

# Task Documentation

## Smarter Balanced Assessment Consortium

### Test Delivery System

Component: Test Delivery System

Purpose: Smarter Balanced Task Order 24  
TDS Update for NFB Requests

#### Revision History

Revision Description	Author / Editor	Date
1.0 – First release.	Rami Levy	Dec. 12, 2016
1.1 – Added repository change table (Section 9). Removed one backlog item (Section 7) and added new backlog item in Section 7.6. Formatting changes, updated missing photos, and added description of task documentation location (Section 9). Added information regarding the addition of a merged code branch to each of the repositories.	Rami Levy	Dec. 13, 2016

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## 1 Overview

Upgrade the Open Source TDS student interface to a more consistent UI which provides improved support for Braille accommodations and better accessibility.

### 1.1 Solution Description

The Open Source TDS student interface will be updated to improve accessibility and correct certain related issues. These changes will be merged from the AIR Proprietary TDS's Student front-end.

- Student login, test, and review shells updated to align with AIR Proprietary TDS. This includes improvements to navigation and accessibility.
- Help files and other documentation updated and corrected to improve accessibility.
- Add intelligent muting capability.
- Fix various accessibility-related issues.
- Updated TSB side-loading script to support appropriate test types and existing P&T tests.

### 1.2 Scope of Work

- The code changes affect only the Student application and some associated shared code.
- Unused dependencies in Student and Proctor WAR file are to be removed.
- Documentation changes which affect existing documents.
- Unit and integration testing, including test cases.

### 1.3 Out of Scope

#### 1.3.1 Secure Browser

Some solutions require changes in the Secure Browser (i.e. the use of Secure Browser 9.0+). This version of the Secure Browser is not included as part of the deliverables of this task order. However, appropriate changes in the code will be made to support the use of SB 9.0+.

#### 1.3.2 Text-to-Speech (TTS) Support for non-Secure Browsers

TTS has never been supported in the Open Source TDS when using a browser other than the Secure Browser, unlike AIR's proprietary TDS where it is supported. This continues to be the case after this release, as this was not a requested change.

#### 1.3.3 System Testing

System testing or a system test plan are not included as part of the deliverables for this task order.

## 1.4 Deliverables

All deliverables will be made available via the GitHub SmarterApp repository.

- Description of all changes (this document);
- Source code will be provided on branches in Github SmarterApp repositories, but will not be merged into master branch. A pull request will be made to the *develop* branch on each affected

repository. Additionally, a merged branch per repository of all code changes will be added as branch TaskOrder-24;

- Integration Test plan and test cases;
- Project dependency list for Open Source license verification (proctor and student);
- Backlog documentation, if any (available within this document).

## 2 Requirements

Task Order 24 requirements, along with the proposed fixes, are shown in Table 1.

- Tasks with a white background represent changes to be made in this TDS release.
- Tasks with a tan background represent changes available only with Secure Browser 9.0+.
- Tasks with a gray background items represent issues that were not reproducible and therefore considered resolved in the current and released version of Open Source TDS.

No.	Problem	Proposed fix	Fix in
1	JAWS perceives the question mark as punctuation and does not vocalize it.	For Help button[?], just use an image with an alt tag.	TDS
2	Update Help Guide text to remove reference to question mark [?]	Correct in help guide contents	TDS
3	Improve speed of navigation when moving to the next item after answering last question on a page, by avoiding having to tab all the way to the Next button.	Add ability to get to the "next" button immediately following answering the question instead of needing to navigate to the top of the question.	TDS
4	Login, Test Shell, and Review shell - ensure proper ordering of headers/sections (H1/H2 etc.) and improve consistency	Merge latest front-end code to create distinct sections that improve readability and accessibility.	TDS
5	ELA tests are always muted in Braille mode	Implement intelligent muting capability – mute all, mute items only, mute passages only, or mute none. <sup>1</sup>	TDS
6	On Win Vista/XP machine, Secure Browser 8 was toggling through the language input when the Window logo key was pressed.	Make Window logo key not do anything (secure browser fix).	Secure Browser 9
7	Task manager remains disabled when SB exited abnormally.	Do not disable Task manager, user switching, and Lock when running in Enterprise edition of any Windows OS as long as user is an admin. Fix in Secure Browser	Secure Browser 9
8	Usability, Accessibility, and Accommodations Guidelines	<a href="http://www.smarterbalanced.org/wp-content/uploads/2015/09/Usability-Accessibility-Accommodations-Guidelines.pdf">http://www.smarterbalanced.org/wp-content/uploads/2015/09/Usability-Accessibility-Accommodations-Guidelines.pdf</a> - Not an AIR document.	Documentation
9	Braille Requirements and Testing Manual	<a href="https://airassessment.knowledgetree.com/01jys">https://airassessment.knowledgetree.com/01jys</a> has already been updated.	Documentation
10	Zooming in/out using +/- on nav menu did not cause nav icons/components to zoom accordingly.	Adjust nav icons/components to zoom accordingly when zooming in and out.	TDS
11	(Test Settings) Labels aren't being read when tabbing to accompanying input elements	Ensure labels are read.	TDS
12	New Presentation and Labels are not read from each Drop Down (old complaint)	Could not reproduce, but possibly a duplicate.	TDS

<sup>1</sup> BACKGROUND: All system sounds were muted by Smarter policy for ELA tests (to require students to use the Braille / Refreshable Braille Display to read the question). NFB's stance was that this was disadvantageous for students who were not fluent in Braille, and that it should be made possible to have JAWS read some or all of the q/a text.

13	(Test Instructions and Help Page) JAWS reads the TTS buttons for the help guide, but should not	Hide TTS buttons so that JAWS would not read them out loud. Requires use of JAWS and Braille Mode.	TDS
14	(Test) Context menu opens, but JAWS doesn't read context menu, instead continuing to read the content.	Read the context menu when it opens.	TDS
15	Address periodic JAWS error when switching test screens from one page to the next. New page was displayed, but JAWS was reading a previous page	Correct in TDS	TDS
16	Address the manner that JAWS reads MS checkboxes (reads) as radio buttons	Correct in TDS	TDS
17	Address issues with some of the tables in help guides	Add missing headers and/or captions in the tables in help guide content.	TDS
18	Address issue with the shortcut links in the help guide (not working well with screen reader).	Correct in help guide contents	TDS
19	Address MathML issue. Math ML is presented in Math tests instead of images with alt tags	Correct in TDS	TDS
20	Ensure focus starts in main region (not banners) after page turns	Correct in TDS	TDS

Table 1: Task Order 24 issues to address

### 3 Design and Code Change Descriptions

No.	Problem [JIRA-REF]	Proposed fix	Fix in repo(s)
1	JAWS perceives the question mark as punctuation and does not vocalize it. [SB-1503]	For Help button[?], just use an image with an alt tag.	TDS_Student
2	Update Help Guide text to remove reference to question mark [?][SB-1503]	Correct in Help Guide contents	TDS_Student
3	Improve speed of navigation when moving to the next item after answering last question on a page, by avoiding having to tab all the way to the Next button. [SB-1504]	Add ability to get to the "next" button immediately following answering the last question on the page instead of needing to navigate to the top of the page.	TDS_Student TDS_ItemRenderer
4	Login, Test Shell, and Review shell - ensure proper ordering of headers/sections (H1/H2 etc.) and improve consistency [SB-1505]	Merge latest front-end code to create distinct sections that improve readability and accessibility.	TDS_Student TDS_ItemRenderer TDS_TestDeliverySystemDataAccess
5	ELA tests are always muted in Braille mode [SB-1506]	Implement intelligent muting capability – mute all, mute items only, mute passages only, or mute none.	TDS_Student TDS_ItemRenderer
6	Other: Formative test support [SB-1508]	DB and script modifications	TDS_Administrative
7	Other: Eliminate unused dependencies [SB-1509]	Modify POMs and remove related imports.	TDS_Student TDS_Proctor TDS_ItemScoring

Table 2: Actual TO-24 changes

#### 3.1 Student Help Guide Updates – SB-1503

Table 2, items 1 and 2.

The problem is that JAWS does not read the "?" out loud, instead only reading *open paren close paren* or *open bracket close bracket* when it encounters (?) or [?]. The implemented solution is to replace the [?] by the actual help icon image, along with alt text describing it (see Figure 1). The changes are encompassed in three files that comprise the Smarter Balanced Student Help guide in TDS.

Other adjustments have been made to the Help Guide have been made to improve accessibility for the three versions of the help file that exist (Spanish, English, Streamlined). The internal reference ID (JIRA) for these changes is SB-1503.

[https://github.com/SmarterApp/TDS\\_Student/tree/SB-1503-help-guide](https://github.com/SmarterApp/TDS_Student/tree/SB-1503-help-guide)

Global Tools	Description
Help button 	To view the on-screen <b>Test Instructions and Help</b> window, select the question mark  button in the upper-right corner.
–	Use the <b>[Zoom In]</b> button to make the text and images bigger. Use the  button to make the text and images smaller.

Figure 1: New help icon

#### 3.2 Navigational Improvements for Next Button – SB-1504

Table 2, item 3.

When positioned at the end of the last question on a page, it is cumbersome to navigate the cursor back to the top of the page using the keyboard, in order to get to the "Next" button. This

fix creates a "Next" button which appears at the bottom of the page just past the end of the last question (see Figure 2). The internal reference ID (JIRA) for these changes is SB-1504.

[https://github.com/SmarterApp/TDS\\_Student/tree/SB-1504-BtnNextBottom](https://github.com/SmarterApp/TDS_Student/tree/SB-1504-BtnNextBottom)

[https://github.com/SmarterApp/TDS\\_ItemRenderer/tree/SB-1504](https://github.com/SmarterApp/TDS_ItemRenderer/tree/SB-1504)



Figure 2: Quick Navigation NEXT button

### **3.3 Restructuring of the Student Interface UI – SB-1505**

#### Table 2, item 4.

The student login, test, and review shell screens have been restructured for improved consistency, readability, and accessibility. Note that this changes the look and feel of the Student interface from what Smarter has known in the past. However, it does bring it in line with the existing Smarter Balanced Practice and Training site that has been available since July 2016, as well as with the AIR Proprietary student interface look and feel. The internal reference ID (JIRA) for these changes is SB-1505.

[https://github.com/SmarterApp/TDS\\_Student/tree/SB-1505-UI-Consistency-Enhancements](https://github.com/SmarterApp/TDS_Student/tree/SB-1505-UI-Consistency-Enhancements)

[https://github.com/SmarterApp/TDS\\_ItemRenderer/tree/SB-1505-UI-Consistency-Enhancements](https://github.com/SmarterApp/TDS_ItemRenderer/tree/SB-1505-UI-Consistency-Enhancements)

[https://github.com/SmarterApp/TDS\\_TestDeliverySystemDataAccess/tree/SB-1505-UI-Consistency-Enhancements](https://github.com/SmarterApp/TDS_TestDeliverySystemDataAccess/tree/SB-1505-UI-Consistency-Enhancements)

#### **3.3.1 General Screen Layout**

The new screens follow a three-section format, as detailed below. Generally, the top section describes the page and provides instructions; the center section houses the main content, and the last section contains descriptions of the next steps (see Figure 3).

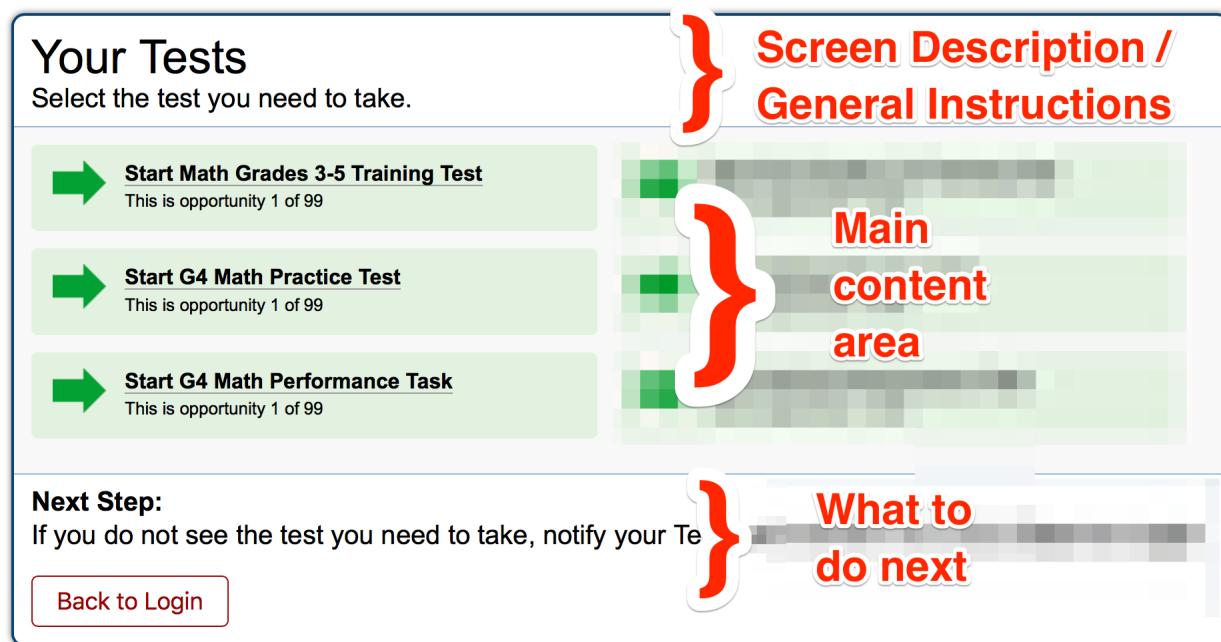


Figure 3: General Student Screen Restructuring

### 3.3.2 Button Order

The new layout improves consistency by always placing the positive action button first (left), followed by the other buttons. For example, the Yes button will always precede the No button (and be the default), and *I heard the sound* precedes *I did not hear the sound*. See Figure 4 and Figure 5 for examples of this.

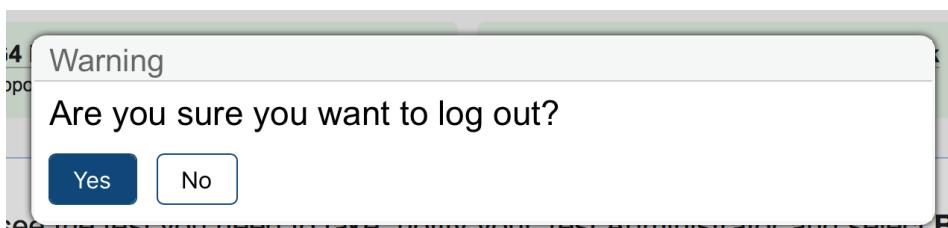


Figure 4: New button layout, example 1

#### Next Step:

If you heard the sound, choose **I heard the sound**. If not,

**I heard the sound**

**I did not hear the sound**

Figure 5: New button layout, example 2

**4 To view before-and-after screenshots of the student interface, see Source Licensing**

The source code provided in this task order is licensed under the AIR Open Source License v.1.0, as indicated in the headers of all source files. WAR dependencies have been checked for license compatibility in Student and Proctor. Documentation is provided along with this release in Student-dependencies.pdf and Proctor-dependencies.pdf.

## 5 Known Issues and Backlog Items

The following issues were identified during the course of this task order and remain unresolved at this writing, as they are either outside the scope of the Task Order, already resolved in the master branch, or trivial.

### 5.1 JAWS Radio Button Handling

In JAWS v.17, with TDS Student in Braille mode and a Refreshable Braille Display attached, it is possible to have a radio button be marked as *unchecked* on the Braille display (and as read by JAWS), when it has just been checked by the user.

#### PROBABLE CAUSE

This is a bug in the way JAWS handles some types of web based radio buttons

#### WORK-AROUNDS

Any of the below will work.

1. Use the JAWS “readline” function
2. Press the Braille routing key associated with the radio button a second time.
3. Use the enter key to select a radio button. (This will turn on forms mode.)

### 5.2 Safari Quick Nav

There is a known issue with Safari v.9.1.3+ where the new Quicknav button (See Section 3.2) does not show up. Internal tracking ID: TDS-1288.

### 5.3 Safari Keyboard Navigation to Tool Menu

In Safari (Mac), it is not possible to navigate to the item or passage tool menu using the keyboard. This can be resolved by enabling the "Press tab to highlight each item on a web page" option in Safari Preferences, as shown in Figure 6. It is recommended that this information be added to documentation such as the *Technical Specifications Manual for Online Testing, for Technology Coordinators*.

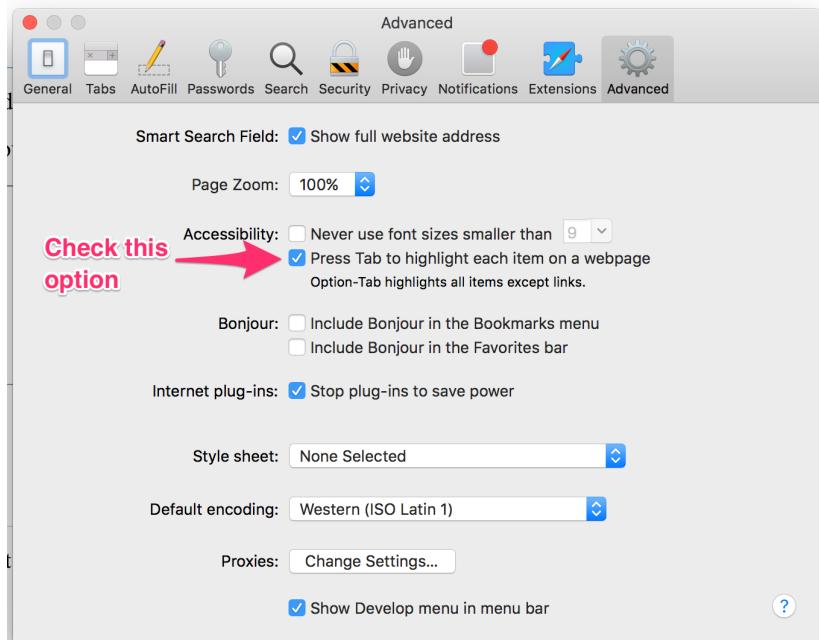


Figure 6: Safari Preferences to Enable Keyboard Navigation

## 5.4 Auto-Request Embossing

The auto-request embossing feature was nonfunctional and required a fix. This change was necessary to complete testing, but was not committed as part of the non-merged branches because it has already been fixed by Fairway on another branch:

([https://github.com/SmarterApp/TDS\\_Student/commit/2aa87bed2f6c18eb176a6f21280e54eb9babaa0d](https://github.com/SmarterApp/TDS_Student/commit/2aa87bed2f6c18eb176a6f21280e54eb9babaa0d) ).

**Repository:** Student

**Package:** tds.student.web.handlers

**File:** ContentHandler.java

**Line:** 123 (incorrect):

```
if (prefetched && attempt == 1) {
```

**Line** 123 (corrected):

```
if (attempt == 1) {
```

However, it should be noted that for our version of the code, **this change fixed only the item-level auto request embossing, not the passage-level**. This is tracked internally as SB-1510 and deferred.

## 5.5 Proctor Display of Student Test Settings

An issue with the proctor app was completely preventing it from displaying the student Test Settings screen. This change was necessary to complete testing, but was not committed as part of the non-merged branches because it has already been fixed by Fairway on another branch: [https://github.com/SmarterApp/TDS\\_Proctor/commit/3baa4be2136935d834c368d8e689337b2ac2a802](https://github.com/SmarterApp/TDS_Proctor/commit/3baa4be2136935d834c368d8e689337b2ac2a802).

**Repository:** Proctor

**File:** TestApprovalHelper.java

**Package:** TDS.Proctor.performance.utils

**Line 133 (incorrect):**

```
if (oppInfo.getOpportunityId() == ( acc.getOpportunityId()))
```

**Line 133 (corrected):**

```
if (oppInfo.getOpportunityId().equals( acc.getOpportunityId()))
```

## 5.6 Missing Top Border in Test Review Screen

On the iPad running iOS 8.1.2, the test review screen which lists the test questions, is missing the top border from the question numbers. This is being tracked internally as SB-1511.

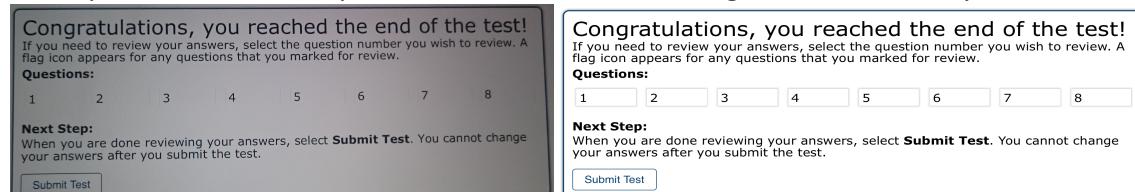


Figure 7: iPad review screen (left) vs. other browser (right)

Appendix A: Before and After Student Screenshots.

## 5.7 Intelligent Muting Capability – SB-1506

### Table 2, item 5.

Intelligent muting is a configuration (test level or proctor level) that allows the ability to (a) mute the entire test; (b) mute just passages; (c) mute just questions; or (d) don't mute anything. This was implemented with a new, custom tag (attribute) called *brailleonly* which is set to *true* for all item containers, or *true* for all passage containers, or both. This new attribute is only supported by JAWS 16+ and requires Braille mode to be active.

The *brailleonly.js* file that sets attribute *brailleonly* depends on the values of 'Mute System Volume' accommodation property derived from *client\_testtool* table for given test. The configuration options are:

Mute System Volume	Meaning
TDS_Mute0	Not Muted
TDS_Mute1	Muted
TDS_Mute2	Only Read Passages Aloud (JAWS 16+ Users Only)
TDS_Mute3	Only Read Items Aloud (JAWS 16+ Users Only)

Table 3: System Volume Options

Here are the pre-requisite steps:

1. Install JAWS version 16 or above (Windows).
2. Two new tools need to be added to *client\_tool* table in *configs\_db* for tool type 'Mute System Volume' for the test in question.
3. Because 'Mute system Volume' tool depends on language, the corresponding record should be added or updated in *client\_tooldependencies* table with the *isdefault* column assigned to 1.
4. If muting options are changed or added for any test by adding/updating records in *client\_tooldependencies* and *client\_testtool* tables, the following stored procedures must be executed to update cached tables:
  - call *configs.\_dm\_clearaccommcache()*;

- call configs.\_slugtestacoms(null);
5. It is recommended to restart *Student* (or Tomcat) after doing this.

The internal reference ID (JIRA) for these changes is SB-1506.

[https://github.com/SmarterApp/TDS\\_Student/tree/SB-1506-Intelligent-Muting](https://github.com/SmarterApp/TDS_Student/tree/SB-1506-Intelligent-Muting)

[https://github.com/SmarterApp/TDS\\_ItemRenderer/tree/SB-1506-Intelligent-Muting](https://github.com/SmarterApp/TDS_ItemRenderer/tree/SB-1506-Intelligent-Muting)

## 5.8 Other Related Changes

### 5.8.1 Support for Formative Tests – SB-1508

In the case where a single user role could include administration of all three types of tests (Summative, Interim, and Formative), several updates needed to be made.

1. TSB side-loading script `load_reg_package.pl`
2. Test packaging scripts (internal)
3. TDS database column `testtype` in table `r_proctorpackage` as follows:

```
alter table r_proctorpackage MODIFY testtype varchar(40);
```

This required change has also been documented in the Proctor and Student README files.

The internal reference ID (JIRA) for these changes is SB-1508.

[https://github.com/SmarterApp/TDS\\_Administrative/tree/SB-1508-allow-testtype-bypass](https://github.com/SmarterApp/TDS_Administrative/tree/SB-1508-allow-testtype-bypass)

### 5.8.2 Elimination of Unused Dependencies – SB-1509

In the course of WAR validation, it was found that two dependencies needed to be removed from the Student and Proctor WARs.

- *neo4j* JAR (*neo4j-cypher-compiler-2.1*) is referenced in the student POM but is not referenced in the code. The result of this is its unnecessary inclusion of this JAR in the student WAR, and a license incompatibility with the rest of the code.
- *mysql-connector* JAR (*mysql-connector-java*) is a run-time dependency and should not be included in the WAR, but rather in the server's common.loader lib directory. This reference was removed from both the student and proctor POMs.

The internal reference ID (JIRA) for these changes is SB-1509.

[https://github.com/SmarterApp/TDS\\_Student/tree/SB-1509-Unused-Dependencies](https://github.com/SmarterApp/TDS_Student/tree/SB-1509-Unused-Dependencies)

[https://github.com/SmarterApp/TDS\\_Proctor/tree/SB-1509-Unused-Dependencies](https://github.com/SmarterApp/TDS_Proctor/tree/SB-1509-Unused-Dependencies)

[https://github.com/SmarterApp/TDS\\_ItemScoring/tree/SB-1509-Unused-Dependencies](https://github.com/SmarterApp/TDS_ItemScoring/tree/SB-1509-Unused-Dependencies)

## 6 Source Licensing

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## 7 Known Issues and Backlog Items

The following issues were identified during the course of this task order and remain unresolved at this writing, as they are either outside the scope of the Task Order, already resolved in the master branch, or trivial.

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#### PROBABLE CAUSE

This is a bug in the way JAWS handles some types of web based radio buttons

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Any of the below will work.

1. Use the JAWS “readline” function
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### 7.2 Safari Quick Nav

There is a known issue with Safari v.9.1.3+ where the new Quicknav button (See Section 3.2) does not show up. Internal tracking ID: TDS-1288.

### 7.3 Safari Keyboard Navigation to Tool Menu

In Safari (Mac), it is not possible to navigate to the item or passage tool menu using the keyboard. This can be resolved by enabling the "Press tab to highlight each item on a web page" option in Safari Preferences, as shown in Figure 6. It is recommended that this information be added to documentation such as the *Technical Specifications Manual for Online Testing, for Technology Coordinators*.

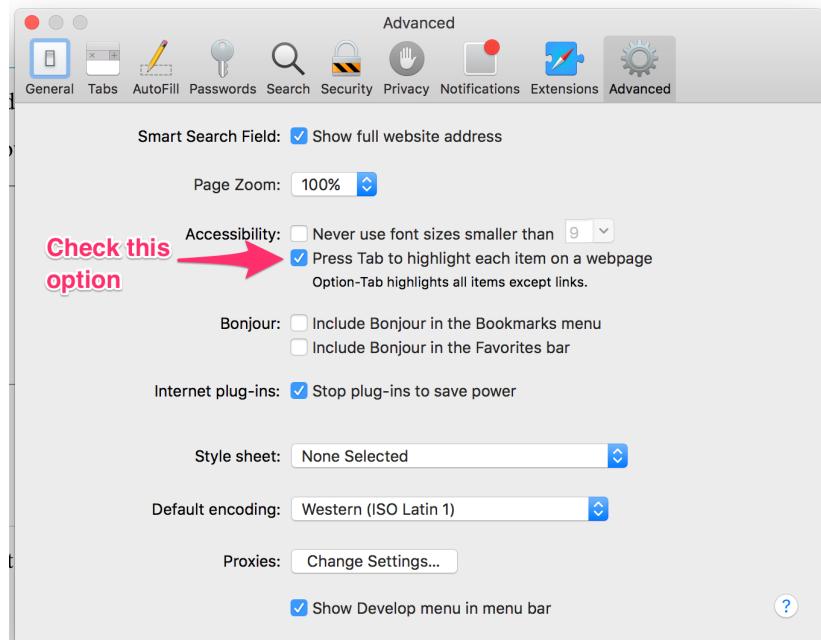


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## 7.6 Missing Top Border in Test Review Screen

On the iPad running iOS 8.1.2, the test review screen which lists the test questions, is missing the top border from the question numbers. This is being tracked internally as SB-1511.

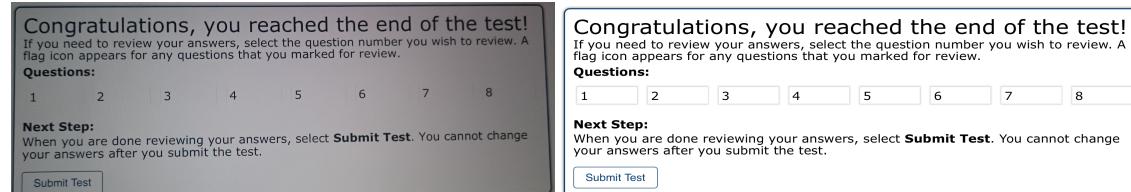
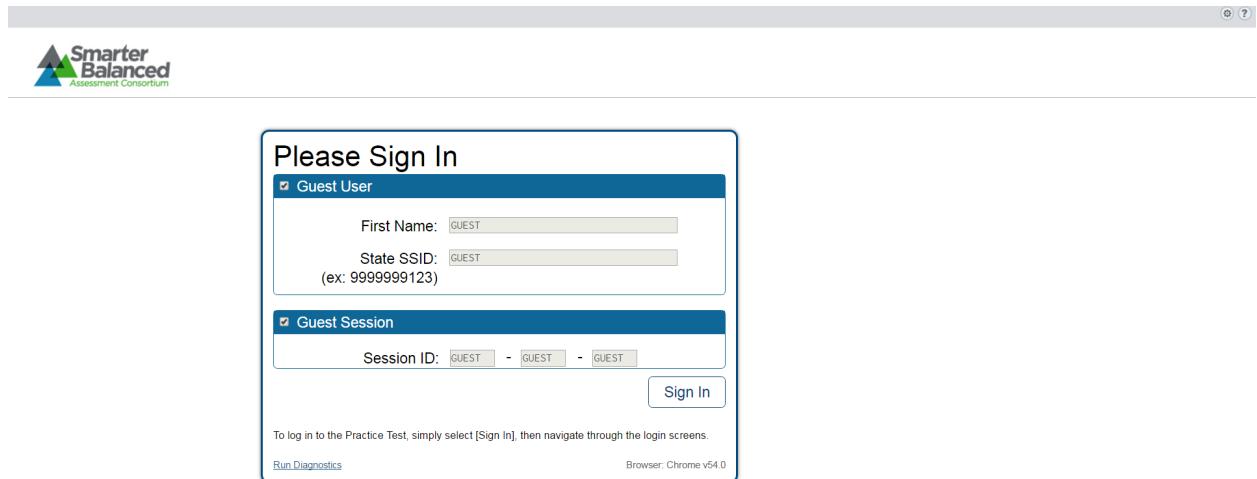


Figure 7: iPad review screen (left) vs. other browser (right)

## 8 Appendix A: Before and After Student Screenshots

### 8.1 Login Page

- a. Login page theme should match with Smarter Balanced Theme
  - \* NO Changes



Please Sign In

Guest User

First Name:

State SSID:   
(ex: 9999999123)

Guest Session

Session ID:

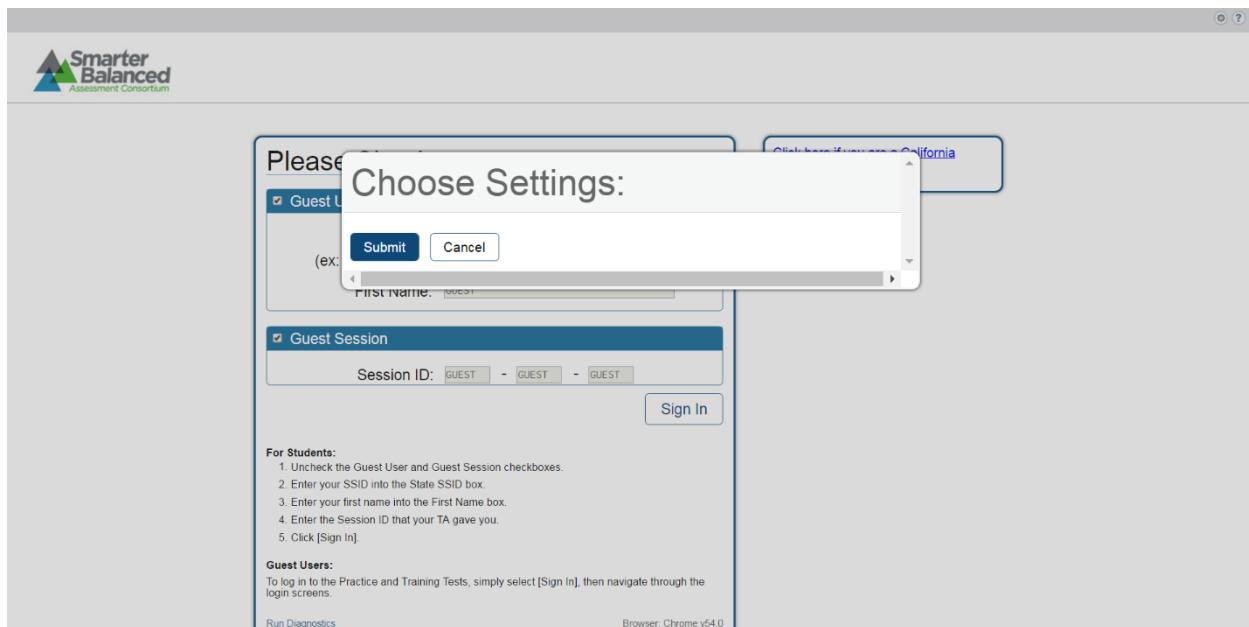
**Sign In**

To log in to the Practice Test, simply select [Sign In], then navigate through the login screens.

Run Diagnostics

Browser: Chrome v64.0

- b. On Click of Setting Icon of top right it should provide option to change settings  
Before:



Choose Settings:

Guest User

First Name:

Guest Session

Session ID:

**Submit** **Cancel**

**For Students:**

1. Uncheck the Guest User and Guest Session checkboxes.
2. Enter your SSID into the State SSID box.
3. Enter your first name into the First Name box.
4. Enter the Session ID that your TA gave you.
5. Click [Sign In]

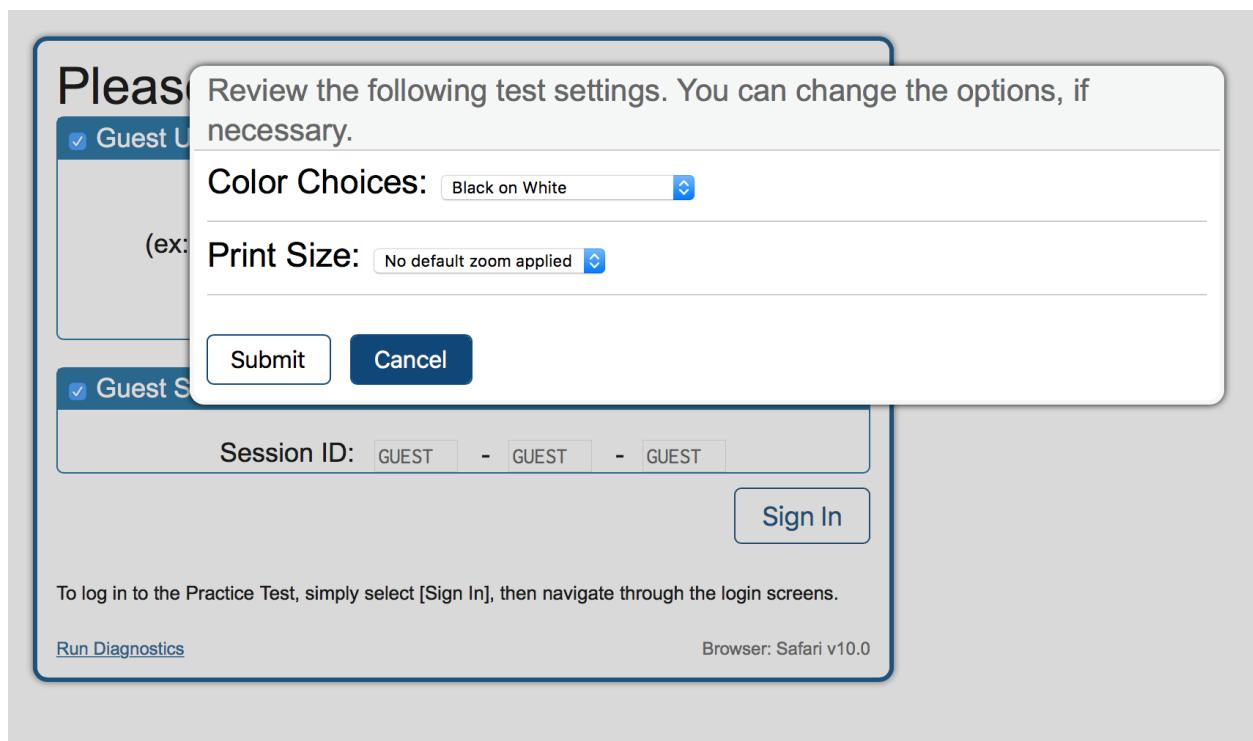
**Guest Users:**

To log in to the Practice and Training Tests, simply select [Sign In], then navigate through the login screens.

Run Diagnostics

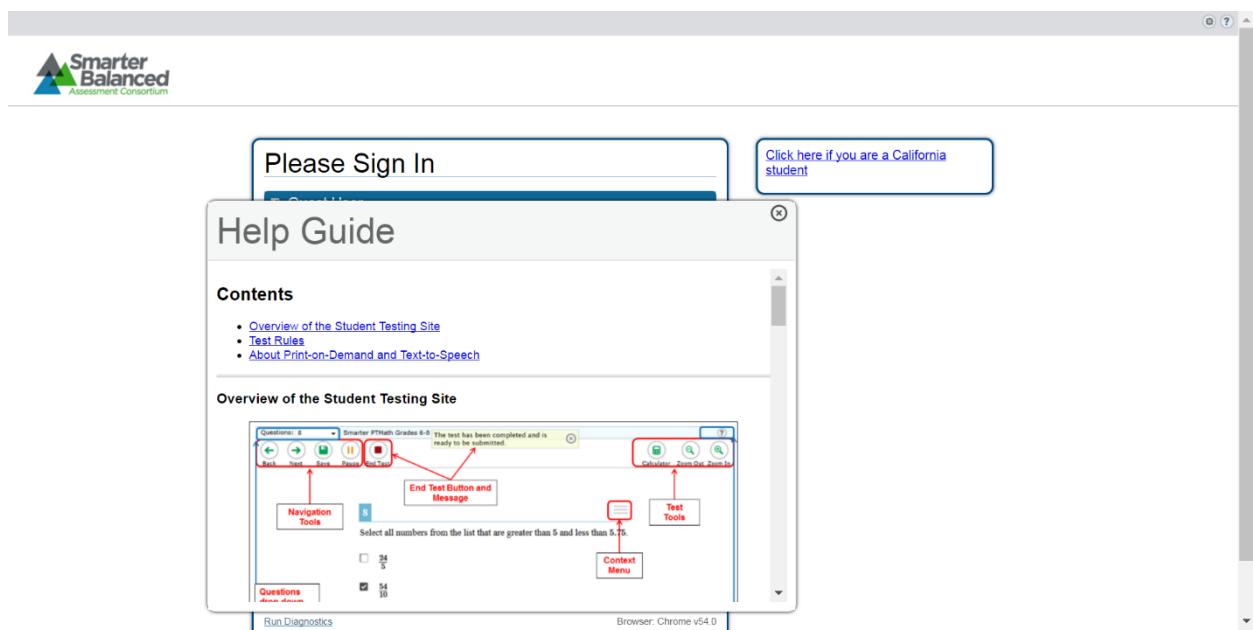
Browser: Chrome v64.0

After:

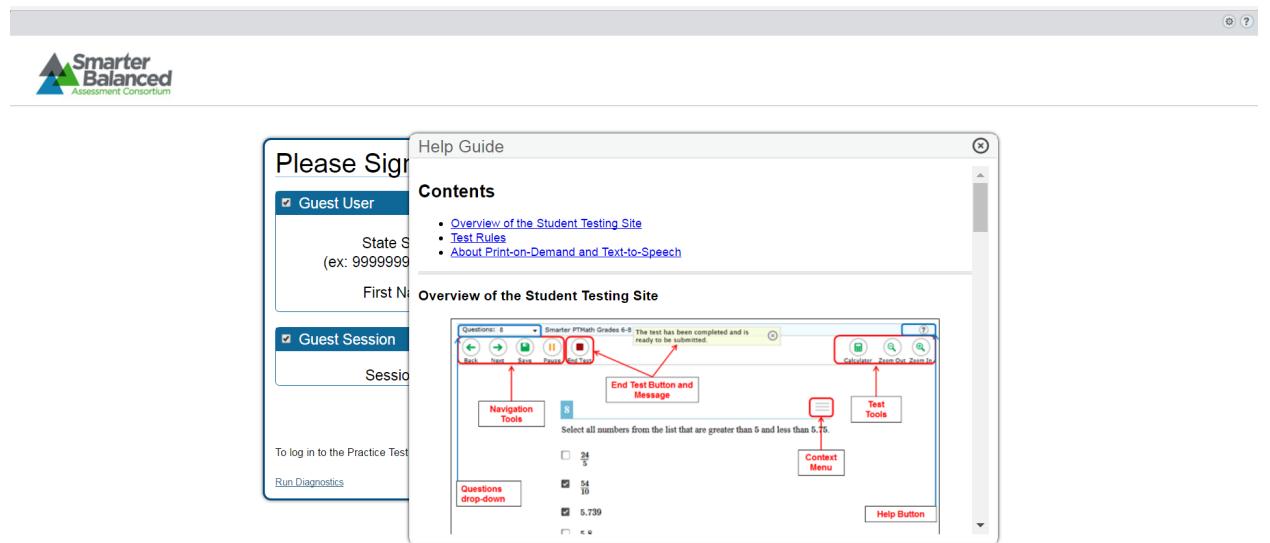


- c. On Click of Help Icon it should open up Help Guide

Before:

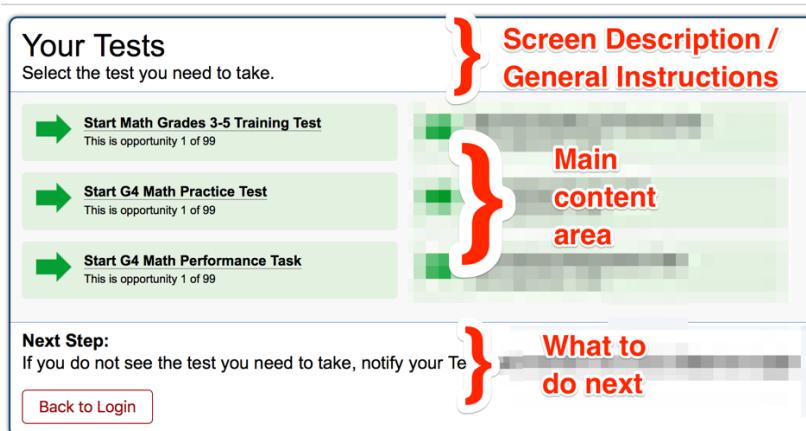


After:



## 8.2 General CSS and Page Layout

- a. Each page should be divided into three sections as shown below - Top, Center & Bottom.
- b. Header and footer information should match as per screenshot.
- c. All positive feedback button should be on left and in blue, while the negative feedback button is on the right and in red.
- d. All popup warning or attention messages should have positive feedback on left and negative on right.



## 8.3 Login Verify

Before:

The screenshot shows a "Is This You?" form. At the top, it says "Please review the information below. If all of the information is correct, click [Yes]. If not, click [No]". Below this are fields for First Name (GUEST), SSID (GUEST -843), Last Name (GUEST), Grade (4), Date of Birth (None), and School (GUESTSchool). At the bottom are two buttons: "No" (highlighted with a red border) and "Yes".

After:

The screenshot shows a profile review page titled "Is This You?". It displays the following information:

- First Name: GUEST
- SSID: GUEST -1797
- Last Name: GUEST
- Grade: 4
- Date of Birth: None
- School: GUESTSchool

A "Next Step:" section asks if the information is correct, with "Yes" and "No" buttons.

## 8.4 Test Selection Page

Before:

The screenshot shows a test selection page titled "Your Tests". It lists various test opportunities:

<a href="#">Start SBAC-ELA-4-PETER-TO2-3-I-57-3.0</a> This is opportunity 1 of 3	<a href="#">Start Grade 4 ELA ELENA0306X1-S-78-1.0</a> This is opportunity 1 of 3
<a href="#">Start Grade 4 ELA</a> This is opportunity 1 of 3	<a href="#">Start SBAC-ELA-4-PETER-TO2-3-S-57-5.0</a> This is opportunity 1 of 3
<a href="#">Start SBAC-ELA-4-PETER-TO2-4-F-58-1.0</a> This is opportunity 1 of 3	<a href="#">Start SBAC-ELA-4-PETER-TO2-3-I-57-2.1</a> This is opportunity 1 of 3
<a href="#">Start Grade 4 ELA</a> This is opportunity 1 of 3	<a href="#">Start SBAC-ELA-4-PETER5-I-13</a> This is opportunity 1 of 3
<a href="#">Start SBAC-ELA-4-PETER-TO2-12-S-70-1.0</a> This is opportunity 1 of 3	<a href="#">Start SBAC-ELA-4-PETER-TO2-3-I-57-1.0</a> This is opportunity 1 of 3
<a href="#">Start SBAC-ELA-4-PETER-TO2-3-I-57-4.0</a> This is opportunity 1 of 3	<a href="#">Start Grade 4 ELA ELENA0306X1-S-78-2.0</a> This is opportunity 1 of 3

[Back to Login](#)

After:

The screenshot shows the 'Your Tests' page. At the top, there is a header bar with the Smarter Balanced Assessment Consortium logo and session information: 'GUEST (State-SSID: GUEST) GUEST SESSION'. Below the header, the page title 'Your Tests' is displayed, followed by the sub-instruction 'Select the test you need to take.' There are four green rectangular buttons arranged in a 2x2 grid, each with an arrow icon and a label: 'Start Math Grades 3-5 Training Test' (This is opportunity 1 of 99), 'Start ELA Grades 3-5 Training Test' (This is opportunity 1 of 99), 'Start G4 Math Practice Test' (This is opportunity 1 of 99), and 'Start G4 ELA Practice Test' (This is opportunity 1 of 99). Below these buttons, a section titled 'Next Step:' contains the text 'If you do not see the test you need to take, notify your Test Administrator and select Back to Login.' A red-bordered 'Back to Login' button is located at the bottom left of this section.

Before:

The screenshot shows the 'Your Tests' page. At the top, there is a header bar with the Smarter Balanced Assessment Consortium logo and session information: 'GUEST, GUEST (State-SSID: GUEST) GUEST SESSION'. Below the header, the page title 'Your Tests' is displayed, followed by the sub-instruction 'Select a test.' There are several green rectangular buttons arranged in a grid, each with an arrow icon and a label: 'Start SBAC-ELA-4-PETER-T02-3-I-57-3.0' (This is opportunity 1 of 3), 'Start Grade 4 ELA ELENA0306X1-S-78-1.0' (This is opportunity 1 of 3), 'Start GRADE 4 MATH PRACTICE TEST' (This is opportunity 1 of 3), 'Start SBAC-ELA-4-PETER-T02-3-I-57-5.0' (This is opportunity 1 of 3), 'Start GRADE 4 MATH PERFORMANCE TASK' (This is opportunity 1 of 3), 'Start SBAC-ELA-4-PETER-T02-3-I-57-2.1' (This is opportunity 1 of 3), 'Start SBAC-ELA-4-PETER-T02-12-S-70-1.0' (This is opportunity 1 of 3), 'Start SBAC-ELA-4-PETER-T02-3-I-57-1.0' (This is opportunity 1 of 3), 'Start SBAC-ELA-4-PETER-T02-3-I-57-4.0' (This is opportunity 1 of 3), and 'Start Grade 4 ELA ELENA0306X1-S-78-2.0' (This is opportunity 1 of 3). A 'Warning' dialog box is centered over the buttons, asking 'Are you sure you want to log out?' with 'No' and 'Yes' buttons. At the bottom left of the page, there is a red-bordered 'Back to Login' button.

After:

The screenshot shows the 'Your Tests' page from the Smarter Balanced Test Delivery System. At the top, there are four test options: 'Start Math Grades 3-5 Training Test', 'Start ELA Grades 3-5 Training Test', 'Start G4 Math Practice Test', and 'Start G4 ELA Practice Test'. Below these options is a 'Warning' dialog box with the message 'Are you sure you want to log out?'. Two buttons are visible in the dialog box: 'Yes' (blue) and 'No' (white). Below the dialog box, there is a section titled 'Next Step:' with the instruction 'If you do not see the test you need to take, notify your Test Administrator and select **Back to Login**'. A 'Back to Login' button is located at the bottom of this section.

## 8.5 Accommodation Selection Page

Before:

Choose Settings:  
SBAC-ELA-4-PETER-TO2-3-I-57-2.1  
Print Size: No default zoom applied ▾  
Go Back Select

Note: The number of available settings depends on configuration. Screenshots are showing difference in added footer and different order of buttons.

After:

Choose Settings:  
Review the following test settings. You can change the options, if necessary.  
**G4 ELA Practice Test**  
Presentation: English ▾  
Strikethrough:   
Masking: FALSE ▾  
Mark for Review:   
Highlighter:   
Color Contrast: Black on White (default) ▾  
Text-to-Speech: Stimuli&Items ▾  
American Sign Language: Off ▾  
Streamline: Off ▾  
Translations (Glossaries): English Glossary ▾  
Expandable Passages: Expandable Passages On ▾  
Closed Captioning: Closed Captioning Available ▾  
Permissive Mode: Permissive Mode Disabled ▾  
Zoom: No default zoom applied ▾  
Student Comments: Notepad ▾  
**Next Step:**  
To test with these settings, choose Select. To select a different test, choose Go Back.  
Select Go Back

## 8.6 Confirm Accommodation selection

Before:

The screenshot shows a confirmation dialog titled "Is This Your Test?". At the top, it displays the session ID: "GUEST SESSION". Below that is the test name: "SBAC-ELA-4-PETER5-I-13". Underneath the test name, there are two settings: "language: English" and "Print Size: No default zoom applied". A message below asks if the listed test is the one the user wants to take, with options "No" and "Yes, Start My Test".

After:

The screenshot shows a detailed test settings confirmation dialog titled "Is This Your Test?". It starts with a note: "Review the following test settings." Below this, it lists numerous test settings, each with a value: Session ID: GUEST SESSION; Test Name: G4 ELA Practice Test; Presentation: English; Strikethrough: TRUE; Masking: FALSE; Mark for Review: TRUE; Highlighter: TRUE; Color Contrast: Black on White (default); Text-to-Speech: Stimulus&Items; American Sign Language: Off; Streamline: Off; Translations (Glossaries): English Glossary; Expandable Passages: Expandable Passages On; Closed Captioning: Closed Captioning Available; Permissive Mode: Permissive Mode Disabled; Zoom: No default zoom applied; Student Comments: Notepad. At the bottom, there is a section titled "Next Step:" with the instruction: "If the test name and settings are correct, choose Yes. If not, choose No." with "Yes" and "No" buttons.

## 8.7 Audio Playback Check Page

Before:

The screenshot shows a 'Sound Check' page. At the top right, there are links for 'GUEST GUEST (State-SSID: GUEST)', 'GUEST SESSION', and a question mark icon. The main content area has a title 'Sound Check' and a sub-instruction: 'Click on the sound icon to hear the sound. If you hear the sound, click [Yes]. If not, click [No]'. Below this are two buttons: 'I did not hear the sound' (highlighted with a red border) and 'I heard the sound'.

After:

The screenshot shows an 'Audio Playback Check' page. At the top right, there are links for 'GUEST (State-SSID: GUEST)', 'GUEST SESSION', and a question mark icon. The main content area has a title 'Audio Playback Check' and a sub-instruction: 'Make sure audio playback is working.' Below this is a speaker icon with the text: 'To play the sample sound, press the speaker button.' A section titled 'Next Step:' follows, with the instruction: 'If you heard the sound, choose I heard the sound. If not, choose I did not hear the sound.' Below this are two buttons: 'I heard the sound' (highlighted with a blue border) and 'I did not hear the sound'.

## 8.8 Sound Check: Audio Problem

Before:

The screenshot shows a web-based application interface. At the top, there is a header bar with the Smarter Balanced Assessment Consortium logo on the left and user session information ('GUEST GUEST (State-SSID: GUEST) GUEST SESSION ?') on the right. Below the header is a main content area with a title 'Sound Check: Audio Problem'. A message instructs the user to tell the Test Administrator about an audio problem, stating that playing and recording sound is required for this test. At the bottom of this section are two buttons: 'Try Again' (in red) and 'Log Out' (in blue). The entire content area is enclosed in a light blue border.

After:

This screenshot shows the same web-based application interface as the previous one, but with additional content. The main content area now includes a 'Next Step:' section with instructions: 'You must be able to play audio for this test. Please tell your Test Administrator that your device has an audio problem.' Below this, under the 'Next Step:' heading, it says: 'To try the audio playback check again, choose Try Again. If your Test Administrator tells you to log out, choose Log Out.' The 'Try Again' button is highlighted with a red border, while the 'Log Out' button is in its original blue color. The rest of the interface remains the same, including the header and footer.

## 8.9 Text-To-Speech (non-secure browser)

- a. TTS is not available in a non-secure browser. If a user enables TTS and uses a non-secure browser, user should get the error message below:

Before:

The screenshot shows a web page with the Smarter Balanced Assessment Consortium logo at the top left. At the top right, there is a grey bar with the text "GUEST GUEST (State-SSID: GUEST)" and "GUEST SESSION" with a question mark icon. The main content area has a white background with a blue header bar containing the text "Text-to-Speech is Not Available". Below this, a message states: "Text-to-Speech is not available on the browser and/or platform that you are using. Please make sure you are using a supported secure browser." Two buttons are visible: "Continue" (in a blue box) and "Log Out" (in a red box).

After:

The screenshot shows a similar web page layout. The "Text-to-Speech is Not Available" message and its accompanying text remain the same. However, a new section titled "Next Step:" has been added below the message. It contains the text: "To continue testing without text-to-speech, choose **Continue**. To log out and switch to another browser or device, choose **Log Out**." The "Continue" button is in a blue box, and the "Log Out" button is in a red box.

## 8.10 Text-To-Speech (Secure Browser)

- a. TTS is available in secure browser only, so the below pages are only available if user is using a secure browser.

Before:

**Do you hear the voice?**

Select the green button to test your Text-to-Speech settings. You should hear the following phrase: "This is some sample text to test your settings." Click [Yes, I heard the voice] if it worked. If it did not work, click [No, I did not hear]

**Sound Settings**

Current Voice Pack: MS-Anne ▾

Use the sliders to adjust the pitch and volume. You will not be able to change these settings once you begin your test.

Volume: 10  
Pitch: 10  
Rate: 10

### Audio Check

Click [Try Again]. Make sure your computer's sound is not muted and try adjusting the volume and pitch. If you have done this and you still do not hear the audio, please tell your Test Administrator. Do not log out unless your TA tells you to do so.

---

After:



## Text-to-Speech Sound Check

Make sure text-to-speech is working.

Select the green button to test your Text-to-Speech settings. You should hear the following phrase: "This is some sample text to test your settings." Click [Yes, I heard the voice] if it worked. If it did not work, click [No, I did not hear].

**Next Step:**  
If you heard the voice clearly, choose **I heard the voice**. If not, choose **I did not hear the voice**. To continue testing without checking text-to-speech, choose **Skip TTS Check**.

### Sound Settings

Current Voice Pack: MS-Anna

Use the sliders to adjust the pitch and volume. You will not be able to change these settings once you begin your test.



## Audio Check

Click [Try Again]. Make sure your computer's sound is not muted and try adjusting the volume and pitch. If you have done this and you still do not hear the audio, please tell your Test Administrator. Do not log out unless your TA tells you to do so.

**Next Step:**  
To check your text-to-speech settings again, choose **Try Again**. If your Test Administrator tells you to log out, choose **Log Out**. To continue testing without checking text-to-speech, choose **Continue**.

## 8.11 Help Page

Before:

After:

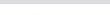
## 8.12 Test Page

## No changes

## 8.13 Review Page

Before:

GUEST GUEST (State-SSID: GUEST) GUEST SESSION ?

 Smarter  
Balanced  
Assessment Consortium

You have reached the end of the test.

You have reached the end of the test. You may review your answers. If you are done reviewing your answers, click [Submit Test]. You cannot change your answers after you submit the test.

Select question(s) to review:

After:

GUEST (State-SSID-GUEST) GUEST SESSION ?

The logo for the Smarter Balanced Assessment Consortium, featuring a stylized green triangle icon followed by the text "Smarter Balanced" and "Assessment Consortium".

## Congratulations, you reached the end of the test!

If you need to review your answers, select the question number you wish to review. A flag icon appears for any questions that you marked for review.

### Questions:

4

### Next Step:

When you are done reviewing your answers, select **Submit Test**. You cannot change your answers after you submit the test.

**Submit Test**

## 8.14 Result Page

Before:

The screenshot shows a web page from the Smarter Balanced Assessment Consortium. At the top right, there are links for "GUEST, GUEST (State-SSID: GUEST)", "GUEST SESSION", and a question mark icon. The main content area has a header "Test Successfully Submitted". Below it, the student information is listed: "Student Name: GUEST, GUEST (State-SSID: GUEST)", "Test Name: SBAC-ELA-3-PETER-TO2-14-S-72-6.0", and "Test Completed On: 2016-12-01". A message below states, "Scores are not shown for this test. You have finished the test. You may now log out." A "Log Out" button is at the bottom left, and a small note at the bottom right says, "In accordance with the Family Educational Rights and Privacy Act (FERPA), the disclosure of personally identifiable information is prohibited by law."

After:

The screenshot shows a web page from the Smarter Balanced Assessment Consortium. At the top right, there are links for "GUEST (State-SSID: GUEST)", "GUEST SESSION", and a question mark icon. The main content area has a header "Your Results". Below it, the message "Your test was submitted. You may review the test details below." is displayed. The student information is listed: "Student Name: (State-SSID: GUEST)", "Test Name: G4 ELA Performance Task", and "Test Completed On: 11/16/2016". A message below states, "You have finished the test. You may now log out." A "Next Step:" section follows, with the instruction "To log out of the test, select Log Out." A "Log Out" button is at the bottom left, and a small note at the bottom right says, "In accordance with the Family Educational Rights and Privacy Act (FERPA), the disclosure of personally identifiable information is prohibited by law."

## 9 Appendix B: Code Change Summary

GitHub Repository	Change Summary	Tracking ID
SmarterApp/ TDS_TestDeliverySystemDataAccess	Restructuring of the Student Interface UI	SB-1505
SmarterApp/TDS_Student	Student Help Guide Updates	SB-1503
SmarterApp/TDS_Student	Navigational Improvements for Next Button	SB-1504
SmarterApp/TDS_Student	Restructuring of the Student Interface UI	SB-1505
SmarterApp/TDS_Student	Intelligent Muting Capability	SB-1506
SmarterApp/TDS_Student	Elimination of Unused Dependencies	SB-1509
SmarterApp/TDS_Proctor	Elimination of Unused Dependencies	SB-1509
SmarterApp/TDS_ItemScoring	Elimination of Unused Dependencies	SB-1509
SmarterApp/TDS_ItemRenderer	Navigational Improvements for Next Button	SB-1504
SmarterApp/TDS_ItemRenderer	Restructuring of the Student Interface UI	SB-1505
SmarterApp/TDS_ItemRenderer	Intelligent Muting Capability	SB-1506
SmarterApp/TDS_Administrative	Allow test type bypass for loading registration packages	SB-1508
SmarterApp/TDS_Student	Task Documentation	SB-1442

Figure 8: Summary of Repository Changes

Finally, for repositories where changes constituted more than one branch, a merged version of the changes was created, labeled **TaskOrder-24**.