Experiences in Accessibility and 508-Compliance Testing at RTI

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Introduction

- Endeavored to achieve 508 compliance in a Blaise 5 survey

- Utilized ANDI (Accessible Name & Description Inspector) from the Accessible Solutions Branch of the Social Security Administration and NVDA (NonVisual Desktop Access) screen reader to conduct testing

- Had two layout sets for web users
  - Large for browsers greater than 600px
  - Small for browsers less than 600px

Testing Results - Summary

2.1.1	Keyboard Access	All functionality can be accessed and executed using only the keyboard.	PASS
2.1.1	No keystroke Timing	Individual keystrokes do not require specific timings for activation of functionality.	PASS
2.1.2	No keyboard Trap	There is no keyboard trap.	PASS
2.4.7	Focus Visible	A visible indication of focus is provided when focus is on the interface component.	PASS
3.2.1	On Focus	When an interface component receives focus, it does not initiate an unexpected change of context.	PASS
2.4.3	Focus Order Meaning	The focus order preserves the meaning and operability of the web page.	PASS
3.3.2	Label Provided	Labels and instructions are provided for each form input.	PASS
2.4.6	Label Descriptive	Each form label is sufficiently descriptive.	FAIL – Unable to resolve
1.3.1	Programmatic Label	The combination of the accessible name, accessible description, and other programmatic associations (e.g., table column and/or row associations) describes each input field and includes all relevant instructions and cues (textual and graphical).	FAIL – Unable to resolve
3.2.2	On Input	Changing field values/selections (e.g., entering data in a text field, changing a radio button selection) does NOT initiate an unexpected change of context.	PASS
4.1.2	Change Notify Form	The page provides notification of each form-related change in content.	FAIL – Unable to resolve

Testing Results – Summary (continued)

3.3.1	Error Identification	The item in error is identified and the error is described to the user in text.	PASS
3.3.3	Error Suggestion	Additional guidance (e.g., suggestion for corrected input) is provided about how to correct errors for form fields.	PASS
2.4.4	Link Purpose	The purpose of each link or button can be determined from any combination of the link/button text, accessible name, accessible description, and/or programmatically determined link/button context.	FAIL – Unable to resolve
1.1.1	Meaningful Image	The accessible name and accessible description for a meaningful image provides an equivalent description of the image.	PASS
2.2.1	Timing Adjustable	The user can turn off, adjust, or extend the time limit.	PASS
3.2.3	Consistent Navigation	Each navigational element occurs in the same relative order with regard to other repeated components on each web page where it appears.	PASS
3.2.4	Consistent Identification	The accessible name and description is consistent for components that perform the same function.	PASS
1.3.1	Heading Determinable	Each programmatically determinable heading is a visual heading and each visual heading is programmatically determinable.	FAIL – Unable to resolve
3.1.1	Page Language Defined	The default human language of each web page can be programmatically determined.	PASS
3.1.2	Part Language Defined	The human language for any content segment that differs from the default human language of the page can be programmatically determined.	FAIL – Unable to resolve

Testing Results – Summary (continued)

2.4.2	Page Title Defined	A <title> element is defined for the web page.	PASS
2.4.2	Page Title Purpose	The <title> element identifies the contents or purpose of the web page.	PASS
1.3.3	Sensory Info	Instructions provided for understanding and operating content do not rely solely on sensory characteristics of components, such as shape, size, visual location, orientation, or sound.	PASS
1.4.3	Contrast	The visual presentation of text and images of text have sufficient contrast.	PASS
1.3.1	Table Identification	Each data table has programmatic markup to identify it as a table.	FAIL – Unable to resolve
1.3.1	Cell Header Association	All data cells are programmatically associated with relevant headers.	FAIL – Unable to resolve
1.3.2	Content Order Meaning CSS Position	The reading order of the content (in context) is correct and the meaning of the content (in context) is preserved without CSS positioning.	FAIL – Unable to resolve
1.4.4	Resize Text	There is a mechanism to resize, scale, or zoom in on the text to at least 200% of its original size without loss of content or functionality.	PASS
2.4.5	Multiple Ways	There are two or more ways to locate a web page within a set of web pages.	PASS

A closer look at issues we were unable to resolve

Enumerated fields

Focus

Reading order

Defining part language

Enumerated Fields Testing

○ **Programmatic Labels – SC 1.3.1 - The combination of the accessible name, accessible description, and other programmatic associations (e.g., table column and/or row associations) describes each input field and includes all relevant instructions and cues (textual and graphical).**

○ **Blaise 5 correctly indicates "checked" for the selected response but does *not* indicate "unchecked" (aria-checked: false) for the unselected response and does not include the correct number of response options.**

Enumerated Fields Testing (cont.)

- **Programmatic labels were not accurate. For example, radio buttons were labeled as "undefined of 0" instead of a name that described the option that would be selected by that radio button.**
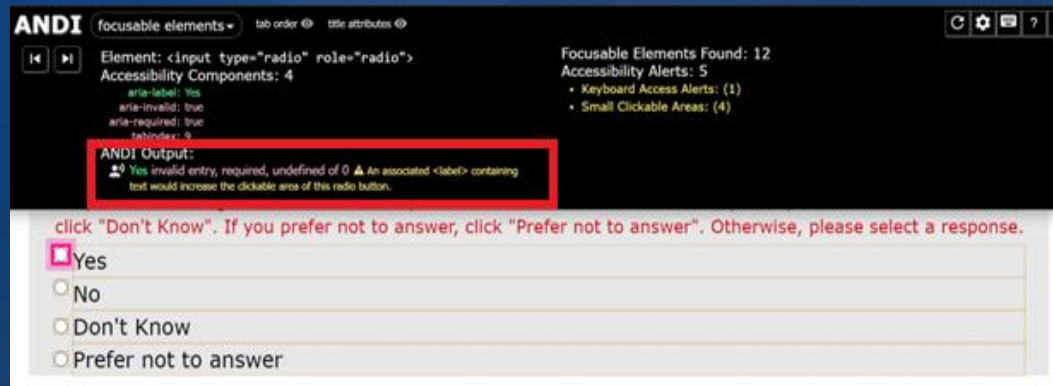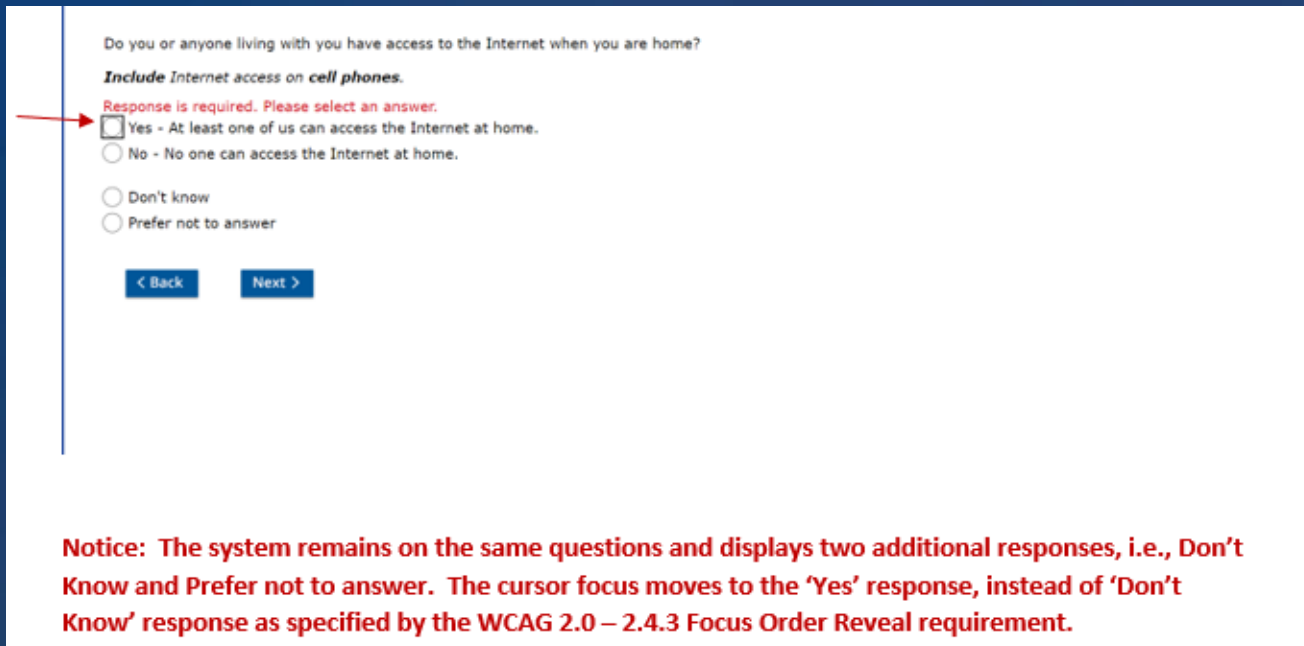

- **Text on the page is denoted as a link, but it is not visible. The element is a hidden error message.**
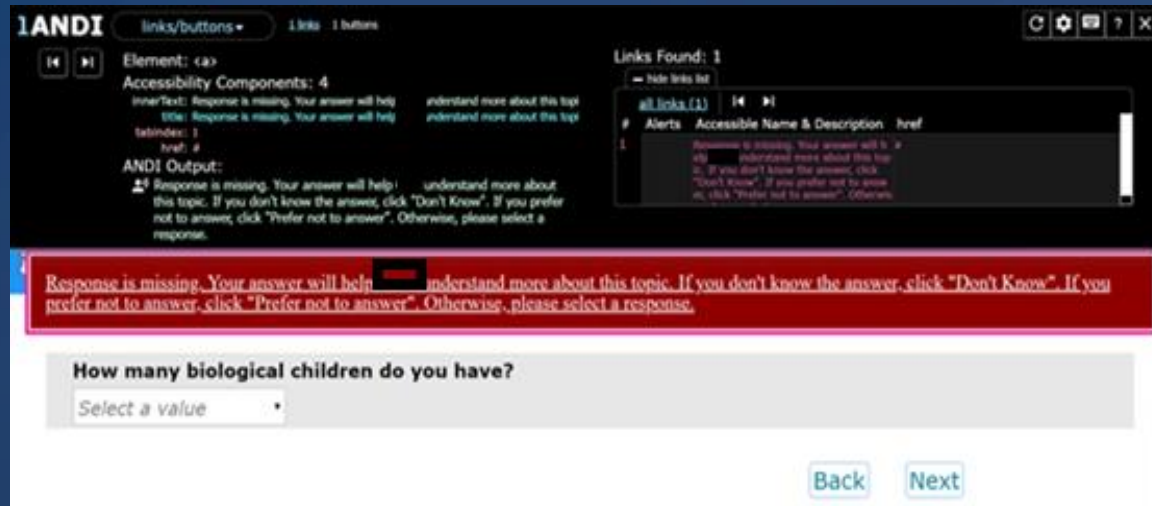
Focus – Unable to resolve

- Displaying the DK/RF options after the other response options caused issues with the focus order reveal requirement, but Blaise 5 did not provide options for adjusting the focus order.

Do you or anyone living with you have access to the Internet when you are home?

Include Internet access on **cell phones**.

Response is required. Please select an answer.

☐ Yes - At least one of us can access the Internet at home.
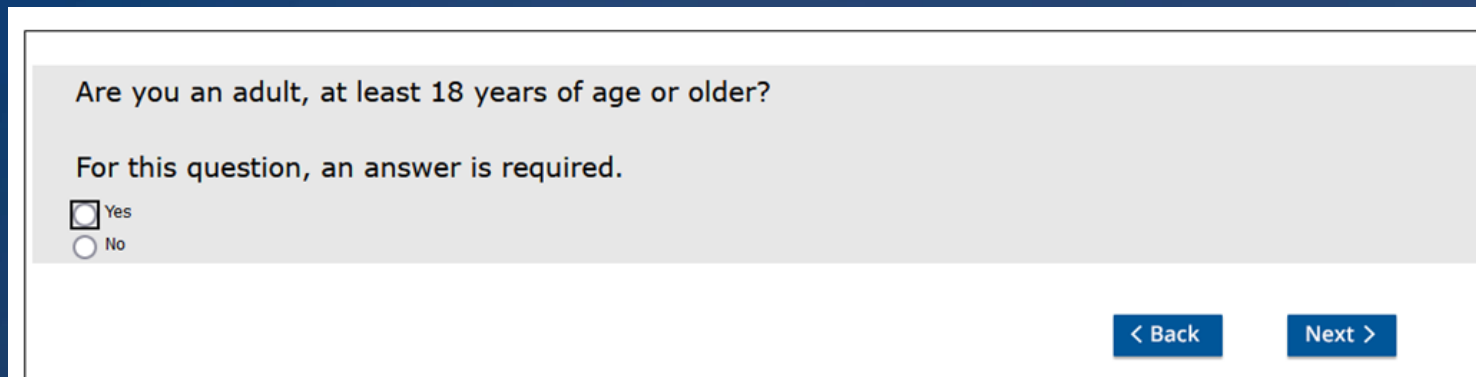○ No - No one can access the Internet at home.

○ Don't know
○ Prefer not to answer

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Notice: The system remains on the same questions and displays two additional responses, i.e., Don't Know and Prefer not to answer. The cursor focus moves to the 'Yes' response, instead of 'Don't Know' response as specified by the WCAG 2.0 – 2.4.3 Focus Order Reveal requirement.

Reading Order – Unable to resolve

o **Blaise 5 features an "Optimize for readability without stylesheets" option to support accessibility that *may* have helped achieve compliance with the requirements for reading order.**

o **Turning on the "Optimize for readability without stylesheets" caused the response option text to become tiny (the response options text size should match the size of the question text).**

Are you an adult, at least 18 years of age or older?

For this question, an answer is required.

☐ Yes
○ No

< Back   Next >

Part language defined – Unable to resolve

o **Part language defined – SC 3.1.1 - The human language for any content segment that differs from the default human language of the page can be programmatically determined.**

o **The page is defined in English (en) and there are no additional language tags defined (shown here as "0 lang attributes"), but there *should* be one defined for the "Cambiar a español" button.**

o **ANDI didn't recognize the Blaise 5 implemented language tags**
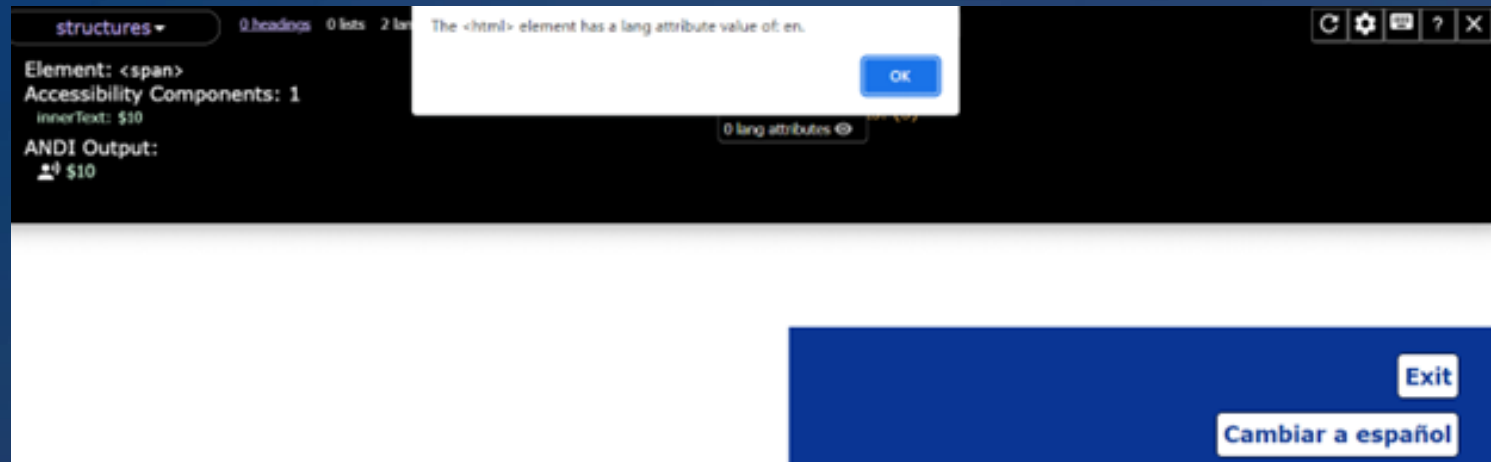
Workarounds for some encountered errors

o Constraint errors

o Page title not programmatically identified as a heading

o Issues with table errors

o Magnifying screens to 200% caused template change

Constraint Errors

The issue - After encountering a Blaise 5 constraint error respondents could not move backwards until the error was corrected.

The workaround – create a special procedure to use in combination with a signal for checking email addresses rather than a constraint.

- The CheckEmailProcedure evaluates the entered email address to check its validity and will return a 1 (valid) or 0 (invalid).

```
PROCEDURE CheckEmailAddress
    PARAMETERS
        IMPORT
            EmailAddress : STRING
        EXPORT
            IsValid : 0..1
    RULES
        IsValid := 0

        IF POSITION('@', EmailAddress) > 0 AND POSITION('.', EmailAddress) > 0 THEN //contains an @ symbol and .
            IF LEN(SUBSTRING(EmailAddress, 1, POSITION('@', EmailAddress)+1)) >= 1 THEN //at least 1 character before @ symbol
                IF LEN(SUBSTRING(EmailAddress, POSITION('@', EmailAddress)+1, POSITION('.', EmailAddress))) >= 1 THEN //at least 1 character between @ symbol and .
                    IF LEN(SUBSTRING(EmailAddress, POSITION('.', EmailAddress)+1, LEN(EmailAddress))) >= 1 THEN // at least 1 character after .
                        IsValid := 1
                    ENDIF
                ENDIF
            ENDIF
        ENDIF
ENDPROCEDURE
```

- This signal will prevent the respondent from moving forward if the email address is invalid, but still allows the respondent to go backwards in the survey.

```
SIGNAL ( EMAILFIELD  <> EMPTY AND IsEmailValid = 1 )
    ENG "Email address is invalid. Please provide a valid email address (abc@xyz.com)."
    SPA "La dirección de correo electrónico no es válida. Proporcione una dirección de correo electrónico válida (abc@xyz.com)."
```
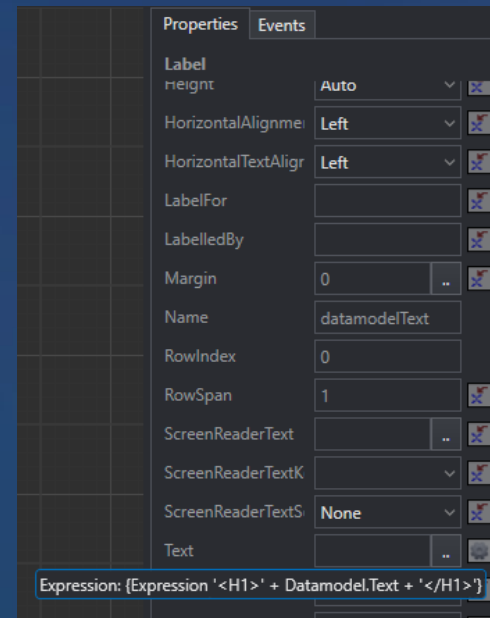
Page title not programmatically identified as a heading

The issue – WCAG 2.0 SC 1.3.1 requires information and relationships able to be programmatically determined.

The workaround – adjust the page header template part used only in the large layout set.

Adding <H1> tags on text for the label to display the data model name corrected this issue while allowing the small layout set to retain a smaller font size. This change was made on the template part used for the header in the large layout set.

Properties	Events
Label	
Height	Auto
HorizontalAlignme	Left
HorizontalTextAlig	Left
LabelFor	
LabelledBy	
Margin	0
Name	datamodelText
RowIndex	0
RowSpan	1
ScreenReaderText	
ScreenReaderTextK	
ScreenReaderTextS	None
Text	

Expression: {Expression '<H1>' + Datamodel.Text + '</H1>'}

Table errors

The issue – WCAG 2.0 SC 3.3.1 requires errors to be clearly identified. Error messages should reference the associated field. Blaise 5 default tables do not fulfill this requirement.

The workaround – modify Blaise 5 tables to display field name information both in the table and the error.

- Default templates do not make a reference to the field name either where the question is displayed or in the error message when it displays.

	Yes	No	Don't know	Prefer not to answer
Question text ?	○	○	○	○
Response is required. Please select an answer.				
Question text	○	○	○	○
Response is required. Please select an answer.				

Table errors (cont.)

○ **Adjusted templates display the field name with the question text and in the error message when it is displayed so the respondent can easily tell which error applies to which row in the table.**

Magnifying screens to 200% caused template change

The issue – WCAG 2.0 SC 1.4.4 requires content to be able to scale up to 200% without changes to the content on screen. Blaise 5 switches templates if magnification reaches a point that would trigger this change.

The workaround – adjust conditions used to determine when the "small" template set is used from 800 px to 600 px.

Final Notes

We were unable to achieve full 508-compliance using Blaise 5.12.8.

Fortunately, we were able to resolve all compliance issues identified as "severe" by the client, and only had a small number of more minor issues left unresolved.

Thank you

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