First-Year Web Report

California State University, East Bay
Accessible Technology Initiative
First-Year Web Report
May 2007

Executive Summary

CSUEB responded to the CSU Accessible Technology Initiative (ATI) by organizing an ATI Steering Committee and an ATI-Web team. The team undertook prescribed first-year testing of a 35-page representative sample of the CSUEB Web site, as well as detailed manual testing and remediation of a 10-page subset. Automated scans of the full sample, using HighSoftware ACC/Monitor, revealed only a moderate level of basic accessibility with 63% of pages passing. The 10-page subset was manually tested to more stringent "best practices" standards, but remediated, as prescribed, to less stringent baseline Section 508 accessibility standards. In the manual test and repair sample, 100% of pages failed, revealing widespread, fundamental coding and development errors. Based on this first-year investigation, the CSUEB ATI-Web team produced the following report, which not only details test findings, but also identifies key underlying issues relating to training, governance, standards, infrastructure, and resources, as well as Web policy that must be addressed in order for CSUEB to achieve and maintain a fully accessible Web site.

Background

On February 9, 2007, the CSU Office of the Chancellor released coded memorandum AA-2007-04 regarding Access to Electronic and Information Technology for Persons with Disabilities, which established new timelines and guidelines for implementation of its Accessible Technology Initiative. This memorandum outlined a roadmap for campus implementation of CSU Executive Order No. 926, stating, "It is the policy of the CSU to make information technology resources and services accessible to all CSU students, faculty, staff, and the general public regardless of disability."

In response, California State University, East Bay (CSUEB) formed an ATI Steering Committee to coordinate campus efforts to identify and address compliance needs across the three priorities identified in the coded memo:

1. Administrative Web Accessibility
2. Instructional Media Accessibility
3. Accessible Electronic and Information Technology (E&IT) Procurement

The CSUEB ATI Steering Committee, which includes administrative, staff, and faculty representation, is chaired by the university's Chief Information Officer John Charles, who is also the university's ATI-Executive Sponsor. Through CIO Charles, the committee reports to the President's cabinet regarding policies and procedures required for CSUEB to meet its ATI obligations and objectives. Following the formation of the CSUEB ATI Steering Committee, campus teams were formed to address each of the three ATI priorities areas. The CSUEB ATI-Web Team comprised:

- Jay Colombatto, Executive Director, University Communications; University Advancement
The CSUEB ATI-Web team undertook the prescribed first-year ATI-Web work, which is the subject of this report. This included identification and testing of a representative sample of pages with respect to Section 508 accessibility, as well as basic remediation (Section 508; Level 1). The objective was to provide the steering committee and university management with baseline discovery data, findings, and conclusions upon which to base forward-looking recommendations affecting resource planning and forecasting, procedures, and policies required to meet both the letter of the law as well as the spirit of ATI.

In a March 2007 CSUEB Communique, CSUEB President Qayoumi formally communicated to the university community CSUEB's commitment and response to ATI. In his message, he emphasized the importance of ensuring access to information technology and resources to individuals with disabilities, pointing out that success in reaching our goal of full compliance depends upon shared responsibility and earnest engagement by the entire campus community.

Methodology and Results

Accessibility evaluation software recommended by the CSU, HighSoftware's AccMonitor, was installed, configured, and tested by CSUEB's Information and Computing Services (ICS) division. Configuration issues were identified but not fully addressed, affecting the functionality of the reports generated, as discussed below.

A representative cross-section of CSUEB's administrative Web presence (see below) was identified and compiled. The cross-section comprised 34 pages selected based on heaviest Web traffic, but also to include destinations associated with a variety of internal users (students, faculty, and staff) and external users (prospective students, friends/alumni, and community members); key functions or destinations (e.g., catalog, library, bookstore, Blackboard, university directory, academic department information, disability resources, etc.); and content or interaction types (e.g., forms and data tables, as well as static and active content).

Automated scans of the full cross-section were performed using AccMonitor, producing the detailed reports listed below. Due to software configuration issues, single page scans could not be produced. Instead, the software scanned multiple levels associated with the subject link, producing a modified site scan. This required that each report be analyzed to determine if the subject link was, in fact, included among the site's reported failed pages. If not, the subject link was found to have passed but no corresponding single-page report was generated. If, however, the subject page failed, the AccMonitor report included it among the list of failed pages, together with links to the detail reports that identify specific causes of failure. Thus, the reports listed below are site reports, not single-page reports, and should be viewed and interpreted as such.

Of the 35-page representative cross-section, 22 or 63% passed; 13 or 37% failed. The common cause of failure in the automated scans was missing "alt" tags.

It is worthy of note that due to the AccMonitor configuration problems that produced site reports versus page reports, the automated scanning also revealed that 100% of all tested sites failed. From a broader perspective, this finding offers the university a more comprehensive indicator of the overall CSUEB site accessibility and 508-compliance challenge.
Manual evaluations and repairs were then conducted on a subset 10-page sample. This sample included five pages that passed and five pages that failed the automated scan. The process followed the standardized Section 508 manual evaluation procedure promulgated by the CSU, including syntactic-semantic-user-evaluation, as well as 15 other checkpoints. The results are summarized below, together with detailed findings. Of the manual evaluation sample, all 10 pages, or 100% failed. These failures were largely due to JavaScript-based global navigation menus, the content of which is inaccessible when JavaScript is not enabled (Checkpoint L).

Following the first-year ATI protocol, pages in this sample were tested to the "best practices" level that will be required of new and updated pages, sites, and applications after September 1, 2007. Following the same protocol, repairs were limited to a prescribed "must-fix" level, considered to represent baseline 508 accessibility (½ the standard to which all existing pages must be repaired by May 15, 2009. This approach is consistent with the CSU's guiding ATI precept, "Remediate to law; build to best practices."

Repair-sample site owners were then identified, advised of the results of the manual evaluation, and asked to remediate the subject pages to specified "must repair" levels for immediate compliance with Section 508. They were also asked to report on the level of difficulty and time required. (In some instances, the

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<table>
<thead>
<tr>
<th>CSUEB Administrative Web Site Representative Sample Page</th>
<th>Site Automated Scan Report</th>
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<tbody>
<tr>
<td>Academic Department Course Description (Public Affairs &amp; Admin.)</td>
<td>CSUEB_HiSoftScan_ATI - Class3</td>
<td>Pass</td>
<td>Pass</td>
</tr>
<tr>
<td>Academic Department Home Page (Public Affairs &amp; Admin.)</td>
<td>CSUEB_HiSoftScan_ATI - Class2</td>
<td>Pass</td>
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<td>Activate and Maintain Your NetID</td>
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<td>Fail</td>
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<tr>
<td>Alumni and Friends Home Page</td>
<td>CSUEB_HiSoftScan_ATI - Alumni</td>
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<td>Fail</td>
</tr>
<tr>
<td>Ask Rose, Your Virtual Advisor</td>
<td>CSUEB_HiSoftScan_ATI - Rose</td>
<td>Fail</td>
<td>Fail</td>
</tr>
<tr>
<td>Becoming a Student/How to Apply</td>
<td>CSUEB_HiSoftScan_ATI - ES4</td>
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<td>Fail</td>
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<tr>
<td>Blackboard Home Page</td>
<td>CSUEB_HiSoftScan_ATI - BB3 Home</td>
<td>Pass</td>
<td>Fail</td>
</tr>
<tr>
<td>Bookstore</td>
<td>CSUEB_HiSoftScan_ATI - Bookstore</td>
<td>Fail</td>
<td>Fail</td>
</tr>
<tr>
<td>Campus Directory</td>
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<td>Fail</td>
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<td>Career Development Center</td>
<td>CSUEB_HiSoftScan_ATI - CDC</td>
<td>Fail</td>
<td>Fail</td>
</tr>
<tr>
<td>Catalog</td>
<td>CSUEB_HiSoftScan_ATI - Catalog</td>
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<td></td>
</tr>
<tr>
<td>College Home Page (CLASS)</td>
<td>CSUEB_HiSoftScan_ATI - Class1</td>
<td>Pass</td>
<td>Pass</td>
</tr>
<tr>
<td>Colleges and Departments</td>
<td>CSUEB_HiSoftScan_ATI - CollDept</td>
<td>Fail</td>
<td>Fail</td>
</tr>
<tr>
<td>Concord Campus Home Page</td>
<td>CSUEB_HiSoftScan_ATI - Concord</td>
<td>Fail</td>
<td>Fail</td>
</tr>
<tr>
<td>Concord Campus Student Affairs</td>
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<td>Fail</td>
<td>Fail</td>
</tr>
<tr>
<td>Continuing Education Home Page</td>
<td>CSUEB_HiSoftScan_ATI - DCIE</td>
<td>Pass</td>
<td>NP</td>
</tr>
<tr>
<td>Employee eNewsletter (The View)</td>
<td>CSUEB_HiSoftScan_ATI - theview</td>
<td>Pass</td>
<td>Pass</td>
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<tr>
<td>eSailor</td>
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<td>Fail</td>
<td>Fail</td>
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<td>Fields of Study</td>
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<td>Fail</td>
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<tr>
<td>Financial Aid Handbook</td>
<td>CSUEB_HiSoftScan_ATI - ES3</td>
<td>Fail</td>
<td>Fail</td>
</tr>
<tr>
<td>Library Catalog</td>
<td>CSUEB_HiSoftScan_ATI - LibCat1</td>
<td>Fail</td>
<td>Fail</td>
</tr>
<tr>
<td>Library Catalog -Author Search</td>
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<td>Fail</td>
<td>Fail</td>
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<tr>
<td>Library Home Page</td>
<td>CSUEB_HiSoftScan_ATI - Library</td>
<td>Fail</td>
<td>Fail</td>
</tr>
<tr>
<td>MyInfo Student Login</td>
<td>CSUEB_HiSoftScan_ATI - MyInfo</td>
<td>Fail</td>
<td>Fail</td>
</tr>
<tr>
<td>News and Events</td>
<td>CSUEB_HiSoftScan_ATI - News</td>
<td>Pass</td>
<td>Pass</td>
</tr>
<tr>
<td>Non-Academic Department Home Page (ICS)</td>
<td>CSUEB_HiSoftScan_ATI - ICS</td>
<td>Pass</td>
<td>Fail</td>
</tr>
<tr>
<td>Planning &amp; Enrollment Management Home Page</td>
<td>CSUEB_HiSoftScan_ATI - ES1</td>
<td>Pass</td>
<td>Fail</td>
</tr>
<tr>
<td>Prospective Student Portal</td>
<td>CSUEB_HiSoftScan_ATI - ES2</td>
<td>Fail</td>
<td>Fail</td>
</tr>
<tr>
<td>Schedule of Classes Index (Spring 007 Course Listings)</td>
<td>CSUEB_HiSoftScan_ATI - Schedule1</td>
<td>Pass</td>
<td>Pass</td>
</tr>
<tr>
<td>Schedule of Classes; Class Listings for Major (Sp07- Acctg.)</td>
<td>CSUEB_HiSoftScan_ATI - Schedule2</td>
<td>Pass</td>
<td>Fail</td>
</tr>
<tr>
<td>Student Disability Resource Center</td>
<td>CSUEB_HiSoftScan_ATI - SDRC</td>
<td>Pass</td>
<td>Pass</td>
</tr>
<tr>
<td>University Calendar</td>
<td>CSUEB_HiSoftScan_ATI - Events</td>
<td>Fail</td>
<td>Fail</td>
</tr>
<tr>
<td>University Home Page</td>
<td>CSUEB_HiSoftScan_ATI - CSUEB</td>
<td>Pass</td>
<td>Fail</td>
</tr>
<tr>
<td>Waitlist Info for Students</td>
<td>CSUEB_HiSoftScan_ATI - Waitlist</td>
<td>Pass</td>
<td>Pass</td>
</tr>
</tbody>
</table>
remediation was conducted directly by members of the ATI-Web team, either on behalf of site owners or because of a reporting relationship to the site owners or a direct responsibility for the subject pages.) The CSUEB ATI-Web team took this approach as a means of paradigm-testing: The CSUEB ATI Steering Committee has proposed that the highly distributed and decentralized nature of the CSUEB site calls for distributed responsibility with respect to Section 508 compliance. Thus, by taking this approach, the CSUEB ATI-Web team was able to observe and identify organizational issues, discussed below, that will affect the university’s ability to meet its ATI objectives in a timely and cost-effective manner.

Details of both the manual evaluation and repair are summarized below:

**CSUEB Administrative Web Site Manual Evaluation and Repair Sample**

**Bookstore**

**URL:** http://www.bookstore.csuhayward.edu/main.htm

**Manual Evaluation:** FAILED

**Problems Noted:** Images that displayed content did not have alt-text, XHTML event handlers were not accessible to keyboard users, and global navigation disappeared when JavaScript was disabled on the user's browser.

**Evaluation Finding:** Adding alt-text was an easy fix, however the global navigation problem could not be fixed immediately; it is a long-term fix. CSUEB’s new CSS based template, which is currently being tested, will address this issue for all pages on our Web site.

**Campus Directory**

**URL:** http://webapps.csueastbay.edu/public/staffdir/

**Manual Evaluation:** FAILED

**Problems Noted:** XHTML event handlers were not accessible to keyboard users, and global navigation disappeared when JavaScript was disabled on the user's browser.

**Evaluation Finding:** The global navigation problem could not be fixed immediately; it is a long-term fix. The new CSS based template, which is currently being tested, will address this issue for all pages on our Web site.

**Career Development Center**

**URL:** http://wwwsa.csueastbay.edu/~cdcweb/

**Manual Evaluation:** FAILED

**Problems Noted:** Images that displayed content did not have alt-text, XHTML event handlers were not accessible to keyboard users, and global navigation disappeared when JavaScript was disabled on the user's browser.

**Evaluation Finding:** Adding alt-text was an easy fix, however the global navigation problem could not be fixed immediately; it is a long-term fix. CSUEB’s new CSS based template, which is currently being tested, will address this issue for all pages on our Web site.

**Catalog**

**URL:** http://www.csuhayward.edu/ecat/20062007/index.html

**Manual Evaluation:** FAILED

**Problems Noted:** XHTML event handlers were not accessible to keyboard users, and global navigation...
disappeared when JavaScript was disabled on the user's browser.

**Evaluation Finding:** The global navigation problem could not be fixed immediately; it is a long-term fix. The new CSS based template, which is currently being tested, will address this issue for all pages on our Web site.

**Colleges and Departments**

**URL:** http://www.csueastbay.edu/acaprogs/academic.html  
**Manual Evaluation:** FAILED  
**Problems Noted:** XHTML event handlers were not accessible to keyboard users, and global navigation disappeared when JavaScript was disabled on the user's browser.  
**Evaluation Finding:** The global navigation problem could not be fixed immediately; it is a long-term fix. The new CSS based template, which is currently being tested, will address this issue for all pages on our Web site.

**Concord Campus Home Page**

**URL:** http://www.csueastbay.edu/concord/  
**Manual Evaluation:** FAILED  
**Problems Noted:** Images that displayed content did not have alt-text, XHTML event handlers were not accessible to keyboard users, and global navigation disappeared when JavaScript was disabled on the user's browser.  
**Evaluation Finding:** Adding alt-text was an easy fix, however the global navigation problem could not be fixed immediately; it is a long-term fix. The new CSS based template, which is currently being tested, will address this issue for all pages on our Web site.

**University Library Home Page**

**URL:** http://www.library.csueastbay.edu/?a=1&h=45  
**Manual Evaluation:** FAILED  
**Problems Noted:** Images that displayed content did not have alt-text, XHTML event handlers were not accessible to keyboard users, and global navigation disappeared when JavaScript was disabled on the user's browser.  
**Evaluation Finding:** Adding alt-text was an easy fix, however the global navigation problem could not be fixed immediately; it is a long-term fix. The new CSS based template, which is currently being tested, will address this issue for all pages on our Web site.

**Planning and Enrollment Management Home Page**

**URL:** http://esweb.csueastbay.edu/index.shtml  
**Manual Evaluation:** FAILED  
**Problems Noted:** XHTML event handlers were not accessible to keyboard users, and global navigation disappeared when JavaScript was disabled on the user's browser.  
**Evaluation Finding:** The global navigation problem could not be fixed immediately; it is a long-term fix. The new CSS based template, which is currently being tested, will address this issue for all pages on our Web site.

**Student Disability Resource Center**
Common issues, trends, solutions, and challenges identified across the representative cross-section include the following:

- (100% of repair sample pages) Global navigation menus written in JavaScript lack alternative content presentation capability to allow non-JavaScript-enabled browsers uses to access content. This failure could not and cannot be addressed practicably on a page-by-page basis, but will be globally addressed with the planned release of a new University Web template, now under development with anticipated release in Summer or Fall 2007. This template features server-side include files based upon cascading style sheets that offer a fully-accessible global navigation menu, compliant with Subpart D of Section 508.

- (Approximately 100% of repair sample pages) Images lacking "alt-tags" are used, thus failing to convey content to disabled users by means of equivalent alternative text. This is a basic programming error that is quickly remedied and even more easily avoided by ensuring that CSUEB Web developers and coordinators have basic training in Web development best practices and accessibility standards.

- (Approximately 80% of repair sample pages) Foreground and background images failed to meet the required luminosity contrast ratio. While this can be remedied with fairly basic code modifications, doing so requires that CSUEB Web developers and coordinators have access to, and training in the use of a color-contrast analyzer, which is a free and easy-to-use tool.

- (Approximately 80% of repair sample pages) Styles were commonly used to simulate headings and valid semantic mark-up, resulting in an illogically organized and hard-to-understand (inaccessible) display of page content. Depending upon the page, content, and coding, remediation requires measures from small code changes to complete rework. Reliable avoidance requires that CSUEB Web developers and coordinators be trained in the consistent use of cascading style sheets as a Web development and accessibility best practice. It also suggests that the university should develop and provide CSS-driven page content templates as part of its planned release of new Web templates.
In observing repair page errors and discussing them with site owners, it was evident that there are greatly varying levels of skill at play in the design, maintenance, and operation of the overall CSUEB Web site. In some instances, site owners quickly understood error findings and were able to make repairs easily. In other instances, those responsible for remediation of page errors required advice and assistance from an ATI-Web team expert, both to interpret the error reports as well as to correct the page error. Overall, sites built, owned, and maintained by less skilled staff tended to have more fundamental errors and problems such as cascading style sheets used to define type behaviors versus layout; inconsistent or improper use of JavaScript; and widespread use of tables. This suggests that, going forward, sites requiring more complex and time-consuming remediation will often be the responsibility of less skilled staff who will require more intensive ATI expert advice and support.

Another issue involves a lack of centralized control including an institutional Webmaster and a content management system to provide a means of readily identifying site owners and content creators, as well as an institutionalized means of promulgating and enforcing consistent standards. Because of the decentralized nature of the CSUEB, distributed as it is across 30 to 40 servers operated by various colleges, division, and affiliates, and housing what is estimated to be in excess of 100,000 pages, the ATI-Web team found it somewhat difficult and time-consuming to identify the owners of pages requiring repairs. Once identified, additional time and effort was often involved in explaining the need (ATI) for remediation and documentation. In some instances, the site owner was not the person charged with actual maintenance nor the person with the technical skills required to undertake the required remediation. This resulted in additional ATI-Web team time being invested in calls, e-mails, follow-up meetings, discussions and sometimes training or assistance. This suggests that, going forward, a major challenge for CSUEB in meeting ATI requirements for existing sites will be overcoming this lack of centralized control and operations. Moreover, because each college or division is responsible for its own pages, differences in management priorities and developer expertise will greatly affect how efficiently and effectively CSUEB will be able to meet its ATI objectives.

The difficulty, time, and cost to remediate the complete 35-page campus cross-section was estimated, based on experience with the repair cross section. Excluding navigation menu-related JavaScript issues to be addressed by a new CSUEB Web template, it was estimated that 100%, or all 25 remaining representation-sample pages, have similar material issues that may require measures from small code changes to completely reworking the pages. This would require up to 20 hours of expert skill-level time plus 20 hours of student assistant-level support (for full manual testing to “best practices” level with remediation to baseline requirements).

DISCOVERY IMPLICATIONS

Because the actual size of the CSUEB site, in terms of active pages, is unknown, it would be difficult to apply the ATI Web-team's limited findings to arrive at reliable planning assumptions about resource requirements required to ensure a fully accessible and 508-compliant CSUEB Web site. Moreover, the testing/remediation time base underlying this report does not reflect the hours invested in training, investigation, internal meetings, planning, in project management, and reporting, nor does it reflect the time invested in acquiring, configuring, deploying, and distributing new tools and report including HighSoftware AccMonitor. Finally, the testing-time base also does not accurately reflect the increased speed and efficiency of ATI-Web team members as they became more proficient in routine testing procedures and analysis.
Nonetheless, for the purposes of discussion, it should be noted that applying the existing project testing-and remediation-time base to a combined university site of 100,000 pages could require as many as between 50,000 to 75,000 hours of skilled technical staff time, supported by another 50,000 to 75,000 hours of student assistant time. (This is based on 30 - 45 minutes/page to analyze automated baseline scan results and remediate to baseline requirements only.) Given the magnitude of such an investment, CSUEB should consider whether a more cost-effective alternative would be to invest in a CMS and the development of an entirely new site, built from scratch to the highest standards, including those pertaining to accessibility.

Based on the ATI-Web team's first-year experience, it is clear that CSUEB's ability to meet its long-term ATI-Web obligations and objectives will be greatly affected by its response to key Web development, organization, infrastructure, and operations issues. These include the need for:

- Centralized site control and oversight including a means to identify site and content owners
- An institution-wide Webmaster to monitor, ensure, and enforce site-wide content accessibility compliance
- A content management system to ensure only tested, approved, consistent, compliant content is posted
- A robust, detailed ATI-Web "best practices" policy with effective means of promulgation and enforcement
- Updated Web governance procedures addressing distributed-responsibility requirements for ATI compliance
- Increased availability of specialized training for all CSUEB Web coordinators, developers, and site owners to enable effective remediation, ensure new content compliance, and increase campus ATI-Web expertise
- A project-managed pool of trained hourly student assistants to support large-scale testing and remediation
- Procurement policies and standards to ensure third-party applications are fully accessible