

STUDY SERIES  
*(Survey Methodology #2007-23)*

**An Accessibility Evaluation  
of the Census Learning Management System**

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Report Issued: September 20, 2007

*Disclaimer:* This report is released to inform interested parties of research and to encourage discussion. The views expressed are those of the author and not necessarily those of the U.S. Census Bureau.

**AN ACCESSIBILITY EVALUATION OF THE  
CENSUS LEARNING MANAGEMENT SYSTEM**

Human-Computer Interaction Memorandum Series # 110

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Final, September 12, 2007

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## **INTRODUCTION**

Since June 2001, Federal regulations have required 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<sup>1</sup>. 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

Some practitioners consider accessibility to be a subset of usability, while others think of accessibility as related, but separate from usability. Accessibility guidelines have several checkpoints that address more general usability, such as 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 regulation, 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 Census Learning Management System (LMS). 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. This application permits persons to take training and use a calendar to look up events.

## **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 resolved. The priority for accessibility problems 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 the Job Access With Speech (JAWS) 8 screen reading software<sup>2</sup>. 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 JAWS. Graphics are accessible if they have alternate/alternative text (henceforth ALT text) associated with them. Usability problems are detected by listening to the content vocalized by the screen reader and visual inspection by an analyst experienced with usability. These problems are included in this report as issues to evaluate in formal usability testing if resources are available.

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

<sup>2</sup> <http://www.freedomscientific.com>

## **FINDINGS**

Findings for the Census LMS are detailed in Figures 1-3. This application has the following accessibility issues:

- The horizontal navigation bar does not have a skip link for screen reader users to bypass it and access screen content quickly.
- The calendar function does not provide a means for screen reader users to hear whether the date is the current date and what type of event or events are scheduled.
- The “Add” and “go to today” buttons on the calendar screen are vocalized with variable names instead of the displayed “Add” and “Go To Today” labels.
- Completion status icons on the calendar screen are not accessible to screen reader users.
- There is no link to download the Adobe Reader on the welcome screen for persons needing to view the PDF file.

Each of these issues violates a Section 508 regulation as indicated in the body of this report.

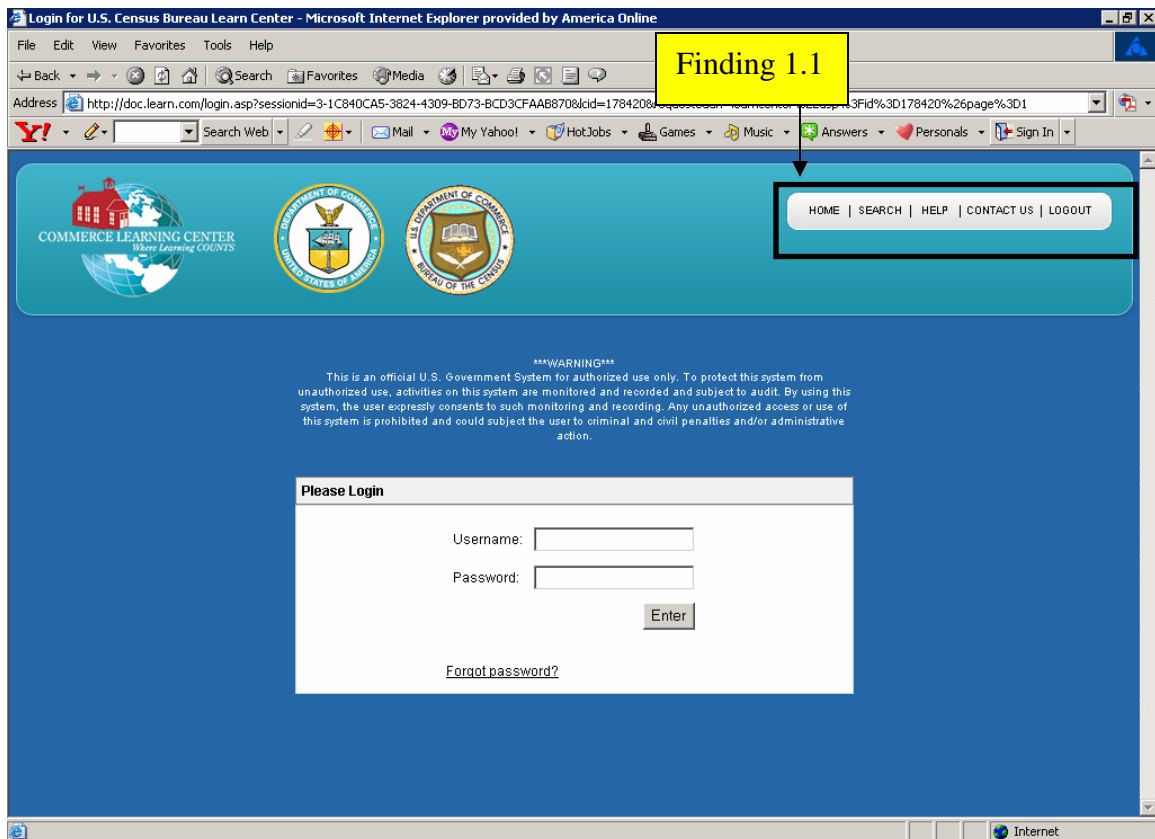


Figure 1. The login screen needs skip links for the horizontal navigation bar.

**Finding 1.1.** This screen does not have a skip link to bypass the horizontal navigation bar, which violates 1194.22 paragraph O of the Section 508 regulation.

**Priority:** High

**Recommendation:** Skip links allow users of screen readers to bypass unwanted content and quickly access content related to their current task. Web applications must have skip links to be compliant with Section 508.

Place a one-pixel transparent graphical link prior to the navigation bar, and have it link to a screen element immediately following the last navigation bar element. The graphical link should have ALT text providing users of screen readers the option to skip the navigation bar, such as “Press enter to skip navigation bar.” (Global)

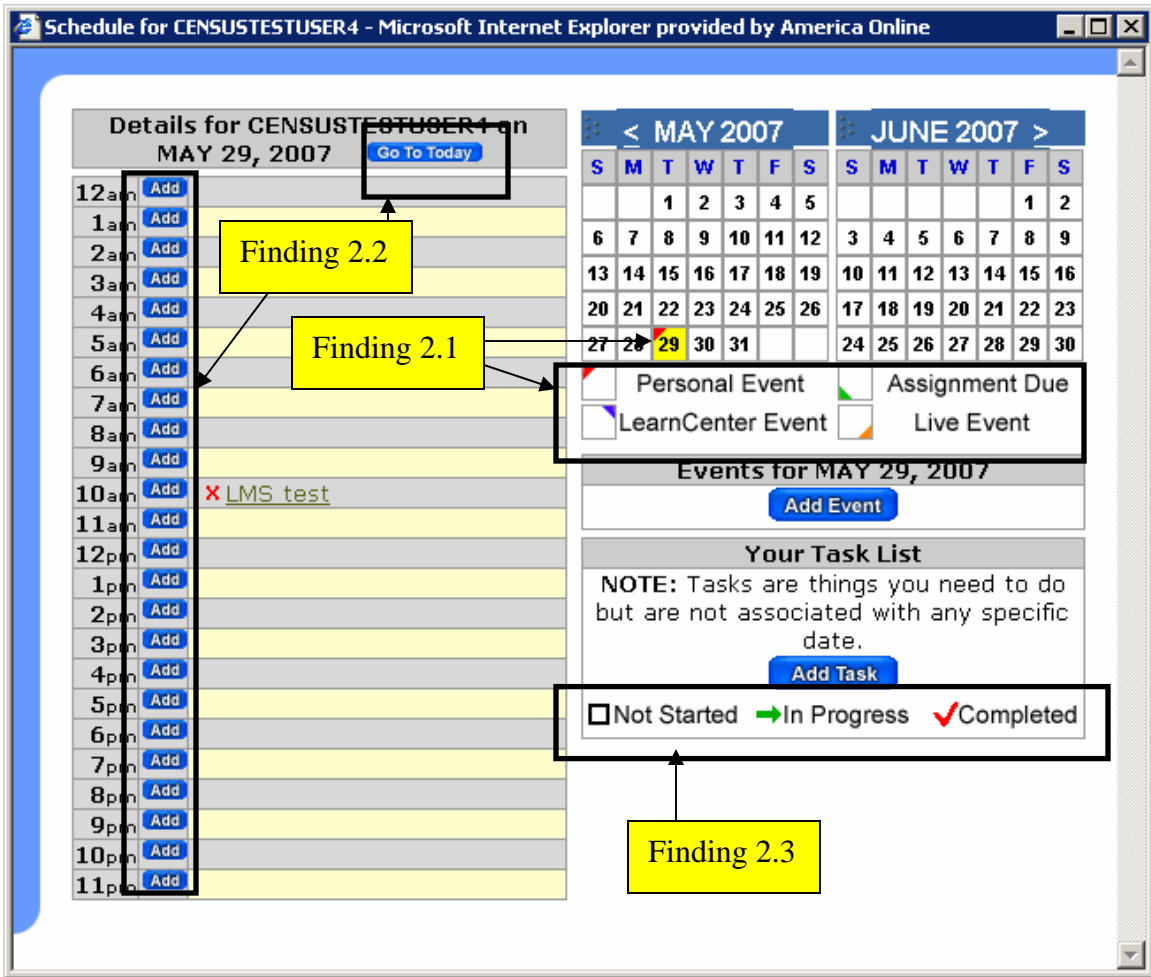


Figure 2. The calendar screen violates three accessibility regulations.

**Finding 2.1.** The current date is denoted by yellow highlighting of the cell containing the number. A colored wedge is used on the corners of a calendar entry to identify an event type. There is no indication to a screen reader user that an assignment due, personal, LearnCenter, or live event was assigned to a date. Color is used as the only cue to identify the current date and event type. This behavior violates 1194.22 paragraph C of the Section 508 regulation.

**Priority:** High

**Recommendation:** Colored wedges serve users who have a color deficit because they can identify the type of event by position, but such cues do not help screen reader users because the type of event is not vocalized. ALT text could be assigned to each color wedge, which then would be detected by the screen reading software while the user is tabbing through the calendar. Up to five pieces of information are possible for each date, so the corresponding alt text should also be associated with the date. We recommend the following ALT text for the color coding:

- Red, alt = “Personal Event”
- Blue, alt = “Learn Center Event”
- Green, alt = “Assignment Due”
- Orange, alt = “Live Event”
- Yellow highlight, alt = “today”

**Finding 2.2.** These buttons are announced with variable names instead of their displayed labels. Instead of hearing “Add” as expected, the screen reader user hears “images/v6button\_tiny\_add”. The button “Go To Today” is announced with no spaces between words, resulting in an unintelligible phrase – “gototoday”. These behaviors violate 1194.22 paragraph N of the Section 508 regulation.

**Priority:** High

**Recommendation:** Use the development software to replace the variable names with the displayed labels. Put spaces between the words “Go To Today”

**Finding 2.3.** The completion status icons are not accessible. This behavior violates 1194.22 paragraph A of the Section 508 regulation.

**Priority:** High

**Recommendation:** Each completion status icon should be a separate graphic, not one graphic of three icons. The completion status icons should be labeled with ALT text, “Not Started”, “In Progress”, and “Completed”, respectively.

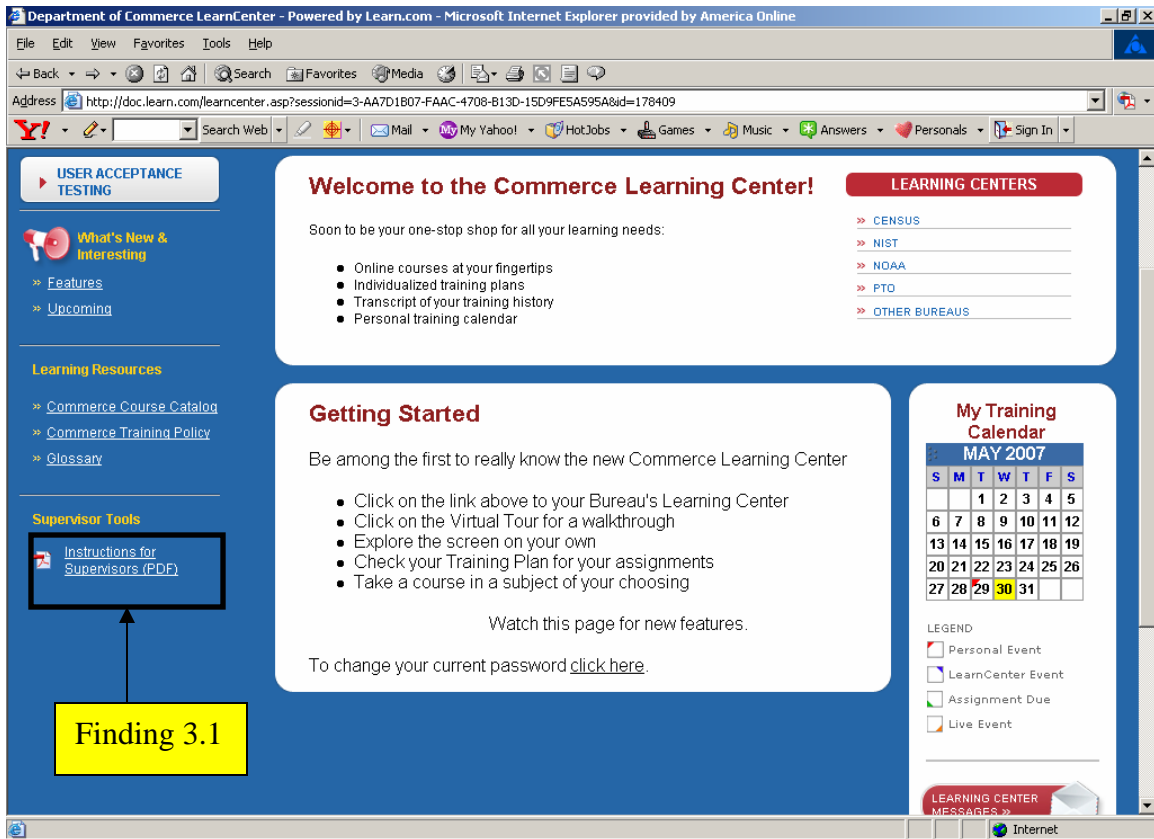


Figure 3. A link to download Adobe reader is required on the welcome screen.

**Finding 3.1.** There is no link to download the Adobe Reader to read PDF files. This behavior violates 1194.22 paragraph M of the Section 508 regulation.

**Priority:** High

**Recommendation:** Use the development software to place instructions to download the Adobe Reader and the link to the Adobe web site.



## **SUMMARY**

The Census LMS has five accessibility issues: 1) The horizontal navigation bar does not have a skip link for screen reader users to bypass it and access screen content quickly. 2), 3), and 4). There are three accessibility findings for the calendar function. First, the calendar function does not provide a means for screen reader users to hear whether the date is the current date and what type of event or events are scheduled. Next, the “Add” and “Go To Today” buttons on the calendar screen are vocalized with variable names instead of the displayed “Add” and “Go To Today” labels. Last, completion status icons on the calendar screen are not accessible to screen reader users. 5) The welcome screen has one accessibility finding. There is no link to download the Adobe Reader on the welcome screen for persons needing to view the PDF file.

A small amount of programming is needed to make the Census LMS accessible. If the recommendations cited in this report are implemented, the Census LMS will be accessible and compliant with the Section 508 regulations.