

STUDY SERIES
(Survey Methodology #2008-3)

**An Accessibility Evaluation of the Classification
Analytical Processing System Application**

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Report Issued: March 20, 2008.

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ABSTRACT

Users of the Classification Analytical Processing System (CAPS) will be Census Bureau and Social Security Administration employees who will use this application to look up North American Industry Classification System (NAICS) codes. According to the Federal regulations, 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. To assess the compliance of the CAPS portal and application pages with the federal regulations, the present evaluation was performed in November 2007 using the Job Access With Speech (JAWS) screen-reader, software used by people with visual disabilities. The evaluation revealed, for example, that displayed labels and vocalized text on a button and tab do not always agree, and visited links do not change to the standard color, from blue to magenta (purple). These omissions violate the Federal regulations. This report uses screen shots to illustrate how compliance with Federal regulations can be accomplished, and it includes recommendations to improve the accessibility of the CAPS user interface.

Key Words: accessibility, Classification Analytical Processing System, CAPS, NAICS, Internet, screen-reader, Federal regulations, user-interface evaluation.

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 users¹. 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 a developing 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 Classification Analytical Processing System (CAPS) application. The Economic Statistical Methods and Programming Division (ESMPD) requested that the Statistical Research Division (SRD) use its expertise to verify and/or identify accessibility problems in the SRD accessibility lab. Users of CAPS will be Census Bureau and Social Security Administration (SSA) employees who will use this application to look up North American Industry Classification System (NAICS) codes.

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 can be fixed. The priority for accessibility problems for people with disabilities is rated high, medium, or low. An item flagged as high means that the user 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 applications². This product listed potential accessibility problems, which were checked using the Job Access With Speech (JAWS) 8 screen reader software³. The application must conform to the Federal regulations and the Census Bureau's IT Standard

¹ <http://www.section508.gov/index.cfm?FuseAction=Content&ID=3>

² <http://www.ssbtechnologies.com>

³ <http://www.freedomscientific.com>

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

FINDINGS

A moderate level of effort will be required to make the CAPS application accessible. Findings are detailed in Figures 1-9, below. This application is not accessible for the following reasons:

- The CAPS header logo is not tagged with ALT text in Figure 1.
- Displayed labels and vocalized text on buttons and tabs do not agree in Figures 2 and 4.
- The Help screen does not have a link to download Adobe Reader for users to read the Help manual in Figure 3.
- Text for the Log in warning message is not detected by the screen-reader software in Figure 5.
- Label text for two radio button options is truncated in Figure 6.
- Tabbing order does not follow the layout in Figure 6.
- The “Search For” label text is not associated with the search argument data-entry field in Figure 7.

During the process of accessibility testing, these usability problems were detected:

- Visited links do not change color, from blue to magenta (purple) in Figure 1.
- Graphical bullets slow down the screen reader user and do not add value in Figure 1.
- The labels for the Assistance and Introduction tabs do not precisely describe their function in Figure 1.
- Abbreviations are hard to understand in the list boxes in Figure 6.
- The screen-reader software vocalizes the word “button” twice on the first five buttons in Figure 8.
- The Closest Match search pop-up does not permit users to perform another search in Figure 9.

⁴ <http://cww2.census.gov/it/ssd/slic/default1.asp>

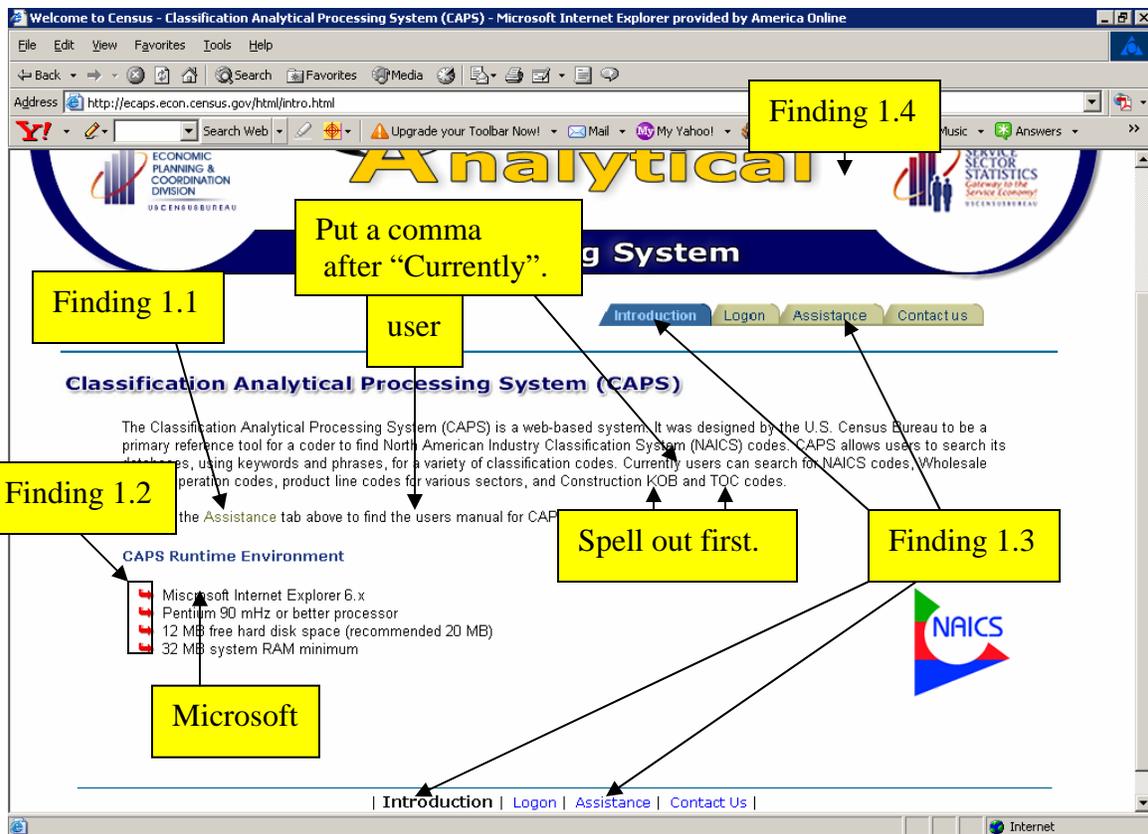


Figure 1. The Introduction screen has four usability issues and one accessibility issue.

Finding 1.1: A visited link is shown in tan.

Priority: High

Details: The color of the visited link is tan, not magenta (purple) as would be expected by users and as required by IT Standard 15.0.2.

Recommendation: Use the development software to display all visited links in magenta. (Global)

Finding 1.2: Graphical bullets slow down screen-reader software.

Priority: Medium

Details: A screen reader user hears “graphic” before each bullet. Using a graphic for each bullet adds no value.

Recommendation: Use the development software to change the graphic bullets to text bullets. (Global)

Finding 1.3: The text for image map links and hyperlinks for “Assistance” and “Introduction” do not accurately describe their purpose.

Priority: Medium

Details: The target of the “Assistance” link is a page with a link to the user manual for users seeking help. The target of the “Introduction” link is the initial screen.

Recommendation: Change the image map links and text links for “Introduction” and “Assistance” to “Home” and “Help” respectively, to accurately reflect the actual purpose of the links. (Global)

Finding 1.4: There is no ALT text for the CAPS header logo.

Priority: High

Details: The logo on the top of the page is not tagged with an ALT text description. This lack of ALT text violates 1194.22 paragraph A of the Section 508 regulation. Absence of the ALT text means that users of screen readers will not be informed about the presence and significance of the logo.

Recommendation: Use the development software to assign “Classification Analytical Processing System Logo Header” as the ALT text. (Global)

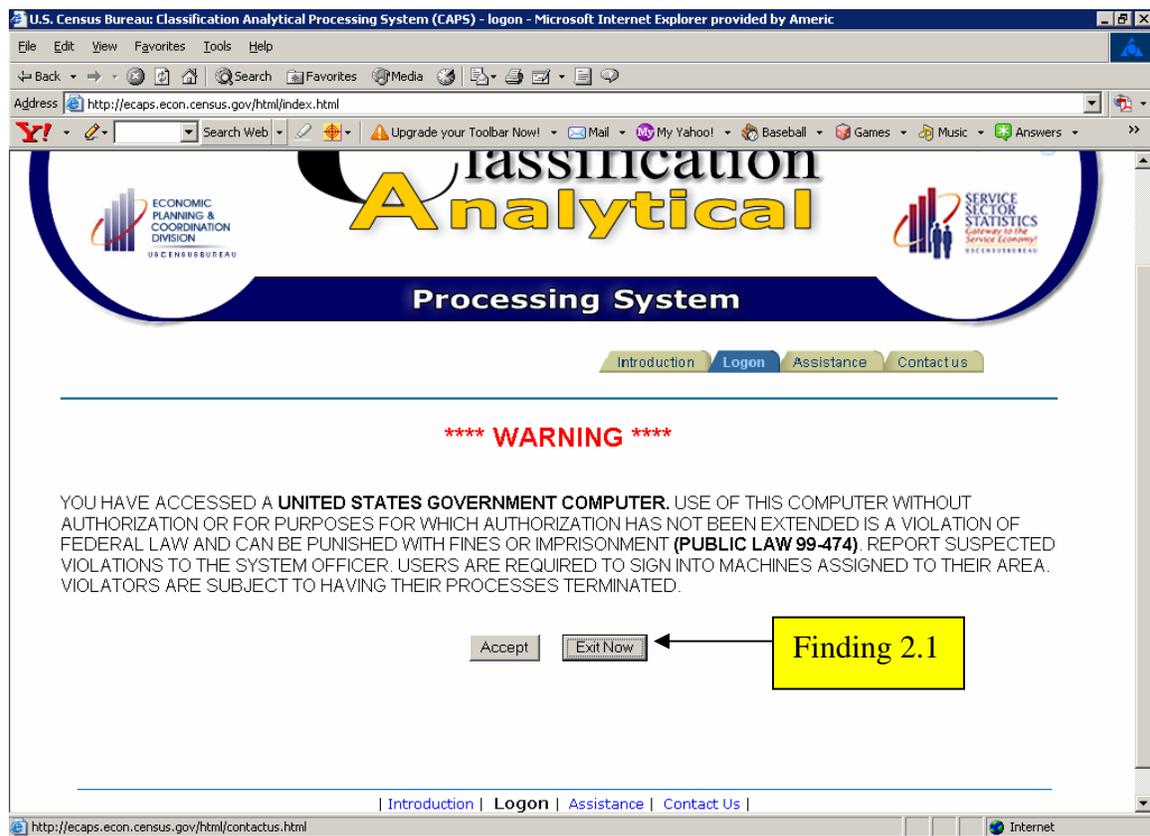


Figure 2. The displayed label on the “Exit Now” button and vocalized text do not agree.

Finding 2.1: Screen reader users do not get the same information as persons with normal vision.

Priority: High

Details: The displayed label and spoken label are different for the “Exit Now” button. “Exit Now” is displayed but the screen reader user hears “Not Accept.” This inconsistency violates 1194.22 paragraph N of the Section 508 regulation. Furthermore, “Not Accept” is extremely ambiguous and open to interpretation. What does it mean? How can it be considered equivalent to “Exit Now?”

Recommendation: Use the development software to assign the label “Exit Now” to the “Exit Now” button.

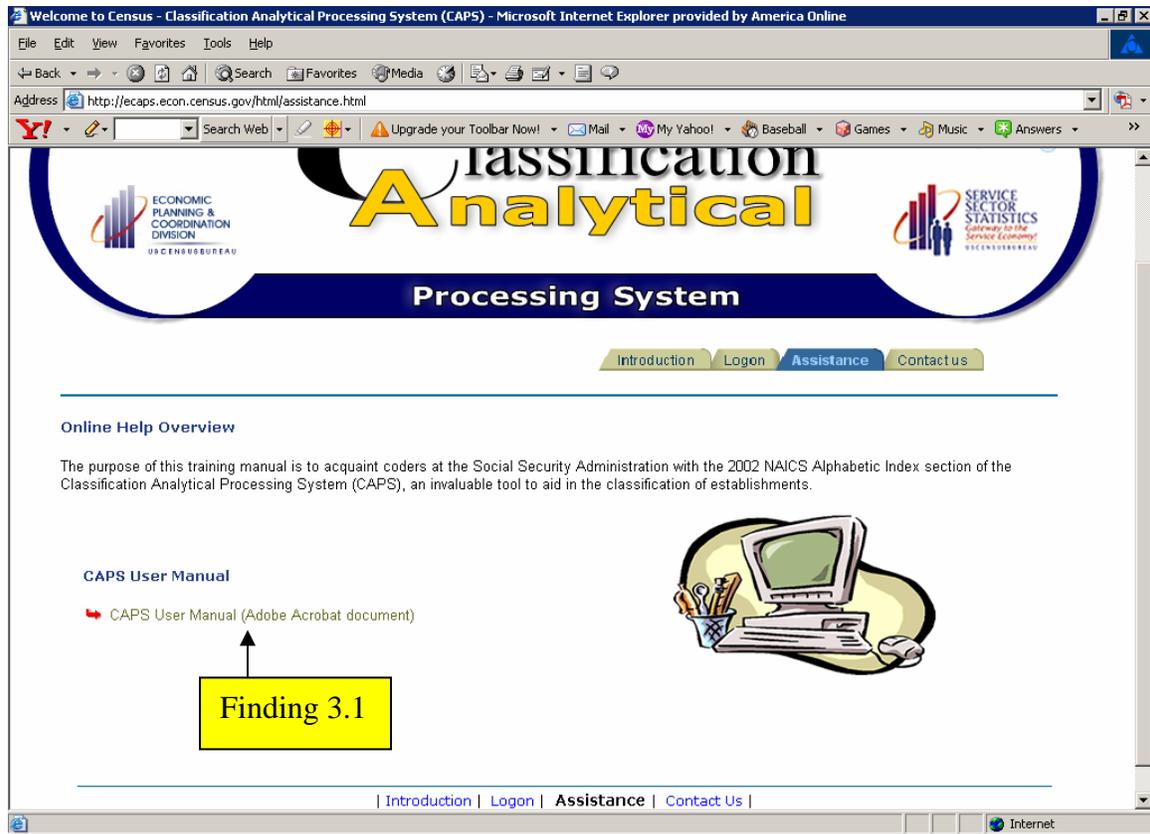


Figure 3. The Help screen does not have a link to download Adobe Acrobat.

Finding 3.1: The help screen has a link to a PDF without another link to download Adobe Reader to read the user/user’s manual.

Priority: High

Details: Users will not be able to read the user’s manual without Adobe Reader. Without the link to Adobe Reader, the software violates 1194.22 paragraph M of the Section 508 regulation.

Recommendation: Even though only Federal employees will use this Web site and likely already have Adobe Reader, it would be good programming practice to place a link to download Adobe Reader on this screen because it is possible the public could use this page in the future.

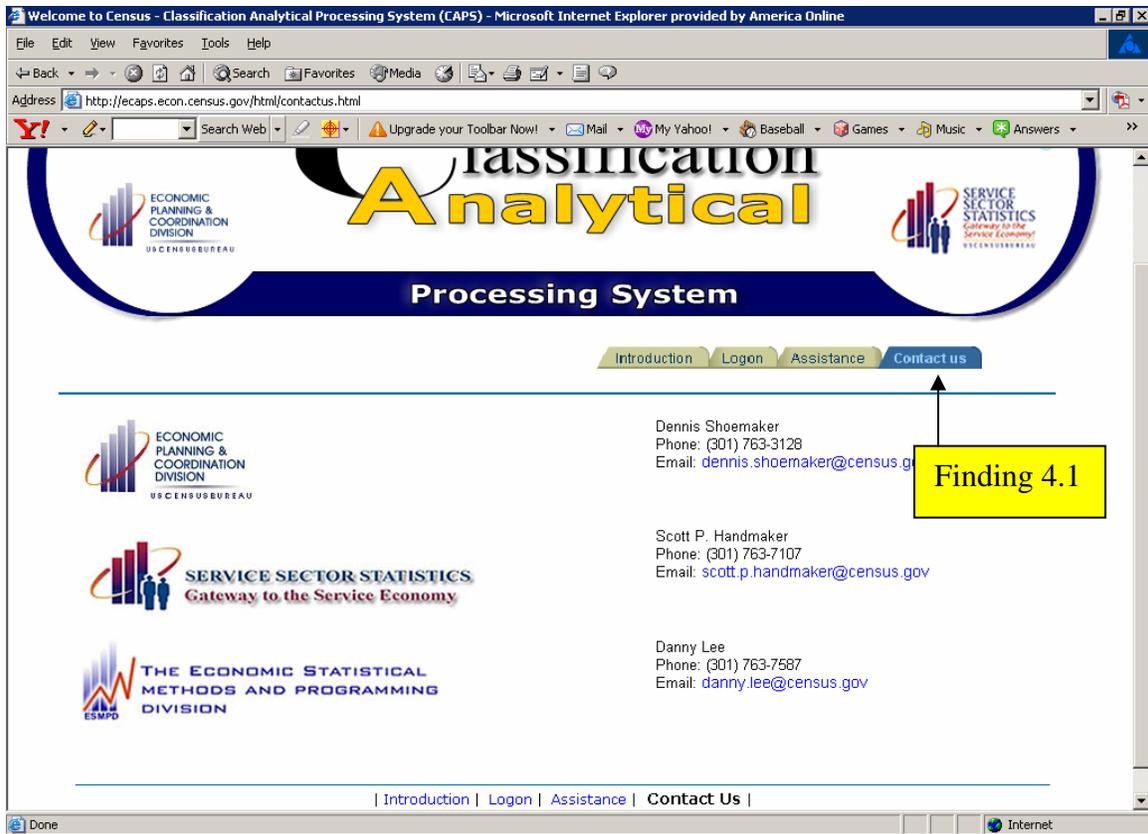


Figure 4. The displayed label on the “Contact Us” tab and vocalized text do not agree.

Finding 4.1: Screen reader users do not get the same information as persons with normal vision.

Priority: High

Details: The displayed label and spoken label are different for the “Contact Us” tab. “Contact Us” is displayed but the screen reader user hears “Contact Information.” This inconsistency violates 1194.22 paragraph N of the Section 508 regulation.

Recommendation: Use the development software to assign the label “Contact Us” to the “Contact Us” tab.

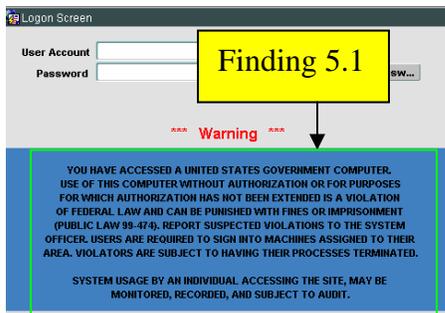


Figure 5. The warning message is not accessible.

Finding 5.1: The warning message is not detected by the screen-reader software.

Priority: High

Details: The warning message is an image. This behavior violates 1194.22 paragraph A of the Section 508 regulation.

Recommendation: The warning message should be changed to plain text and can stay where it is, but the screen-reader user must hear it before he or she enters the User Account name. The warning should precede in tab order the User Account name data-entry field.

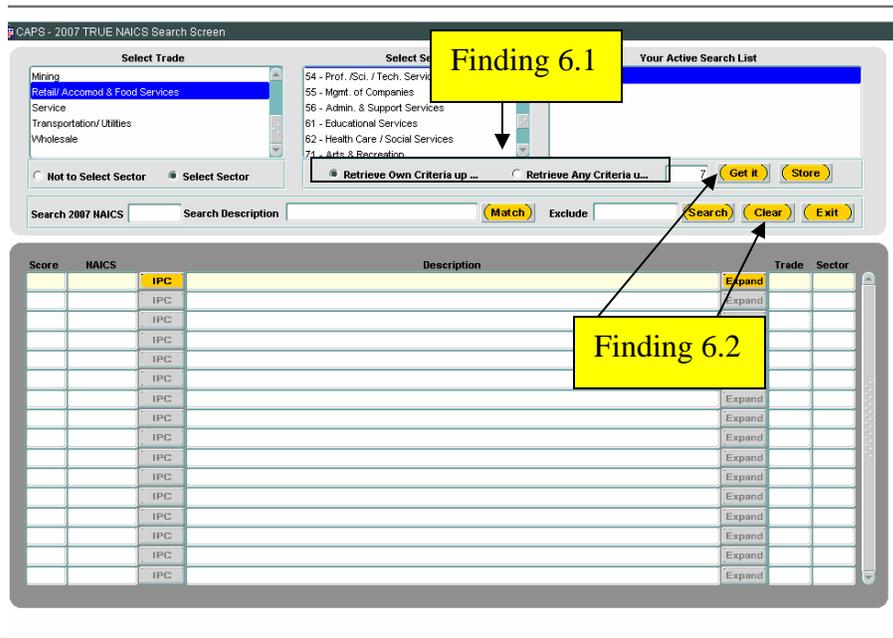


Figure 6. Two radio button option labels are truncated and tabbing does not function as expected.

Finding 6.1: Two radio button labels are truncated as shown above in Figure 6.

Priority: High

Details: Although all words in these labels are vocalized by the screen-reader software, they are not available to persons with low vision. This behavior violates 1194.22 paragraph N of the Section 508 regulation.

Recommendation: Arranging the radio button options so the first option is above the second option will ensure enough room to display the complete text in both labels.

Finding 6.2. The tabbing order does not perform as expected.

Priority: High

Details: Users cannot tab from the data-entry field immediately following the second radio button option (described in Finding 6.1) to the GET IT button. The CLEAR button does not follow the SEARCH button in tab order. These behaviors violate 1194.22 paragraph N of the Section 508 regulation.

Finding 7.1. The “Search For” label is not vocalized by the screen-reader software.

Priority: High

Details: The “Search For” label text is not associated with the search argument data-entry field. This behavior violates 1194.22 paragraph A of the Section 508 regulation.

Recommendation: Use the development software to associate the label “Search For” with the search argument data-entry field.

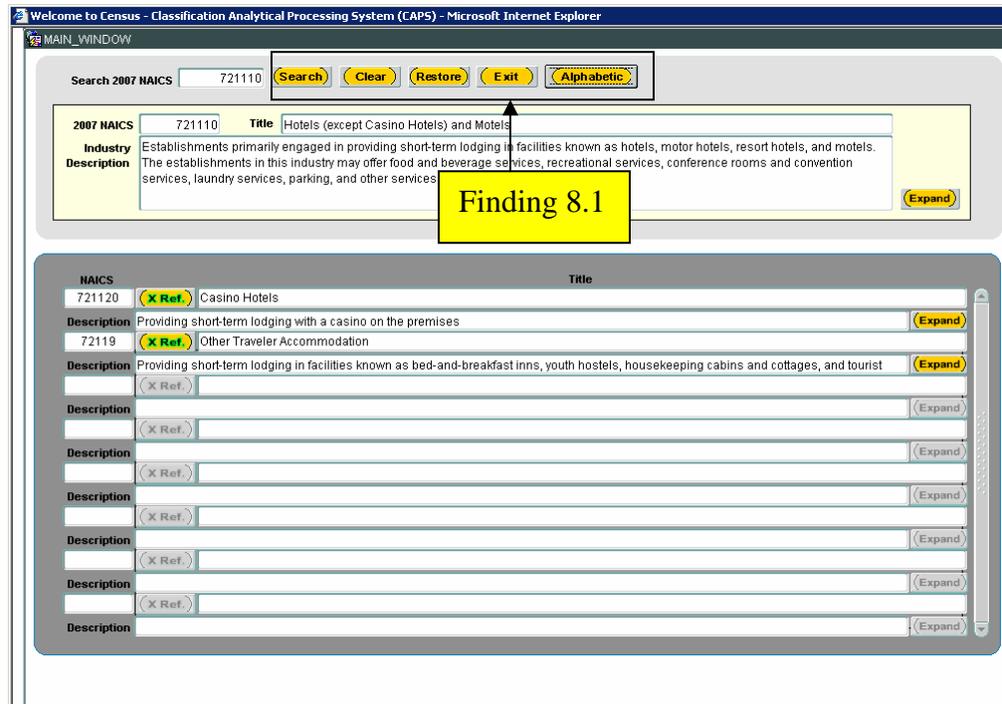


Figure 8. The screen-reader software vocalizes the word “button” twice on the first five buttons.

Finding 8.1. All five buttons have the word button announced twice, e.g. the “Clear” button is vocalized as “Clear button button.”

Priority: Medium

Details: The screen-reader software automatically vocalizes “button” for buttons it detects. Labeling a button with the name and “button” causes the word “button” to be vocalized twice.

Recommendation: Use the development software to remove the word “button” from each of the labels for the five buttons shown in Figure 8.

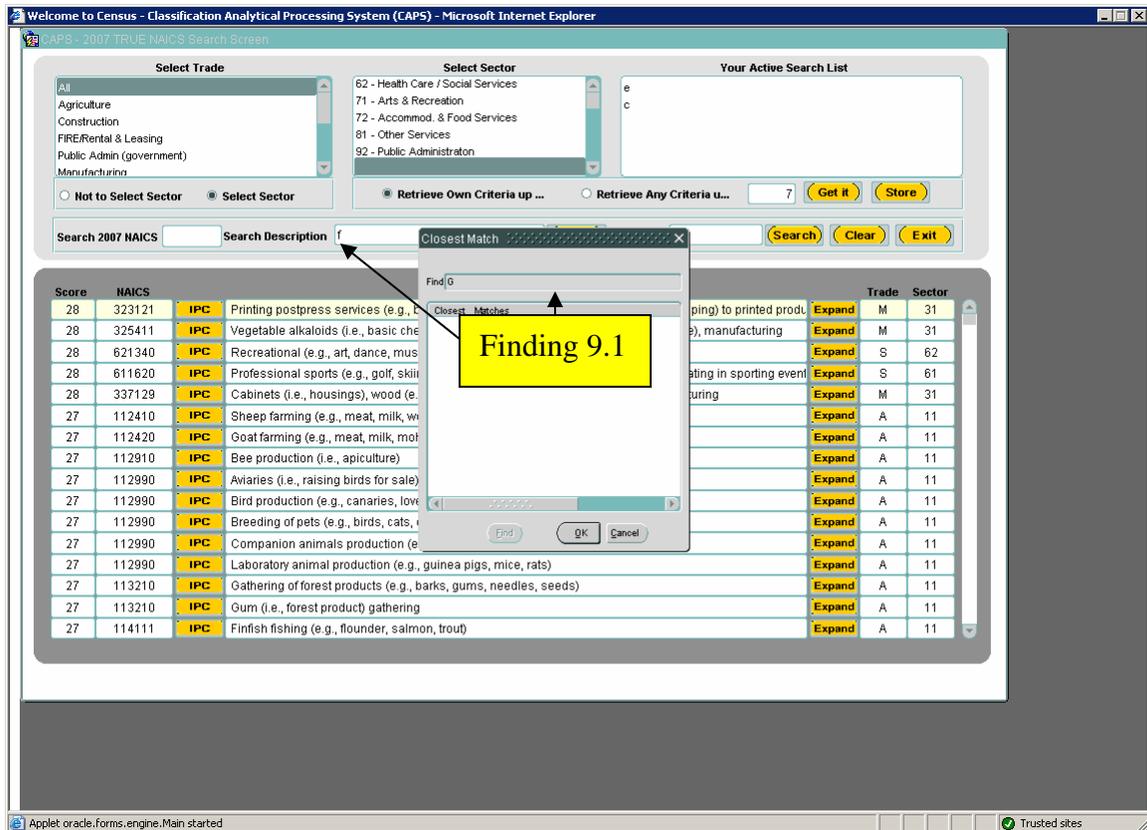


Figure 9. The Closest Match search pop-up does not permit users to perform another search.

Finding 9.1. Users cannot enter another search argument into the find data-entry field in the pop-up window after clicking the “Match” button on the main screen.

Priority: High

Details: If a character is in the Search Description field on the main screen, the Closest Match window disables the “find” button.

Recommendation: Use the development software to modify the Closest Match window to permit new searches if a search argument is already present in the Search Description field.

Summary

Accessibility

This application has five types of accessibility violations. 1) Displayed labels and vocalized text on a button and tab do not agree in two instances. 2) The CAPS header logo is not tagged with ALT text. 3) The Help screen does not have a link to download Adobe Reader for users to read the Help manual. 4) Text is inaccessible in three instances. 5) Tabbing order does not follow the visual layout on one screen.

Usability

Some usability issues were discovered during the course of accessibility testing. Visited links changed color from blue to tan instead of magenta (purple) as required by the Census Bureau's IT Standard 15.0.2. Bullet points are implemented as graphics instead of text, which slows down the screen reader software and does not add value. The labels for the "Assistance" and "Introduction" tabs do not describe the functions of the screens as well as "Help" and "Home."

Abbreviations are hard to understand in the list boxes used to look up NAICS code categories. The screen-reader software vocalizes the word "button" twice on the five buttons above the industry description pop-up window. The Closest Match search pop-up does not permit users to perform another search even though data-entry fields are present to perform this task.

If accessibility and usability recommendations are followed for the CAPS Web application, users seeking information and help about NAICS codes will be able to accomplish this task efficiently, quickly, and with greater satisfaction.