</td>
<td>0 - Not Applicable</td>
</tr>
<tr>
<td>1.2.5</td>
<td>Audio descriptions for all video content if the video conveys content visually that is not available in the default audio track.</td>
<td>AA</td>
<td>0 - Not Applicable</td>
</tr>
<tr>
<td>1.3.1</td>
<td>Semantic markup is used to designate headings (&lt;h1&gt;), lists (&lt;ul&gt;, &lt;ol&gt;, and &lt;dl&gt;), emphasized or special text (&lt;strong&gt;, &lt;code&gt;, &lt;abbr&gt;, &lt;blockquote&gt;, for example), etc. Semantic markup is used appropriately. Tables are used to markup tabular data. Where necessary, data cells are associated with their headers. Data table captions and summaries are used where appropriate. Text labels are associated with form.</td>
<td>A</td>
<td>5 - Supported</td>
</tr>
<tr>
<td>Checkpoint</td>
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<tr>
<td></td>
<td>input elements. Related form elements are grouped with fieldset/legend.</td>
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</tr>
<tr>
<td>1.3.2</td>
<td>Logical and intuitive reading and navigation order (determined by code order)</td>
<td>A</td>
<td>5 - Supported</td>
</tr>
<tr>
<td>1.3.3</td>
<td>Instructions do not rely upon shape, size, or visual location (e.g., &quot;Click the square icon to continue&quot; or &quot;Instructions are in the right-hand column&quot;). Instructions do not rely upon sound (e.g., &quot;A beeping sound indicates you may continue.&quot;).</td>
<td>A</td>
<td>5 - Supported</td>
</tr>
<tr>
<td>1.4.1</td>
<td>Color alone is not used to conveying content or to distinguish visual elements. Color alone is not used to distinguish links from surrounding text unless the luminance contrast between the link and the surrounding text is at least 3:1 and an additional differentiation (e.g., it becomes underlined) is provided when the link is hovered over or receives focus.</td>
<td>A</td>
<td>5 - Supported</td>
</tr>
<tr>
<td>1.4.2</td>
<td>Mechanism to stop, pause, mute, or adjust volume for audio that automatically plays on a page for more than 3 seconds.</td>
<td>A</td>
<td>0 - Not Applicable</td>
</tr>
<tr>
<td>1.4.3</td>
<td>Text and images of text have a contrast ratio of at least 4.5:1. Large text (over 18 point or 14 point bold) has a contrast ratio of at least 3:1</td>
<td>AA</td>
<td>5 - Supported</td>
</tr>
<tr>
<td>1.4.4</td>
<td>The page is readable and functional when the text size is doubled.</td>
<td>AA</td>
<td>5 - Supported</td>
</tr>
<tr>
<td>1.4.5</td>
<td>If the same visual presentation can be made using text alone, an image is not used to present that text.</td>
<td>AA</td>
<td>5 - Supported</td>
</tr>
<tr>
<td>2.1.1</td>
<td>All page functionality is available using the keyboard, unless the functionality cannot be</td>
<td>A</td>
<td>3 – Supported w/ exceptions</td>
</tr>
<tr>
<td>Checkpoint</td>
<td>Criterion</td>
<td>WCAG2 Level</td>
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<td>accomplished in any known way using a keyboard (e.g., free hand drawing). Page-specified shortcut keys and accesskeys (accesskey should typically be avoided) do not conflict with existing browser and screen reader shortcuts.</td>
<td></td>
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</tr>
<tr>
<td>2.1.2</td>
<td>Keyboard focus is never locked or trapped at one particular page element. The user can navigate to and from all navigable page elements using only a keyboard.</td>
<td>A</td>
<td>3 - Supported w/exceptions</td>
</tr>
<tr>
<td>2.2.1</td>
<td>If a page or application has a time limit, the user is given options to turn off, adjust, or extend that time limit. This is not a requirement for real-time events (e.g., an auction), where the time limit is absolutely required, or if the time limit is longer than 20 hours.</td>
<td>A</td>
<td>5 - Supported</td>
</tr>
<tr>
<td>2.2.2</td>
<td>Automatically moving, blinking, or scrolling content that lasts longer than 3 seconds can be paused, stopped, or hidden by the user. Moving, blinking, or scrolling can be used to draw attention to or highlight content as long as it lasts less than 3 seconds. Automatically updating content can be paused, stopped, or hidden by the user or the user can manually control the timing of the updates.</td>
<td>A</td>
<td>5 - Supported</td>
</tr>
<tr>
<td>2.3.1</td>
<td>No page content flashes more than 3 times per second unless that flashing content is sufficiently small and the flashes are of low contrast and do not contain too much red. (See general flash and red flash thresholds)</td>
<td>A</td>
<td>5 - Supported</td>
</tr>
<tr>
<td>2.4.1</td>
<td>A link is provided to skip navigation and other page elements that are repeated across web pages. If a page has a proper heading structure, this may be</td>
<td>A</td>
<td>3 – Supported w/exceptions</td>
</tr>
<tr>
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<td>considered a sufficient technique instead of a &quot;Skip to main content If a page uses frames and the frames are appropriately titled, this is a sufficient technique for bypassing individual frames.&quot; link.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.4.2</td>
<td>The web page has a descriptive and informative page title.</td>
<td>A</td>
<td>0 - Not Applicable</td>
</tr>
<tr>
<td>2.4.3</td>
<td>The navigation order of links, form elements, etc. is logical and intuitive.</td>
<td>A</td>
<td>5 - Supported</td>
</tr>
<tr>
<td>2.4.4</td>
<td>The purpose of each link (or form image button or image map hotspot) can be determined from the link text alone, or from the link text and it's context (e.g., surrounding paragraph, list item, table cell, or table headers). Links (or form image buttons) with the same text that go to different locations are readily distinguishable.</td>
<td>A</td>
<td>0 - Not Applicable</td>
</tr>
<tr>
<td>2.4.5</td>
<td>Multiple ways are available to find other web pages on the site - at least two of: a list of related pages, table of contents, site map, site search, or list of all available web pages.</td>
<td>AA</td>
<td>0 - Not Applicable</td>
</tr>
<tr>
<td>2.4.6</td>
<td>Page headings and labels for form and interactive controls are informative. Avoid duplicating heading (e.g., &quot;More Details&quot;) or label text (e.g., &quot;First Name&quot;) unless the structure provides adequate differentiation between them.</td>
<td>AA</td>
<td>3 – Supported w/ exceptions</td>
</tr>
<tr>
<td>2.4.7</td>
<td>It is visually apparent which page element has the current keyboard focus (i.e., as you tab through the page, you can see where you are).</td>
<td>AA</td>
<td>3 - Supported w/ exceptions</td>
</tr>
<tr>
<td>3.1.1</td>
<td>The language of the page is identified using the HTML lang attribute (&lt;html lang=&quot;en&quot;&gt;, for example).</td>
<td>A</td>
<td>0 - Not Applicable</td>
</tr>
<tr>
<td>3.1.2</td>
<td>When appropriate, the language of</td>
<td>AA</td>
<td>0 - Not Applicable</td>
</tr>
<tr>
<td>Checkpoint</td>
<td>Criterion</td>
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<td></td>
<td>sections of content that are a different language are identified, for example, by using the lang attribute (&lt;blockquote lang=&quot;es&quot;&gt;)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.2.1</td>
<td>When a page element receives focus, it does not result in a substantial change to the page, the spawning of a pop-up window, an additional change of keyboard focus, or any other change that could confuse or disorient the user.</td>
<td>A</td>
<td>5 - Supported</td>
</tr>
<tr>
<td>3.2.2</td>
<td>When a user inputs information or interacts with a control, it does not result in a substantial change to the page, the spawning of a pop-up window, an additional change of keyboard focus, or any other change that could confuse or disorient the user unless the user is informed of the change ahead of time.</td>
<td>A</td>
<td>5 - Supported</td>
</tr>
<tr>
<td>3.2.3</td>
<td>Navigation links that are repeated on web pages do not change order when navigating through the site.</td>
<td>AA</td>
<td>5 - Supported</td>
</tr>
<tr>
<td>3.2.4</td>
<td>Elements that have the same functionality across multiple web pages are consistently identified. For example, a search box at the top of the site should always be labeled the same way.</td>
<td>AA</td>
<td>5 - Supported</td>
</tr>
<tr>
<td>3.3.1</td>
<td>If an input error is automatically detected, the item that is in error is identified and the error is described to the user in text</td>
<td>A</td>
<td>3 – Supported w/ exception</td>
</tr>
<tr>
<td>3.3.2</td>
<td>Sufficient labels, cues, and instructions for required interactive elements are provided via instructions, examples, properly positioned form labels, and/or fieldsets/legends.</td>
<td>A</td>
<td>5 - Supported</td>
</tr>
<tr>
<td>3.3.3</td>
<td>If an input error is detected provide suggestions for fixing the input in a timely and accessible</td>
<td>AA</td>
<td>5 - Supported</td>
</tr>
<tr>
<td>Checkpoint</td>
<td>Criterion</td>
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</tr>
<tr>
<td>3.3.4</td>
<td>If the user can change or delete legal, financial, or test data, the changes/deletions are reversible, verified, or confirmed.</td>
<td>AA</td>
<td>5 - Supported</td>
</tr>
<tr>
<td>4.1.1</td>
<td>Significant HTML/XHTML validation/parsing errors are avoided.</td>
<td>A</td>
<td>0 - Not Applicable</td>
</tr>
<tr>
<td>4.1.2</td>
<td>Markup is used in a way that facilitates accessibility. This includes following the HTML/XHTML specifications and using forms, form labels, frame titles, etc. appropriately.</td>
<td>A</td>
<td>2 - Supported w/major exceptions</td>
</tr>
</tbody>
</table>