STUDY SERIES
(Survey Methodology #2008-6)

**AN ACCESSIBILITY EVALUATION
OF THE SECURE MESSAGE
CENTER APPLICATION**

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INTRODUCTION

Since June 2001, Federal regulations require that U.S. government Web sites and other software developed by or for the U.S. Government provide comparable access to the information for all users[1]. Computer users who have visual and/or other disabilities are entitled to have the same access as users who do not currently have any disabilities.

Accessibility is a subset of usability. Accessibility guidelines have several checkpoints that address more general usability, such as developing a logical tab order, dividing large information blocks into more manageable groups, and using the clearest and simplest language appropriate. Even if the application complies with the law, it still may not be usable, as the Census Bureau's Usability Lab has found in other testing. Both usability and accessibility testing need to be done to identify problems that actual users may have.

BACKGROUND

This accessibility evaluation was performed on the Secure Message Center (SMC) application in October 2007. The Systems Support Division (SSD) requested that the Statistical Research Division (SRD) use its expertise to verify and/or identify accessibility problems in the SRD accessibility lab. Users of the SMC would be survey respondents. At times the Census Bureau needs to communicate with these respondents in a secure manner. The respondent would then create an account on the SMC, read his or her message and respond if needed.

PURPOSE

The purpose of this evaluation is to report and rate the severity of accessibility problems to the developer of the software so that the problems could be fixed. The priority for accessibility problems is rated high, medium, or low. An item flagged as high means that the user with a disability could not perform the task at all. An item flagged as medium means that the user could perform the task, but with difficulty. An item flagged as low priority means that the user is not presented the same information as the able-bodied user, but can still perform the task.

SCOPE AND METHOD

This evaluation is primarily focused on testing accessibility for computer users with visual disabilities. Accessibility testing is performed using Insight/InFocus 4.2.2, which tests web applications[2]. This product lists potential accessibility problems, which are checked using the Job Access With Speech (JAWS) 8 screen reader software[3]. For the purpose of this report, an item is judged to be accessible (compliant with the regulations) if its screen text is read out loud, in a coherent order by the screen reader. Usability

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[1] http://www.section508.gov/index.cfm?FuseAction=Content&ID=3
[2] http://www.ssbtechnologies.com
[3] http://www.freedomscientific.com

problems are detected by an analyst with usability experience who listens to the content vocalized by the screen reader and performs a visual inspection. These problems are included in this report as issues to evaluate in formal usability testing if resources are available.

FINDINGS

Findings are detailed in Figures 1-8, below. This application is not accessible for the following reasons:

- The Public key information on the Security Certificate is not accessible in Figure 1.
- Screen-reader software does not detect the label for the login button in Figure 2.
- The screen-reader software reads the links on the bottom of the screen from right to left (e.g. Figure 2).
- Instructions are not available for the email address data-entry field in Figure 3.
- The screen reader does not detect the labels of the "Next" and "Cancel" buttons below the email data-entry field in Figure 3.
- Focus is put on the "First Name" data-entry field without reading the label on the account data-entry screen in Figure 5.
- The screen reader does not detect the displayed label of the "Submit" button on the account data-entry screen in Figure 5.
- Two sort functions are inaccessible on the mailbox screen in Figure 6.
- The reply (Figure 7) and secure compose (Figure 8) screens have two buttons excluded from the tabbing sequence, two buttons where the label is not detected, and no label for the area to input a message.

During the process of accessibility testing, one usability problem was detected. Hyperlink text, "this link," is repeated three times on the login screen, linking to different locations.

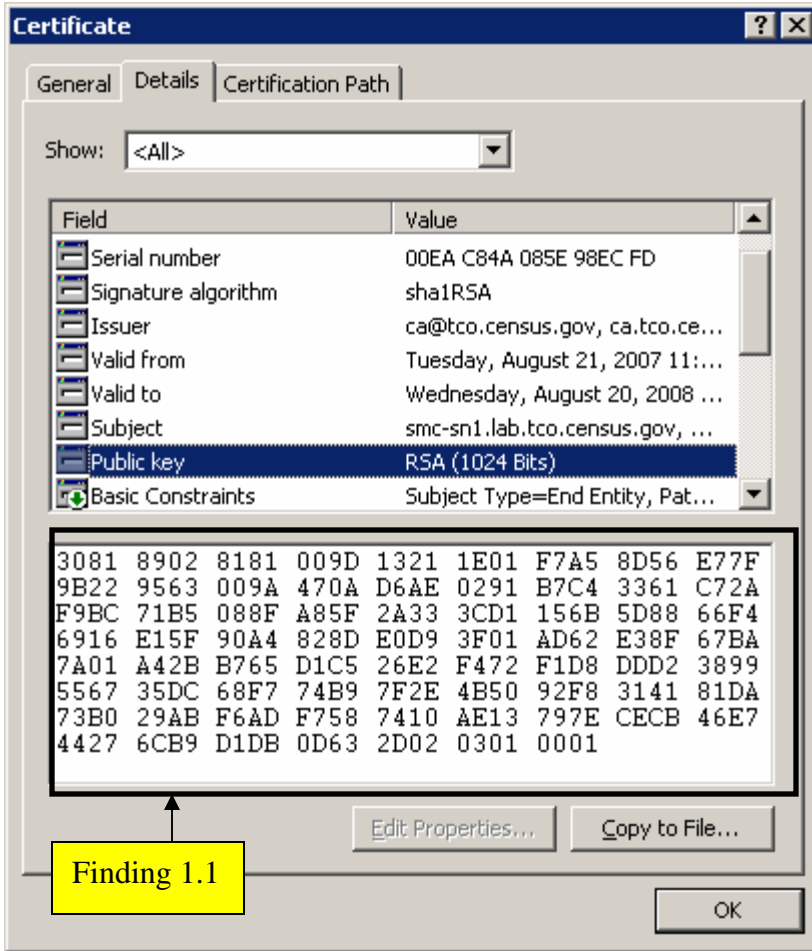Further detail on these findings is detailed below.

Figure 1.   The Public key information on the Security Certificate is not accessible.

Finding 1.1. The screen-reader software does not detect the public key data string, which violates 1194.22 N of the Section 508 regulation which states anything displayed must be accessible

Priority: High

Recommendation: Use the same code as all the other list box entries (e.g. Serial number, Signature algorithm, Issuer, …) which display accessible text, to display the Public key data string.
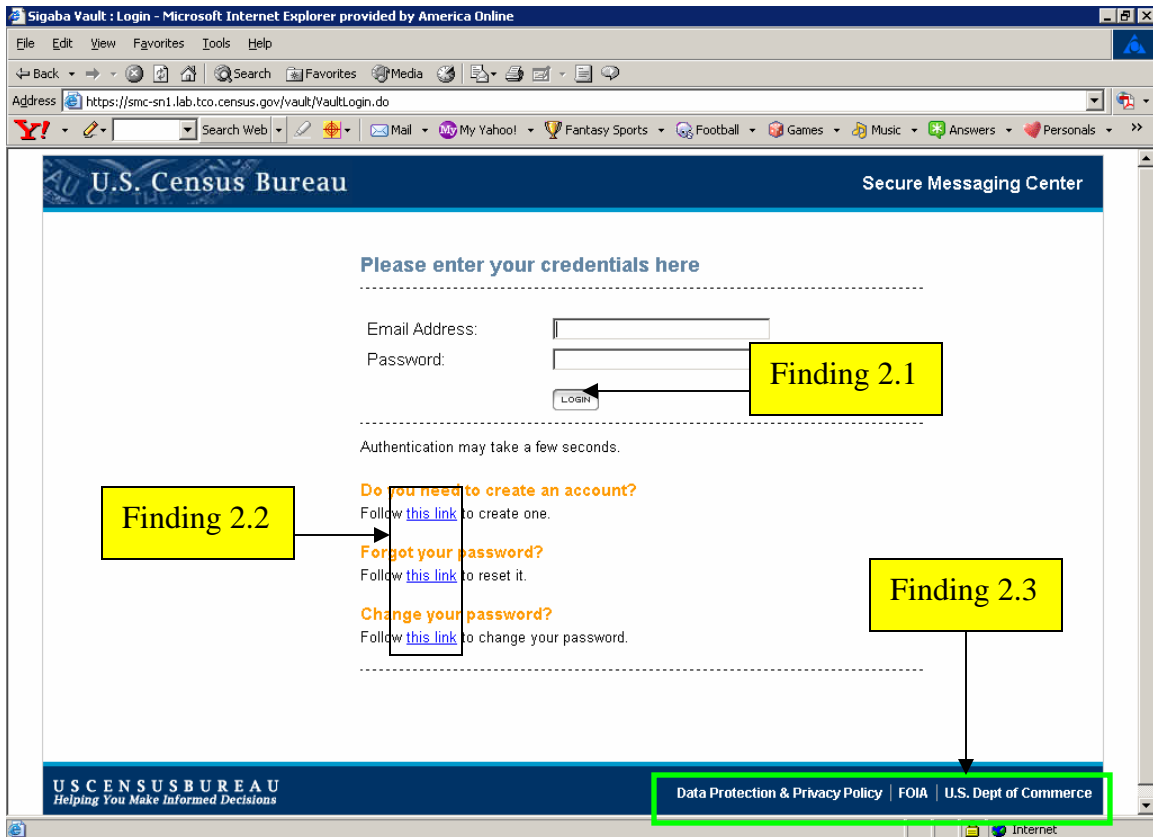
Figure 2. The login screen has two accessibility findings and one usability finding.

Finding 2.1. Screen-reader software does not detect the label for the login button. The login button can only be accessed by mouse. These deficiencies violate 1194.21 paragraph A and 1194.22 paragraph N of the Section 508 regulation.
Priority**:** High
Recommendation**:** Put the login button into tab order after the login data-entry field. Set the label for the login button to "login."

Finding 2.2. Link text is repeated three times. This is not an accessibility issue because the text is accessible. Links with unique wording are more descriptive and usable.
Priority**:** Medium
Recommendation**:** Replace each sentence following the yellow text with a button with the following labels:

Create Account	Reset Password	Change Password
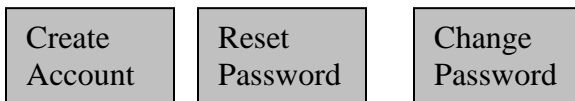
Each button must have a tab stop.

Finding 2.3. The screen-reader software does not read the links on the bottom of the screen in natural reading order. Instead, the links are read right to left. This violates 1194.22 paragraph N of the Section 508 regulation.

Priority: High

Recommendation: The links on the bottom of this screen should read "Data Protection & Privacy Policy," "FOIA," and "Department of Commerce." Note that "Dept." was changed to "Department" because screen reader users have difficulty with abbreviated words. There is sufficient room to make this change. **(Global)**
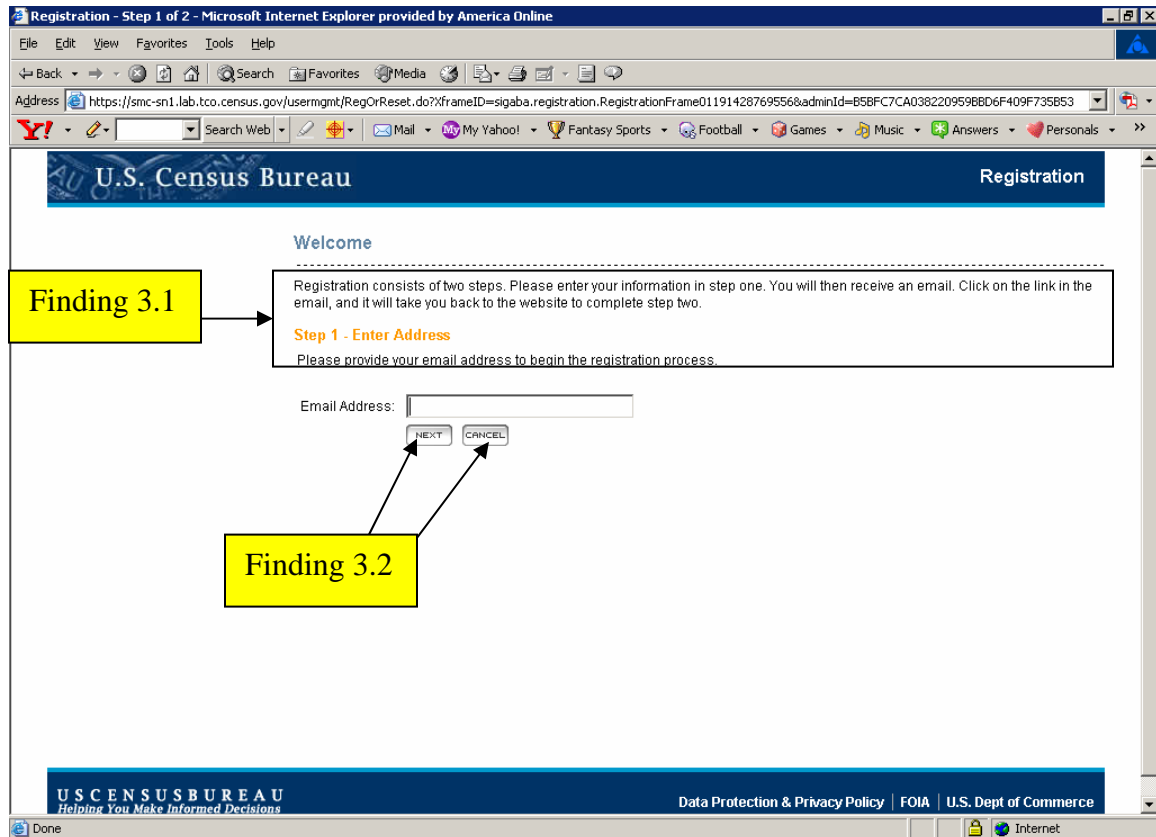

Figure 3.   The welcome screen has two accessibility violations.

Finding 3.1: Instructions are not available for the email address data-entry field.

Priority: High

Details: Since focus goes directly to the email address data-entry field, instructions are not accessible to screen reader users. This behavior violates 1194.22 paragraph N of the Section 508 regulation.

Recommendation: Reprogram the tab order so the instructions are heard first.

Finding 3.2: The screen reader does not detect the displayed labels of the buttons below the email data-entry field.

Priority: High

Details: The screen reader user hears "Next button button" and "org.apache.struts.taglib.html.CANCEL" when accessing the buttons after the email data-entry field. This behavior violates 1194.22 paragraph N of the Section 508 regulation.

Recommendation: Do not use the word "button" in a label because the control type is detected as a button by the screen reader. Use "Next" and "Cancel" as the labels.
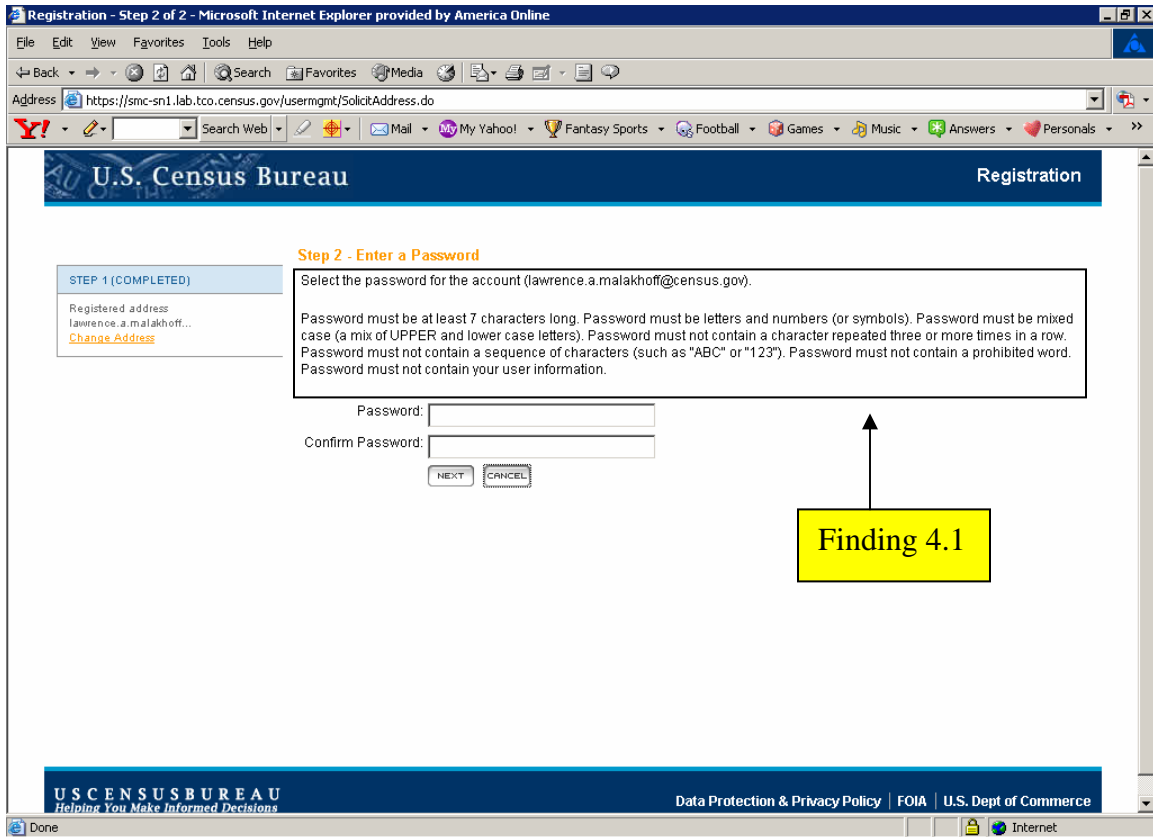

Figure 4. Screen reader users do not hear instructions before the data-entry field.

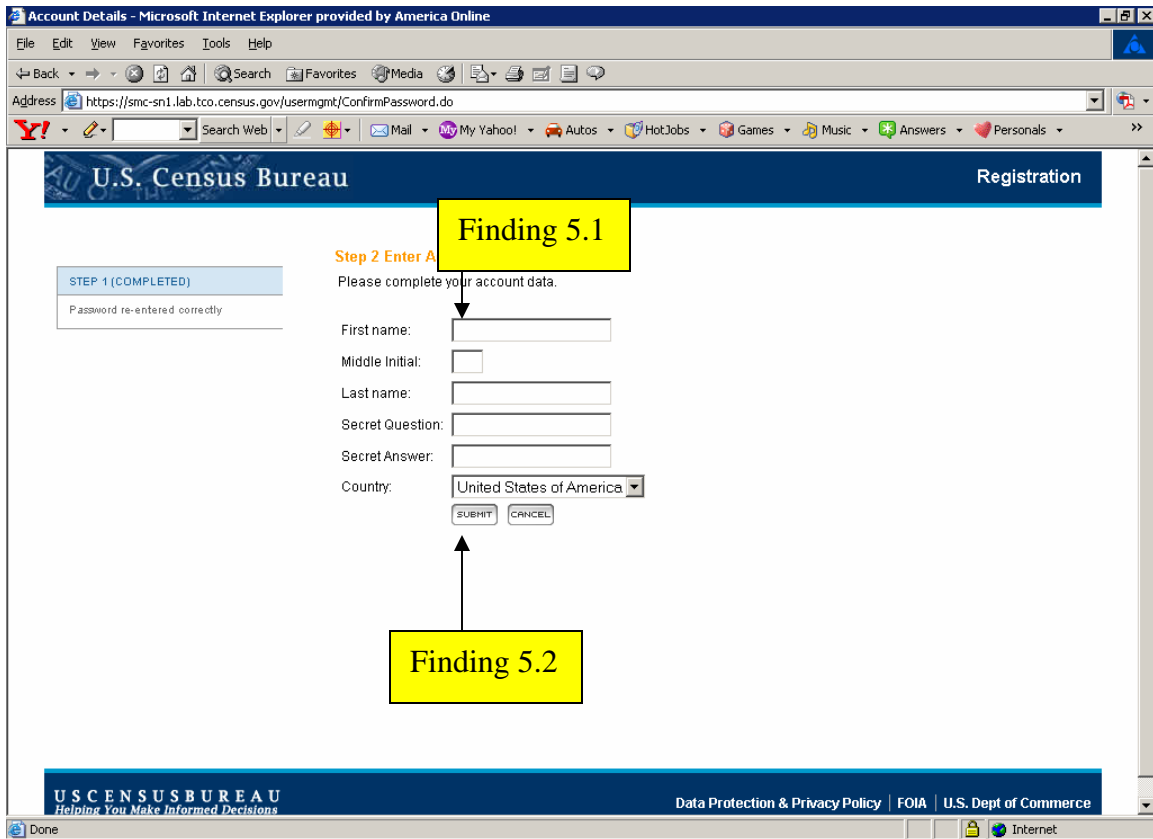**Note: Finding 3.1 of Figure 3 applies to Finding 4.1 of Figure 4.**

Figure 5. The accounting data-entry screen has two accessibility violations.

Finding 5.1: Focus is put on the "First Name" data-entry field without reading the label.
Priority: High
Details: Screen reader users will not know how to proceed if they do not hear a label for a data-entry field. This behavior violates 1194.22 paragraph N of the Section 508 regulation.
Recommendation: Associate "First Name" with the "First Name" data-entry field.

Finding 5.2: The screen reader does not detect the displayed label of the "Submit" button.
Priority: High
Details: The screen reader user hears "Next button button" when accessing the button after the Country drop-down menu. This behavior violates 1194.22 paragraph N of the Section 508 regulation.
Recommendation: Do not use the word "button" in a label because the control type is already detected as a button by the screen reader. Use "Submit" as the label.
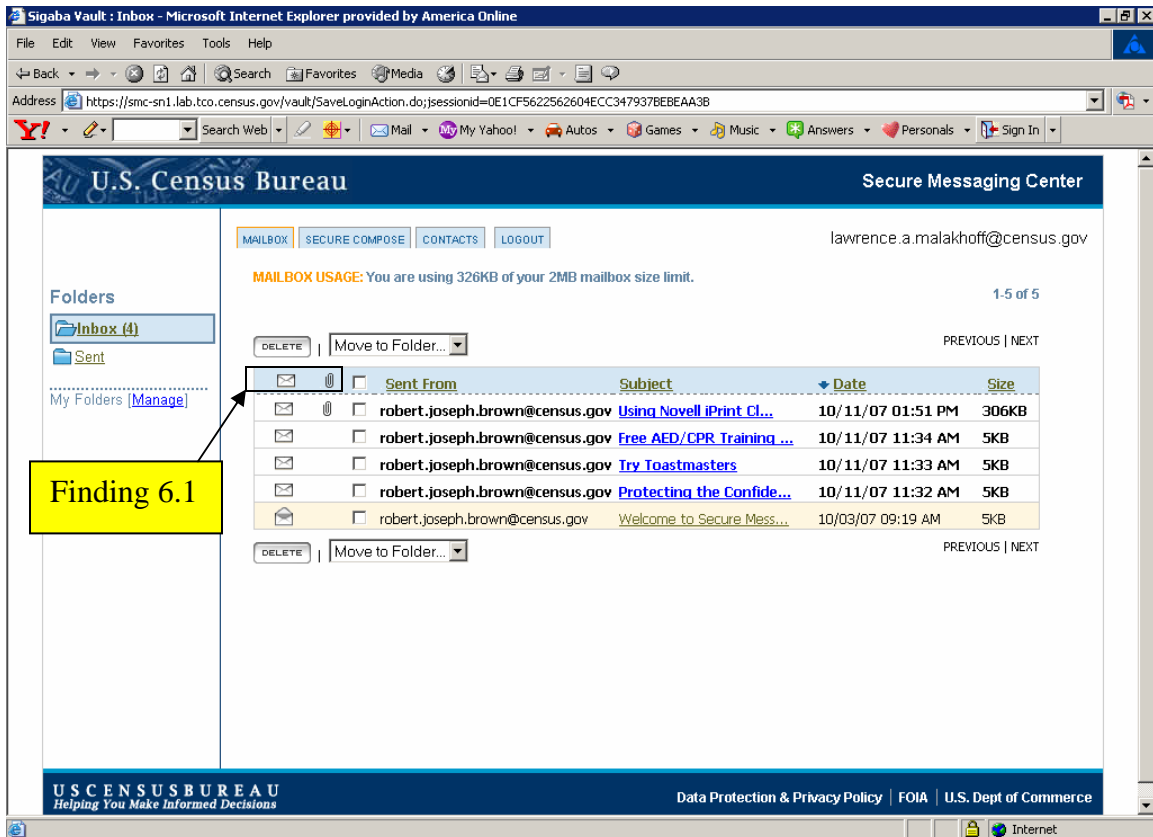
Figure 6. Two sort functions are inaccessible.

Finding 6.1: There is no text associated with the graphical links to sort email into read and unread categories and sort email into categories with and without attachments.
Priority: High
Details: Screen reader users will not know how to proceed if they do not hear text for the envelope and paperclip graphical links. This behavior violates 1194.22 paragraph A of the Section 508 regulation.
Recommendation: Use "read/unread" and "with/without attachments" as the titles for the envelope and paperclip graphical links, respectively.
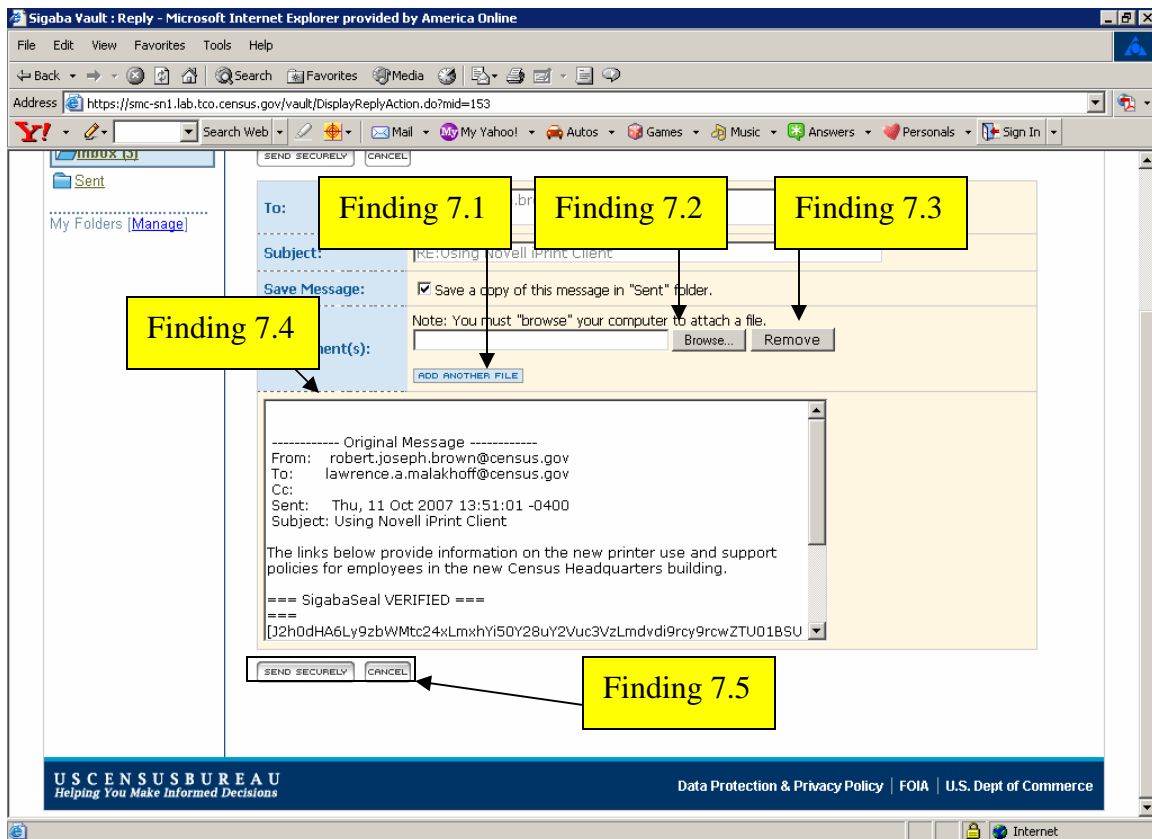
Figure 7. The reply screen has five accessibility violations.

Finding 7.1: The screen reader does not detect the displayed label of the "add another file" button.
Priority: High
Details: The screen reader user hears a variable name when accessing the "add another file" button. This behavior violates 1194.22 paragraph N of the Section 508 regulation.
Recommendation: Do not use the word "button" in a label because the control type is already detected as a button by the screen reader. Use "Add another file" as the label.

Finding 7.2: The "Browse" button is not in tab order.
Priority: High
Details: The screen reader user does not hear the "Browse" button while tabbing through the application. This behavior violates 1194.22 paragraph N of the Section 508 regulation.
Recommendation: Place a tab stop on the "Browse" button and place it in tab order.

Finding 7.3: The screen reader does not detect the displayed label of the "Remove" button.
Priority: High
Details: The screen reader user hears "submit form" when accessing the "Remove" button. This behavior violates 1194.22 paragraph N of the Section 508 regulation.

Recommendation: Do not use the word "button" in a label because the control type is already detected as a button by the screen reader. Use "Remove" as the label. Place a tab stop on this button and place it in tab order.

Finding 7.4: The screen reader does not detect text identifying the message area.
Priority: High
Details: The screen reader user hears "edit" when focus is placed on the message area. The user knows they can enter text but cannot proceed without further instructions. This behavior violates 1194.22 paragraph N of the Section 508 regulation.
Recommendation: Use "enter message here" for the title attribute of the message box. This will ensure the screen reader user will have sufficient information to decide whether or not to enter a message.

Finding 7.5: When a user is tabbing, the "Send Securely" button is skipped.
Priority: High
Details: When the screen reader user tabs to send the message, the first label she hears is the "Cancel" action. The user must make a mental shift and navigate back using arrow keys if she remembers the "send securely" button is there.
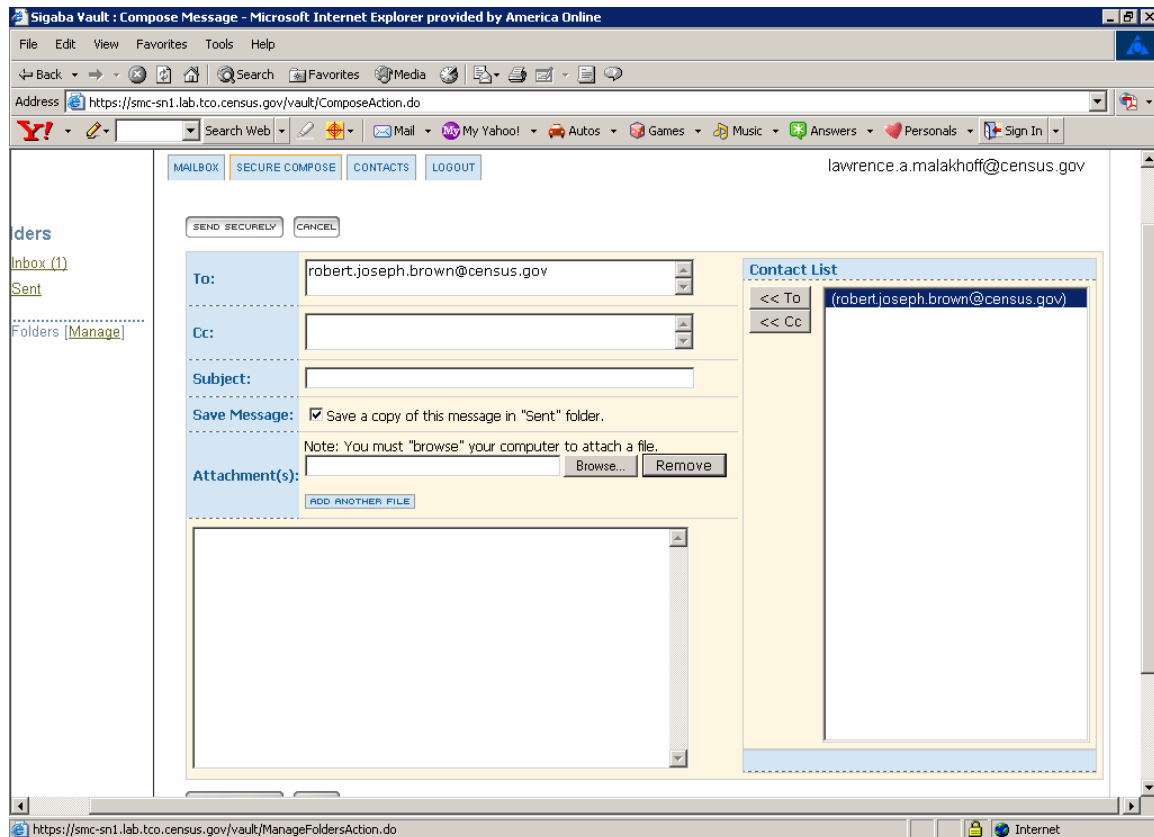Recommendation: Place tab stops on both the "Send Securely" and "Cancel" buttons.

Figure 8. The Secure Compose window has five accessibility violations.

Note: All findings in Figure 7 apply to Figure 8.

SUMMARY

This application has a number of accessibility issues. The Public key information on the Security Certificate is not accessible. Screen-reader software does not detect the label for the login button and reads the links on the bottom of the screen from right to left. Instructions are not available for the email address data-entry field. The screen reader does not detect the labels of the "Next" and "Cancel" buttons below the email data-entry field and the "Submit" button on the account data-entry screen.

Focus is put on the "First Name" data-entry field without reading the label on the account data-entry screen. Two sort functions are inaccessible on the mailbox screen. The reply and secure compose screens have two buttons excluded from the tabbing sequence, two buttons where the label is not detected, and no label for the area to input a message.

During the process of accessibility testing, one usability problem was detected. The phrase "this link" is used as a link three times on the login screen, linking to different locations. The name of the link should give an indication as to its function. If the accessibility recommendations cited in this report are addressed then this application will be accessible. Addressing the usability problems will make the application easier to use for all users.