

170-WP-026-002

ECS Web Site 508 Compliance Final Report

White Paper

November 2002

Prepared Under Contract NAS5-60000

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Abstract

This document describes the activities and issues associated with bringing a number of ECS managed web sites into compliance with Section 508 of the Rehabilitation Act. The report includes the inventory of updated web sites, the approach used for compliance, the list of waivers, and appendices that include the list of sites, and the approach and issues associated with each web site that was updated.

Keywords: Section 508, Rehabilitation Act, ECS web sites, 508 compliance

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1. Introduction

1.1 Purpose

This document describes the activities and issues associated with bringing a number of ECS managed web sites into compliance with Section 508 of the Rehabilitation Act. The report includes the inventory of updated web sites, the approach used for compliance, the list of waivers, and appendices that include the list of sites, and the approach and issues associated with each web site that was updated.

1.2 Organization

The contents of the document are as follows:

- Section 1. Introduction
- Section 2. Inventory of Sites - Inventory of ECS managed web sites, including which were updated to be 508 compliant.
- Section 3. Approach for Compliance – Describes the approach taken to bring the NASA priority 2 web sites into compliance.
- Section 4. Waivers - Describes the sites where a waiver was requested, and the workarounds used to comply.
- Appendix A. Detailed information related to each NASA priority 2 site that was updated.
- Appendix B. List of public priority 3 sites
- Appendix C. List of internal priority 3 sites

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2. Inventory of Sites

2.1 Inventory of Sites

The total set of sites managed by ECS appears in Appendices A, B and C. Of those sites listed, 11 sites were deemed NASA priority 2 sites. Those sites were updated as part of ESD 153 to be compliant with Section 508 of the Rehabilitation Act.

The priority 2 sites that were updated are:

1. Synergy Earth Outlook
2. EDHS
3. ECS Info
4. ASTER On-Demand Form (ODFRM)
5. Java DAR Tool (JDT)
6. MSS Trouble Ticket Interface
7. Whazzup
8. Synergy II Spatial Subscription Server
9. Synergy II Data Pool Web GUI
10. Synergy II Data Pool Maintenance GUI

These priority 2 sites are listed in Appendix A. Appendix C provides detailed information related to how each site was updated, and specific issues that arose while bringing them into compliance.

The remaining sites were considered NASA priority 3, and were classified as public, or internal. Public priority 3 sites will be updated as part of the ECS sustaining engineering effort. The list of priority 3 sites is listed in Appendix B. The internal sites are not used by the general public, but typically by DAAC operations and/or ECS development. Internal sites will not be updated unless a visually or cognitively impaired individual is hired and required to use the site as part of their job.

For each site listed in Appendices A, B, the information gathered is listed in Table 2-1.

Table 2-1. Information Gathered for Each ECS Web Site

Information	Purpose
Name of the web site	Reference
The URL or URLs that reference the site	Reference. In many cases, there were multiple installations of a particular web site. In all cases however, the modifications necessary to update the site were made in one place, at the code source in the ECS Development Facility (EDF).
Organization and POC	For help in answering questions and determining who would perform the modifications

3. Approach for Compliance

3.1 Tools Used

A number of COTS products were procured to support 508 compliance development. Table 3.1-1 lists the set of tools used to bring the ECS web sites into compliance. A description of how they were used in the update process is described in Section 3.2.

Table 3.1-1. 508 Compliance COTS Development Tools

Tool	Vendor URL	Purpose
SSB Technologies' InFocus	http://www.ssbtechnologies.com/	Automates many Section 508 compliance changes Used to verify compliance
Freedom Scientific's JAWS	http://www.freedomscientific.com/	One of the most popular screen readers on the market today Used to help understand and verify accessibility
Adobe's Acrobat	(http://www.adobe.com/)	-Used to create Section 508 compliant PDF files - Used extensively in Data Management for EDHS
Macromedia's Dreamweaver	(http://www.macromedia.com/)	-Used for new web page building as it enforces 508 compliance - Limited use for this exercise since it is geared toward developing new, compliant web sites

3.2 Implementation Steps

The steps used to bring ECS web sites into compliance are:

1. Run InFocus's automated change tool over each page of the site
2. Run InFocus manually over each page to address those errors that cannot be addressed automatically
3. Modify static HTML
4. HTML templates used for dynamically generated web pages
5. Modify code that dynamically generates HTML
6. If applicable, convert Microsoft Word or Excel files into PDF format using Acrobat 5.0

7. Verify compliance using InFocus and JAWS
8. If the web site is delivered to the DAACs, generate a severity 5 NCR and follow the standard NCR/deployment process
9. Perform regression testing in ECS Functionality Lab
10. Perform a final verification test with oversight by the ESD lead and/or an ECS Software Integration Team (SWIT) lead

4. Waivers

4.1 Waiver Approach

Sites to be waived from compliance were determined based on undue burden.

4.2 Sites Waived

Two sites were waived, the Java DAR Tool, and the ECS Info web site. The description of why these sites were waived, and the workaround that was put in place to accommodate impaired users is included in Appendix C.

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Appendix A. Inventory of Updated Web Sites

Web Site	Server/URL	Organization Owner
ASTER On-demand Product Request Form (ODFRM)	<p>http://edcdaac.usgs.gov/asterondemand/index.html/, http://e0ins02u.ecs.nasa.gov:18000/, http://e0ins02u.ecs.nasa.gov:18001/, http://e0ins02u.ecs.nasa.gov:18002/ for OPS, TS1, and TS2 @ EDC http://f2ins01.hitc.com:<port> where for EDF modes OPS----f2ins01:10300 DEV06----f2ins01:10316 DEV07----f2ins01:10317 DEV08----f2ins01:10318</p>	ECS Development - CLS
Java DAR Tool	<p>http://e0ins02u.ecs.nasa.gov:10400, http://e0ins02u.ecs.nasa.gov:10401, http://e0ins02u.ecs.nasa.gov:10402 for OPS, TS1, and TS2 @ EDC</p>	ECS Development - CLS
Synergy Earth Outlook	<p>earth-outlook.east.hitc.com:1500 and/or www.east.hitc.com</p>	ECS Synergy
Remedy - MSS Trouble Ticket Interface	<p>http://<machine>:<port>/MSS/MsTtHTMLMenu?userId=<registered_user_id> where port is 103xx (depends on mode; usally it's 10304 for SHARED mode - machine is - e0mss21.ecsb.ecs.nasa.gov - g0mss21.gsfc.ecs.nasa.gov - l0mss21.larc.ecs.nasa.gov - n0mss21.nsidc.ecs.nasa.gov The machines here are: - t1mss06.vatc.ecs.nasa.gov - p0mss21.pvc.ecs.nasa.gov - f2mss01.hitc.com - f3mss01.hitc.com and the user is a registered ECS user</p>	ECS M&O

Web Site	Server/URL	Organization Owner
EDHS	http://edhs1.gsfc.nasa.gov/	ECS Data Management
ECS Info	http://ecsinfo.gsfc.nasa.gov/ and/or observer.gsfc.nasa.gov (port 80 and 443)	ECS Science Office
Dashboard	https://e0mos03.edcmo.ecs.nasa.gov/	ECS M&O
Whazzup	http://mss1:5150/	ECS Development
Spatial Subscription Server		ECS Development - SSS
Synergy II Data Pool Maintenance GUI		ECS Development – DPL
Synergy II Data Pool Web Access GUI	http://edcdaac.usgs.gov/tutorial/datapool.html	ECS Development – DPL

Appendix B. Inventory of Priority 3 Web Sites

Web Site	Server/URL	Organization Owner
ECS Baseline Information System	http://pete.hitc.com/baseline/home.html	Configuration Management
ECS Project Database Server	http://newsroom.gsfc.nasa.gov/	RTSC
ECS Project Database Server - ECS Internet Phone Book	http://newsroom.gsfc.nasa.gov/cgi-bin/phone/phughes	RTSC
ECS Project Database Server - Toolkit	http://newsroom.gsfc.nasa.gov/sdptoolkit/toolkit.html	ECS Development - Toolkit
pete.hitc.com	http://pete.hitc.com	Configuration Management
ECS Baseline Information System	http://pete.hitc.com/baseline/home.html	Configuration Management
ECS Code Count	http://pete/codecount/home.html	CM - Clearcase Support Group
STTS	http://pete.hitc.com/STTS/prot-cgi/stts.pl	CM - Clearcase Support Group
ECS Verification Database	http://ecsv.gsfc.nasa.gov/	ECS - Systems Engineering
ABC++	http://scooby.hitc.com:8080/ecs/index.html or http://plucky.hitc.com:8080/ecs/index.html	ECS Systems Engineering
ECS Internal Server	http://dmserver.gsfc.nasa.gov/	Data Management
CCB	http://dmserver.gsfc.nasa.gov/CCB-BB/ECS/CCB-BB.html	Configuration Management
Data Management Office Web Page	http://dmserver.gsfc.nasa.gov/dmo/dmotop.html	Data Management
EDF Reference Materials	http://dmserver.gsfc.nasa.gov/Manuals/info.html	Data Management

Web Site	Server/URL	Organization Owner
Internal Document Collection	http://dmserver.gsfc.nasa.gov/intdocs/intdocscat.html	Data Management
ECS Library	http://dmserver.gsfc.nasa.gov/library_news/libindex.html	Data Management
Organization Charts	http://dmserver.gsfc.nasa.gov/orgcharts/orgindex.html	Data Management
Project Forms	http://dmserver.gsfc.nasa.gov/forms/formindex.html	Data Management
Project Directives	http://dmserver.gsfc.nasa.gov/proj_instr/pi_index.html	Data Management
CLS Subsystem Homepage	http://dmserver.gsfc.nasa.gov/cls/index.html	ECS Development
Development Engineering Homepage	http://dmserver.gsfc.nasa.gov/relbintg/integ~il.htm	ECS Development
DSS Subsystem Homepage	http://dmserver.gsfc.nasa.gov/dss/page1.html	ECS Development
Earth Science Data Types	http://dmserver.gsfc.nasa.gov/esdt/	ECS Development
ECS Assistant Home Page	http://dmserver.gsfc.nasa.gov/ecs_assistant/	ECS Development
ECS DDM Homepage	http://dmserver.gsfc.nasa.gov/ddm/ddm1.html	ECS Development
ECS Developers' Home Page	http://dmserver.gsfc.nasa.gov/ecsdev/	ECS Development
ROM Board Home Page	http://dmserver.gsfc.nasa.gov/roms/rom.html	ECS Systems Engineering
Release B System Verification	http://dmserver.gsfc.nasa.gov/relb_it/relbit.htm	ECS Systems Engineering
COTS Hardware-Software Maintenance Homepage	http://dmserver.gsfc.nasa.gov/ils/intro.html	ECS Systems Engineering
Raytheon Landover Facility Status Page	http://status.hitc.com/	RTSC
Big Brother	http://bb-king.hitc.com/	RTSC

Appendix C. Priority 2 Web Sites Detailed Information

ASTER On-Demand Form (ODFRM)

Introduction

This section describes the testing methodology, results, and special modified features made to the ASTER On-Demand Processing Requests web site to bring it into compliance with Section 508 of the Rehabilitation Act. InFocus and JAWS were used to perform testing for web site accessibility and compliance with Section 508 guidelines.

Testing Methodology

Testing was performed using InFocus version 4.1.2 to determine accessibility and compliance based on Section 508 standards. InFocus generated violations and provided a solution for fixing them. The web site is designed to allow users ordering on-demand ASTER data products. All pages on the ASTER On-Demand Processing Requests web site are dynamic. File types include C, CGI, Perl, JavaScript, and HTML. The screen reader, JAWS, was used to verify that the modifications made after the run through InFocus made the site accessible.

Summary of Section 508 violation and modification reported by InFocus

After run the InFocus to test the ASTER On-Demand Processing Requests web pages the following major violations were fixed:

1. GIF Image was added an "ALT" attribute.
2. Every page was organized to be readable without requiring an associated style sheet. InFocus ran "Style sheets off" preview test on every web page to ensure pages are readable when style sheets are turned off.
3. Tables were added the "SUMMARY", "TH", "TR", and "TD" attributes.
4. Setting the "TITLE" attribute on a link allows user agents (visual and non-visual) to tell users about the nature of the linked resource.
5. In the select menu fields and buttons, "TABINDEX", "LABEL", and "FOR" attributes were added to receive focus on the elements.
6. Every web page was checked to linearize properly.
7. Color check is ignored for the ASTER On-Demand Processing Requests web pages because color never has any semantic value.
8. "Grayscale" test was run by InFocus to preview what a web page would look like when color is not available (e.g. color blindness). This test was to assure that a page was not used color as the sole means of communication information.

Java DAR Tool (JDT)

Introduction

After investigating and testing the JDT under various scenarios we came to the conclusion that implementing JDT for Section 508 does not seem to be feasible and would request a waiver under Section 508 Accessibility: The "Undue Burden" Exception because of the following reasons:

1. To make JDT 508 compliant there needs to be an extensive engineering change in the structure of the JDT screens.
2. Making JDT 508 compliant may not be cost effective in view of the limited number of users who use the tool.
3. The screen reader is only able to read the static HTML pages and not the contents of the JDT applet, which makes it impossible to navigate the applet and submit a request.
4. We also came across the hurdle of needing to use the Mouse (its the only option) to navigate the JDT applet, which is not possible under Section 508.
5. Locating the Spatial coordinates on the Orthographic map is not possible without the help of a Mouse.

Alternate way for accessing the Java Dar Tool

In view of the above-mentioned constraints and in view of the limited number of users, Users who are visually impaired can submit their request over the Phone, by contacting the EROS Data Center User Services. Information to this effect will be provided on the main page of the Java Dar Tool, which the screen reader can pick up.

Synergy Earth Outlook

Introduction

This section describes the testing methodology and results made to the Synergy Earth Outlook web site into compliance with Section 508 of the Rehabilitation Act. InFocus and JAWS were used to perform test for web site accessibility and compliance with Section 508 guidelines.

Testing Methodology

Testing was performed using InFocus version 4.1.2 to determine accessibility and compliance based on Section 508 standards. InFocus generate the violation and provide a solution to fix it. All pages in the Synergy Earth Outlook web site are static and html files. PDF and PPT format files don't be included in the InFocus test. Screen reader, JAWS, is used to verify the modification was made after run the InFocus.

Summary of Section 508 violation and modification reported by InFocus

After run the InFocus to test the Synergy Earth Outlook web pages the following major violations were fixed:

1. GIF Image was added an "ALT" attribute.
2. Every page was organized to be readable without requiring an associated style sheet. InFocus ran "Style sheets off" preview test on every web page to ensure pages are readable when style sheets are turned off.
3. Tables were added the "SUMMARY", "TH", "TR", and "TD" attributes.
4. The home page of Synergy Earth Outlook originally includes two frames, navigation menu frame on the top and display content on the bottom. In order to prevent browsers don't support frame both frames were removed. A navigation menu bar was added to each page.
5. Setting the "TITLE" attribute on a link allows user agents (visual and non-visual) to tell users about the nature of the linked resource.
6. A "TYPE" attribute and keyboard-accessible alternatives were added to scripts. So users with visibility disabilities can still access pages either within or outside of the scripts.
7. Provided a link to a plug-in that will meet the software provisions.
8. Every web page was checked to linearize properly.

For the Synergy Earth Outlook web pages color check is not changed because color has not semantic value. "Grayscale" test was run by InFocus to preview what a web page would look

like when color is not available (e.g. color blindness). This test was to assure that a page was not used color as the sole means of communication information.

Trouble Ticket

Introduction

This section describes the testing methodology and results made to the MSS Trouble Ticket web site into compliance with Section 508 of the Rehabilitation Act. InFocus and JAWS were used to perform test for web site accessibility and compliance with Section 508 guidelines.

Testing Methodology

Testing was performed using InFocus version 4.1.2 to determine accessibility and compliance based on Section 508 standards. InFocus generate the violation and provide a solution to fix it. Most pages on the MSS Trouble Ticket web site are dynamic and TMPL files. Screen reader, JAWS, is used to verify the modification was made after run the InFocus.

Summary of Section 508 violation and modification reported by InFocus

After run the InFocus to test the MSS Trouble Ticket web pages the following major violations were fixed:

1. GIF Image was added an "ALT" attribute.
2. Every page was organized to be readable without requiring an associated style sheet. Infocus ran "Style sheets off" preview test on every web page to ensure pages are readable when style sheets are turned off.
3. Tables were added the "SUMMARY", "TH", "TR", and "TD" attributes.
4. Setting the "TITLE" attribute on a link allows user agents (visual and non-visual) to tell users about the nature of the linked resource.
5. In the text input fields and forms, "LABEL", "FOR", and "TABINDEX" attributes were added to receive focus on the elements.
6. Every web page was checked to linearize properly.

Color check is ignored for the MSS Trouble Ticket web pages because color never has any semantic value. "Grayscale" test was run by InFocus to preview what a web page would look like when color is not available (e.g. color blindness). This test was to assure that a page was not used color as the sole means of communication information.

ECS Data Handling System (EDHS)

Introduction

This section describes the changes made to the ECS Data Handling System (EDHS) web site to bring the site into compliance with Section 508 of the Rehabilitation Act. The software packages that were used to check, correct and test the website were InFocus 4.1.2, JAWs 4.0.1, and Adobe Acrobat 5.0.

Summary of Section 508 violation and modification reported by InFocus

After running the InFocus software to test the EDHS website, the following major violations were fixed:

1. The homepage contained an image that required alternative text.
2. The homepage also contained a second image that serves as an image map to various high-level pages on the site. Alternative text was added to provide an over all description of the image and to notify the user that it is an image map. Additionally, alternative text was added to each link on the image map to let the user know the purpose of each page linked in the image map.
3. The EDHS presents information in Portable Document Format (PDF) files. The reference to this on the homepage was updated to recommend Adobe Acrobat Reader 5.0 for proper viewing of the files. The link provided to the Adobe website for downloading of the free Reader software was verified to ensure it was a valid link. The Data Management group, who is responsible for creating the PDF files posted to the EDHS site, has obtained updated Acrobat software to create compliant PDF files.
4. All documents currently on the site were updated to ensure they are readable by the screen reader software. A small percentage of those documents were unable to be updated due to the age of the files. Staffing and workload constraints did not allow for those documents to be reprocessed from the native files. The following caveat was added to the site:

The pages on this web site have been created and revised to be accessible to people with disabilities in accordance with Sections 508 and 504 of the Workforce Investment Act and the Americans with Disabilities Act. Our pages have been created to ensure that people with disabilities have access through screen readers and other devices.

Our site also consists of many documents in the Portable Document Format (PDF) from Adobe Systems ®, Inc. Please note that documents created prior to June 2002 may not be 100% compliant with screen reader devices. For more information on Adobe Systems, and accessibility, and to download the current free Acrobat Reader that is screen reader compliant, please visit access.adobe.com.

5. Steps have been put into place to ensure that all newly posted documents are processed to ensure 508 compliance.

"Grayscale" tests were run by InFocus to preview what a web page would look like when color is not available (e.g. color blindness). The EDHS website does not use color to convey meaning

ECS Info

Introduction

This section describes the testing methodology and results made to the ECSInfo web site to comply with Section 508 of the Rehabilitation Act. InFocus and JAWS were used to perform tests for web site accessibility and compliance with Section 508 guidelines.

Testing Methodology

Testing was performed using InFocus version 4.1.2 to determine accessibility and compliance based on Section 508 standards. There were approximately 24 static web pages treated. Most of the HTML pages for the ECSInfo web site are static except for occasional updates of very specific lines of code. InFocus was used to analyze these pages and provide solutions for non-compliant code structures.

The "Fix HTML" option was employed on most pages. InFocus had no problem finding many HTML violations that most browsers ignore or otherwise deal with in a way transparent to the user.

One group of web pages, related to selecting and reading ESDT Descriptor files, is dynamically generated from a Perl/CGI script - indexer.pl. InFocus was run on one such generated HTML page, this was compared to the original HTML and the information used to modify the Perl /CGI script so that it would generate Section 508 compliant HTML code.

Summary of Section 508 violations and modifications reported by InFocus

1. The "Fix HTML" option picked up some occurrences of unmatched ">" characters. These were fixed manually.
2. Most pages required an alternative event handler added.
3. Most pages required an event handler title added.
4. More than half of the pages required a form field label added.
5. Several pages required an alternate attribute for an image.
6. Nineteen HTML pages, related to selecting and viewing EDST Descriptor files, are generated from a Perl /CGI script - indexer.pl. This script was modified manually so that the HTML code it generated incorporates Section 508 attributes.
7. Virtually every page caused InFocus to generate Insufficient Color Contrast warnings.
8. Since visual inspection of the pages didn't seem to reveal any contrast problems, this aspect of InFocus analysis was viewed as a "false positive" and ignored.

Other notes:

InFocus didn't seem to handle commented out sections of HTML code well. It would uncomment these sections of code and rearrange and duplicate code in an unpredictable way. The resultant pages were unusable. Sometimes this was due to an unbalanced structure somewhere in the HTML and sometimes the cause was unidentifiable. In any case, things worked better by removing any commented out structures before running InFocus with the "Fix HTML" option selected.

Testing was performed using JAWS version 4.01 to determine accessibility and compliance based on Section 508 standards.

1. Internet Explorer 4.0 and Netscape Communicator 4.75 were used to display ECSInfo web pages.
2. Use keystrokes to select different frames, display links and headings, active form field, and do the general tasks, like back to previous page, forward to next page, refresh screen, and virtual PC cursor toggled.
3. JAWS on a Windows based PC read each page. ECSInfo consists of HTML, image, animation, Images, Adobe Acrobat format file (PDF), MS Excel, MS Word, Power Point, and text file. JAWS was able to read all of them.
4. Since the JAWS cannot read Ms Excel and non-tagged Adobe Acrobat format file properly, the Adobe Acrobat 5.05 was used to convert non-PDF to PDF and convert non-tagged PDF to tagged PDF.

Summary of Section 508 non-compliance and modifications reported by JAWS

1. JAWS 4.01 recognizes images in Netscape Communicator, it skips them. However JAWS recognizes all images in Internet Explorer and is able to read the contents in image ALT well.
2. JAWS cannot read PDF file properly, if the PDF file is not a tagged file. All PDF files in ECSInfo have been converted into tagged PDF files. More than thirty non-tagged PDF files were converted.
3. JAWS cannot read MS Excel file properly. It reads words line by line. Thus, if there are several lines in a cell, after it reads first line in this cell, it won't read second line in the same cell but reads first line in the next cell. Some Ms Excel files have been converted into tagged PDF file. But for those files that have several different formats including PDF, the conversion was not necessary. A statement was added in those pages to suggest that JAWS users select the Adobe Acrobat version.
4. One MS Excel files in "ESDT Weekly Change Status" (<http://ecsinfo.gsfc.nasa.gov/ECSInfo/ecsmetadata/ESDT/index.html>) was not converted to PDF file even it has not the other JAWS friendly format files. The reason is that it needs to be updated weekly and several sheets in this file are so huge that Science Office couldn't afford to do the file conversion once a week. The section 508 waiver for this page has been

applied. Also, a hidden statement, “Visually impaired users may contact the ECS Science Office for information associated with these files”, has been added on this page for the JAWS user.

5. Several HTML pages couldn't be read properly with JAWS. Their HTML code has been modified
6. JAWS cannot read the table in image format, which is at <http://ecsinfo.gsfc.nasa.gov/sec2/progress.html>. Science office suggested removing the table since now it is not useful. The table has been removed.

Waiver

After investigating and testing the “ESDT Weekly Change Status” spreadsheet in ECS Info web site under various scenarios we came to the conclusion that implementing “ESDT Weekly Change Status” for Section 508 does not seem to be feasible and would request a waiver under Section 508 Accessibility: The "Undue Burden" Exception because of the following reasons:

1. To make “ESDT Weekly Change Status” 508 compliant 19 files need to be converted from MS Excel file to tagged PDF file weekly. The file size is huge. One of the files contains more than seven thousand pages, and it requires 10 hours to convert weekly. This was considered undue burden for maintaining this web site.
2. The “ESDT Weekly Status” spreadsheet is targeted to instrument teams. Making “ESDT Weekly Change Status” 508 compliant may not be cost effective in view of the limited number of users who use the spread.
3. The users need the spreadsheet functionality provided by Excel. PDF format would be of no value to them

In view of the above-mentioned constraints, and in view of the limited number of users, the request to waive that portion of the site was submitted. The alternative calls for users who are visually impaired to contact the ECS Science Office by phone. Information to this effect will be provided on the same page of the “ESDT Weekly Status” spreadsheet located, which the screen reader can pick up.

Dashboard

Introduction

This section gives an overview of revisions made to the Dashboard web application for section 508. InFocus was used to test compliance with the requirements of section 508. InFocus generates ‘flags’ when an item in a web page is either not in compliance with accepted 508 guidelines. There are two varieties of these flags:

- A) Objective non-compliance flags - Some violations are pretty ‘cut and dry’, e.g., a GIF image must have an alt attribute. InFocus will flag such items in a web page.
- B) Subjective non-compliance flags - These are items that are often prefaced with ‘should’ in the 508 guidelines. InFocus has configuration settings that allow you to quantify violations of this type, e.g., the maximum number of options in a select list that are allowed without the use of optgroup tags.

For testing purposes I left the configuration settings at their default settings to be conservative, justifying those flags that pop up in that context. I have tested the presentation web pages for the Dashboard web application in a reasonably rigorous fashion and below have created 2 tables, a summary table and a detail table. The summary table (1) identifies the types of flags that occurred, in testing, (2) gives a description of the flag, (3) states the number of occurrences, and (4) justifies why the flag is not of concern. The detail table (1) lists all of the presentation web pages and gives a functional description each, (2) shows any flag that appears on each web page in testing with InFocus, and (3) provides an explanation why the flag can be ignored.

No flags occurred in testing that are of concern, all can be justifiably ignored.

Special Features of the 508 Dashboard Web Application

1. An optional navigation bar is available to the user on each of the web pages. This navigation bar allows the visually handicapped user to move to the various sections of web pages directly rather than having to move through all proceeding items to reach a desired section or control.
2. An alternative format is provided for the Grand Total Tables, Summary Tables, and Temporal Detail Tables for Ingest, Distribution, Production/Inventory, DPR, Archive, and Integrated Browse. **While the standard formats of these tables are 100% section 508 conforming**, the developer had some concerns about navigation through the tables using Netscape 4.x. The alternative formats were provided as insurance that visually handicapped users would not have problems using the application, using Netscape 4.x, Netscape 6.x, or Internet Explorer. These alternative formats are perfectly synchronized with the standard format reports. This is the major section 508 concern about alternative formats.

3. A style sheet is used for some page formatting. However the style sheet is not functionally necessary for the Dashboard web application.

Testing Methodology

Testing was performed using InFocus version 4.1.2 under the default settings. InFocus will generate flags when a web Page item is not in conformance, or not within the parameters in the configuration settings.

Two flags are *always* generated for web pages:

1. This page uses color elements. Paragraph (c) of the Section 508 standards prohibits the use of color as the sole method for indicating information on a web page.
2. This page contains layout tables and may not linearize properly. Paragraphs (g) and (h) of the Section 508 standards require that tables be coded according to the rules for developing tables of the markup language used.

These flags are generated because the user requires a manual check; InFocus is not able to verify conformity for those two items.

For the Dashboard web application Pages these flag may be ignored:

1. Color never has any semantic value.
2. All pages have been checked to linearize properly.

Below I summarize and itemize all flags (other than the above two) that are generated by InFocus under the default configuration settings. All of the presentation web pages are jsp pages, and many of these generate a number of different reports. While it is not possible to test every possible report generated with the web pages a concerted effort has been made to test conformance of each these in a reasonable variety of manifestations.

Summary of section 508 violations (flags) reported by InFocus

Flags occurred in 22 places in testing with InFocus, using the default configuration parameter settings. These flags were of 4 types. None of these flags represents a real section 508 violation for the Dashboard web application.

Thirteen of these are totally bogus for technical reasons. We find a number of occurrences of a flag by the InFocus application because the InFocus application misinterpreted a layout table to be a data table. The only violation of concern for a layout table is proper linerization. Configuration settings on InFocus are designed with rules to allow one to set the parameters of data tables, so InFocus can judge when a table is a data table and flag violations for those types of tables. However for the Dashboard web application this is impossible; the layout tables can be too complex to make them always distinguishable according to the configuration rules of InFocus. Note that the converse not problematic; any data table in the Dashboard web application will always be correctly interpreted as a data table by InFocus.

Summary Table

InFocus Flag	InFocus Description	Number of Web Pages that it Occurs on	Reason Why these Occurrences are not Section 508 Violations
'FORM missing FIELDSET'	<p>These FORMs do not have FIELDSETs to group related form controls. Paragraph (n) of the Section 508 standards requires that people with disabilities have access to electronic forms. In complex forms, using FIELDSET elements to group form controls aids in navigation through the form. For example, on an order form, authors should separate categories such as "Billing Information," "Shipping Address" and "Order Summary" using FIELDSET elements. If all the elements belong in one category, ensure that the form has a proper description for users of assistive technologies (adding a FIELDSET around the entire form is one option). If you have made other accommodations, ignore this violation.</p>	4	<p>For the index web page the flag is inexplicable. That page does in fact have FIELDSET tags for the two control groupings (global settings and report category buttons). I have discussed this with SSB support; I do not believe that this flag should occur even under the InFocus default configuration settings. Notwithstanding, the InFocus documentation states "If you have made other accommodations, ignore this violation". Other accommodations have indeed been made in all places where these flags occur; a navigation bar is provided at the top of the page that allows the user to navigate to the different groups of controls in the form, eliminating the need for FIELDSET tags. There is no 508 violation here.</p>
'Non-skippable link group'	<p>This group of links, the first of which is flagged, does not have a mechanism allowing a user to skip past them. Paragraph (o) of the Section 508 standards requires that a method must be used to provide users of assistive technologies the option to skip repetitive navigation</p>	5	<p>The first link in the navigation bar takes the user to the beginning of the input form, effectively bypassing the navigation bar. So a bypass link is unnecessary and would just be in the way. There is no 508 violation here.</p>

InFocus Flag	InFocus Description	Number of Web Pages that it Occurs on	Reason Why these Occurrences are not Section 508 Violations
	<p>links. For example, consider a web site that uses a top navigation bar on all its pages. Each time a user of an assistive technology accesses a new page within the site, they will have to listen to all the nav bar links before getting to the content of the page. This makes it difficult to access the information in an efficient manner. Therefore, authors should include a mechanism allowing users to skip past groups of links. The easiest way to accomplish this is through the use of inner-document links. If you have employed another method, ignore this violation.</p>		
'Ungrouped OPTIONS'	<p>This OPTION element does not employ OPTGROUP tags. Paragraph (n) of the Section 508 standards requires that people with disabilities have access to electronic forms. If drop-down menus have numerous items, users of assistive technology can have a difficult time choosing an option from a long list. OPTGROUPs allow a drop-down menu to be broken down into smaller sections, which are then easier to navigate. As an example, consider a user entering their billing address using a drop-down menu that contains all</p>	2	<p>OPTGROUP tags are used to help a visually handicapped user navigate to specific selections in a very large options list. The OPTGROUP tag is not well supported by current browsers, but its design allows web authors to use it today without sacrificing compatibility with non-supporting browsers. However this design presents limits to dynamically changing the OPTGROUP tags; dynamic changes cannot be done with Javascript. One must go back to the server to dynamically update the OPTGROUP names. OPTGROUP tags are indeed incorporated in the Dashboard web application when lists are static and potentially of size greater than 20, in this case the Data Provider list. However on a number of pages the Granule Type list contents are dynamically changed when a user changes the selections on other filter lists. Since multiple selections can be made to the other filter lists the contents of the Granule Type list can be quite variable. Going back to the server each time the user changes a filter selection would be undesirable, it</p>

InFocus Flag	InFocus Description	Number of Web Pages that it Occurs on	Reason Why these Occurrences are not Section 508 Violations
	50 states. A user from Wyoming will have to listen to all other 49 states before they can select Wyoming. If the list of states is broken down into five brackets based on alphabetical order or geographical region, it will allow this user to quickly and easily enter the necessary input.		would slow things down too much. However the Granule Type list can be made manageably small by judiciously using the selections on the other filter lists, so OPTGROUP sections are really not necessary for the Granule Type lists in Dashboard web application. There is no 508 violation here.
'Table missing summary', 'Table without table headers', and 'Cell and header association'	These flags are totally bogus, resulting when InFocus misinterpreted a layout tables as data tables. The configuration parameters of InFocus are designed to allow the user to set them in such a way that allows InFocus to discriminate between layout and data tables, but this not really feasible for the Dashboard web application due to the variation in the layout table used.	13	This flag occurred because InFocus interpreted a table as a data table when in fact it was a layout table. It is not possible to set the InFocus data table configuration parameters in such a way that would allow InFocus to always identify a layout table as such; the layout tables are too varied in the Dashboard web application to allow that. So InFocus mistakenly identifies some layout tables as data tables. The only section 508 concern for layout tables is that they linearize properly. This has been checked. There is no 508 violation here.

Detail Table

Web Page Name	Page Description	Flags	Comments
index	Home Page. Contains radio buttons for user defined global settings and links to the report request pages for each report category.	FORM missing FIELDSET Grouping	This flag occurs in two places. The page does in fact have FIELDSET tags for the two control groupings (global settings and report category buttons). I have discussed this with SSB support, I do not believe that this flag should occur. Notwithstanding, the InFocus documentation states "If you have made other accommodations, ignore this violation." Other accommodations

Web Page Name	Page Description	Flags	Comments
			have indeed been made in that a navigation bar is provided at the top of the page that allows the user to navigate to the different groups of controls in the form, eliminating the need for FIELDSET tags. There is no 508 violation here.
SelectIngestReport	Page that allows user to specify the Ingest Report that he wants to receive, the temporal range of that report, and any filters delineating the type of data contained in the report	Non-skippable link group	The first link in the navigation bar takes the user to the beginning of the input form, effectively bypassing the navigation bar. So a bypass link is unnecessary and would just be in the way. There is no 508 violation here.
SelectIngestReport	Page that allows user to specify the Ingest Report that he wants to receive, the temporal range of that report, and any filters delineating the type of data contained in the report	Ungrouped OPTIONS	OPTGROUP tags are used to help a visually handicapped user navigate to specific selections in a very large options list. The OPTGROUP tag is not well supported by current browsers, but its design allows web authors to use it today without sacrificing compatibility with non-supporting browsers. However this design presents limits to dynamically changing the OPTGROUP tags; dynamic changes cannot be done with Javascript. One must go back to the server to dynamically update the OPTGROUP names. OPTGROUP tags are used in the Dashboard Web application when lists are static and potentially of size greater than 20, in this case the Data Provider list. This flag concerns the Granule Type List. The Granule Type list contents are dynamically changed when a user changes the selections on the Data Provider list. Since multiple selections can be made to the Data Provider list the contents of the Granule Type list can be quite variable. Going back to the server each time the user changes a filter selection would be undesirable as explained above. However the Granule Type list can be made manageably small by judiciously using the selections on the Data Provider list, so OPTGROUP sections are really not necessary for the Granule Type lists in Dashboard web application. There is no 508 violation here.
SelectDistReport	Page that allows user to specify the Distribution	Non-skippable link group	The first link in the navigation bar takes the user to the beginning of the input form, effectively bypassing the navigation bar. So a

Web Page Name	Page Description	Flags	Comments
	Report that he wants to receive, the temporal range of that report, and any filters delineating the type of data contained in the report		bypass link is unnecessary and would just be in the way. There is no 508 violation here.
SelectDistReport	Page that allows user to specify the Distribution Report that he wants to receive, the temporal range of that report, and any filters delineating the type of data contained in the report	Ungrouped OPTIONS	OPTGROUP tags are used to help a visually handicapped user navigate to specific selections in a very large options list. The OPTGROUP tag is not well supported by current browsers, but its design allows web authors to use it today without sacrificing compatibility with non-supporting browsers. However this design presents limits to dynamically changing the OPTGROUP tags; dynamic changes cannot be done with Javascript. One must go back to the server to dynamically update the OPTGROUP names. OPTGROUP tags are used in the Dashboard Web application when lists are static and potentially of size greater than 20, in this case the Instrument and Platform lists. This flag concerns the Granule Type List. The Granule Type list contents are dynamically changed when a user changes the selections on the Instrument or Platform lists. Since multiple selections can be made to these lists the contents of the Granule Type list can be quite variable. Going back to the server each time the user changes a filter selection would be undesirable as explained above. However the Granule Type list can be made manageably small by using the selections on the Instrument and Platform lists, so OPTGROUP sections are really not necessary for the Granule Type lists in Dashboard web application. There is no 508 violation here.
SelectDistReport	Page that allows user to specify the Distribution Report that he wants to receive, the temporal range of that report, and any filters delineating the type of data contained in the report	Table missing summary	This flag occurred because InFocus interpreted a table as a data table when in fact it was a layout table. It is not possible to set the InFocus data table configuration parameters in such a way that would allow InFocus to always identify a layout table as such; the layout tables are too varied in the Dashboard web application to allow that. There is no 508 violation here.

Web Page Name	Page Description	Flags	Comments
SelectDistReport	Page that allows user to specify the Distribution Report that he wants to receive, the temporal range of that report, and any filters delineating the type of data contained in the report	Table without table headers	This flag occurred because InFocus interpreted a table as a data table when in fact it was a layout table. It is not possible to set the InFocus data table configuration parameters in such a way that would allow InFocus to always identify a layout table as such; the layout tables are too varied in the Dashboard web application to allow that. There is no 508 violation here.
SelectDPRReport	Page that allows user to specify the DPR Report that he wants to receive, the temporal range of that report, and any filters delineating the type of data contained in the report	Non-skippable link group	The first link in the navigation bar takes the user to the beginning of the input form, effectively bypassing the navigation bar. So a bypass link is unnecessary and would just be in the way. There is no 508 violation here.
SelectArchiveReport	Page that allows user to specify the Archive Report that he wants to receive, the temporal range of that report, and any filters delineating the type of data contained in the report	Non-skippable link group	The first link in the navigation bar takes the user to the beginning of the input form, effectively bypassing the navigation bar. So a bypass link is unnecessary and would just be in the way. There is no 508 violation here.
SelectProductionReport	Page that allows user to specify the Production or Inventory Report that he wants to receive, the temporal range of that report, and any filters delineating the type of data contained in the report	Non-skippable link group	The first link in the navigation bar takes the user to the beginning of the input form, effectively bypassing the navigation bar. So a bypass link is unnecessary and would just be in the way. There is no 508 violation here.
SelectProductionReport	Page that allows user to	Table missing	This flag occurred because InFocus interpreted a table as a data

Web Page Name	Page Description	Flags	Comments
	specify the Production or Inventory Report that he wants to receive, the temporal range of that report, and any filters delineating the type of data contained in the report	summary	table when in fact it was a layout table. It is not possible to set the InFocus data table configuration parameters in such a way that would allow InFocus to always identify a layout table as such; the layout tables are too varied in the Dashboard web application to allow that. There is no 508 violation here.
SelectProductionReport	Page that allows user to specify the Production or Inventory Report that he wants to receive, the temporal range of that report, and any filters delineating the type of data contained in the report	Table without table headers	This flag occurred because InFocus interpreted a table as a data table when in fact it was a layout table. It is not possible to set the InFocus data table configuration parameters in such a way that would allow InFocus to always identify a layout table as such; the layout tables are too varied in the Dashboard web application to allow that. There is no 508 violation here.
SelectIntegratedBrowse Report.	Page that allows user to specify the Integrated Browse Report that he wants to receive, the temporal range of that report, and any filters delineating the type of data contained in the report	No InFocus flags	N/A
AdHocQuery	Page that allows user to make SQL queries on the Dashboard Database and receive reports in a desired format. Meta information is provided to the user to help him generate a desired report.	No InFocus flags	N/A

Web Page Name	Page Description	Flags	Comments
LoginRestrictedTables	Login page to give non-restricted users privileges to see certain data tables	No InFocus flags	N/A
VerifyBigQuery	Used by Ad Hoc Query reports to warn the user when a report requires a query in excess of the configured "large query" size, and to give the user the report in "large query" size pages should the user elect to view the report in HTML format.	No InFocus flags	N/A
LargeQueryCheck	Performs same functionality as VerifyBigQuery, but for Ingest, Distribution, DPR, Production/Inventory, Archive, and Integrated Browse Reports	No InFocus flags	N/A
ShowQuery	Displays Ad Hoc Query reports in tabular HTML format.	No InFocus flags	N/A
ShowReportTable	Performs same functionality as ShowQuery, but for Ingest, Distribution, DPR, Production/Inventory, Archive, and Integrated Browse list Reports	No InFocus flags	N/A
SetRange	Provides calendars for the past two months that allow users to set temporal ranges for user-defined	FORM missing FIELDSET Grouping	The InFocus documentation states "If you have made other accommodations, ignore this violation." This form really does not lend itself to a <fieldset><legend> structure, it is made up of calendars. Other accommodations have been made in that a

Web Page Name	Page Description	Flags	Comments
	reports, and intervals within that range for rollups		navigation bar is provided at the top of the page that allows the user to navigate to the different groups of controls in the form. There is no 508 violation here.
SetRange	Provides calendars for the past two months that allow users to set temporal ranges for user-defined reports, and intervals within that range for rollups	Table missing summary	This flag occurred because InFocus interpreted a table as a data table when in fact it was a layout table. It is not possible to set the InFocus data table configuration parameters in such a way that would allow InFocus to always identify a layout table as such; the layout tables are too varied in the Dashboard web application to allow that. There is no 508 violation here.
SetRange	Provides calendars for the past two months that allow users to set temporal ranges for user-defined reports, and intervals within that range for rollups	Table without table headers	This flag occurred because InFocus interpreted a table as a data table when in fact it was a layout table. It is not possible to set the InFocus data table configuration parameters in such a way that would allow InFocus to always identify a layout table as such; the layout tables are too varied in the Dashboard web application to allow that. There is no 508 violation here.
SetRangeFull	Provides calendars since inception that allow users to set temporal ranges for user-defined reports, and intervals within that range for rollups	FORM missing FIELDSET Grouping	The InFocus documentation states “If you have made other accommodations, ignore this violation.” This form really does not lend itself to a <fieldset><legend> structure, it is made up of calendars. Other accommodations have been made in that a navigation bar is provided at the top of the page that allows the user to navigate to the different groups of controls in the form. There is no 508 violation here.
SetRangeFull	Provides calendars since inception that allow users to set temporal ranges for user-defined reports, and intervals within that range for rollups	Table missing summary	This flag occurred because InFocus interpreted a table as a data table when in fact it was a layout table. It is not possible to set the InFocus data table configuration parameters in such a way that would allow InFocus to always identify a layout table as such; the layout tables are too varied in the Dashboard web application to allow that. There is no 508 violation here.
SetRangeFull	Provides calendars since inception that allow users to set temporal ranges for user-defined reports, and	Table without table headers	This flag occurred because InFocus interpreted a table as a data table when in fact it was a layout table. It is not possible to set the InFocus data table configuration parameters in such a way that would allow InFocus to always identify a layout table as such; the

Web Page Name	Page Description	Flags	Comments
	intervals within that range for rollups		layout tables are too varied in the Dashboard web application to allow that. There is no 508 violation here.
SetRangeFull	Provides calendars since inception that allow users to set temporal ranges for user-defined reports, and intervals within that range for rollups	Cell and header association	This flag occurred because InFocus interpreted a table as a data table when in fact it was a layout table. It is not possible to set the InFocus data table configuration parameters in such a way that would allow InFocus to always identify a layout table as such; the layout tables are too varied in the Dashboard web application to allow that. There is no 508 violation here.
README508	Provides guidance and hints for the visually impaired user.	No InFocus flags	N/A
DashErrorPage	Displays the error message when an exception is thrown, such as invalid syntax for an Ad Hoc Query report	No InFocus flags	N/A
Dictionary	Dictionary of terms and description of components in the web application.	No InFocus flags	N/A
IngestReport	Produces Ingest reports in the desired format.	No InFocus flags	N/A
DistributionReport	Produces Distribution reports in the desired format.	No InFocus flags	N/A
ProductionInventory ArchiveReport	Produces DPR, Production/Inventory, and Archive reports in the desired format.	No InFocus flags	N/A
IntegratedBrowseReport	Produces Integrated Browse reports in the desired format.	No InFocus flags	N/A
ForwardMail	Emails the report to other users. This is more	No InFocus flags.	N/A

Web Page Name	Page Description	Flags	Comments
	<p>complicated than it might seem because a session needs to be established to view the report, as well as passing parameters describing the report This page takes care of these details,</p>		
ProductionMonitor	<p>This form presents a calendar to select a day, and controls for setting the report format, for creating reports that display inventory for selected granules with a coverage periods of the selected day</p>	<p>FORM missing FIELDSET Grouping</p>	<p>The InFocus documentation states “If you have made other accommodations, ignore this violation.” This form really does not lend itself to a <fieldset><legend> structure, it is made up of calendars. Other accommodations have been made in that a navigation bar is provided at the top of the page that allows the user to navigate to the different groups of controls in the form. There is no 508 violation here.</p>
ProductionMonitor	<p>This form presents a calendar to select a day, and controls for setting the report format, for creating reports that display inventory for selected granules with a coverage periods of the selected day</p>	<p>Table missing summary</p>	<p>This flag occurred because InFocus interpreted a table as a data table when in fact it was a layout table. It is not possible to set the InFocus data table configuration parameters in such a way that would allow InFocus to always identify a layout table as such; the layout tables are too varied in the Dashboard web application to allow that. There is no 508 violation here.</p>
ProductionMonitor	<p>This form presents a calendar to select a day, and controls for setting the report format, for creating reports that display inventory for selected granules with a coverage periods of the selected day</p>	<p>Table without table headers</p>	<p>This flag occurred because InFocus interpreted a table as a data table when in fact it was a layout table. It is not possible to set the InFocus data table configuration parameters in such a way that would allow InFocus to always identify a layout table as such; the layout tables are too varied in the Dashboard web application to allow that. There is no 508 violation here.</p>

Web Page Name	Page Description	Flags	Comments
DotChart	Displays report requested with the ProductionMonitor form.	Table missing summary	This flag occurred because InFocus interpreted a table as a data table when in fact it was a layout table. It is not possible to set the InFocus data table configuration parameters in such a way that would allow InFocus to always identify a layout table as such; the layout tables are too varied in the Dashboard web application to allow that. There is no 508 violation here.
DotChart	Displays report requested with the ProductionMonitor form.	Table without table headers	This flag occurred because InFocus interpreted a table as a data table when in fact it was a layout table. It is not possible to set the InFocus data table configuration parameters in such a way that would allow InFocus to always identify a layout table as such; the layout tables are too varied in the Dashboard web application to allow that. There is no 508 violation here.
RejectedData	This displays, for some Distribution reports, those granules that have unreasonably large sizes. The threshold for a 'large granule' is configurable.	No InFocus flags.	N/A

Special Section 508 Formatted Web Pages

The pages below were created specifically for the convenience of visually handicapped users. These pages provide alternative “views” of the report tables more suitable for those users. The standard tables are all compliant with 508 standards. However it was determined that some difficulties might be presented to handicapped users in “reading” the standard tables. These alternative views were created for this reason. No flags occur with InFocus Testing for any of the below pages, except for the Color and Table Linearization flags that always appear for any page (those that require manual testing)

1. IngestReportTotals
2. IngestReport Summary
3. IngestReportTemporal
4. DistReportTotals
5. DistReport Summary
6. DistReportTemporal
7. ProductionReportTotals
8. ProductionReport Summary
9. ProductionReportTemporal
10. IntegratedBrowseTotals
11. IntegratedBrowseTemporal

Other

A number of other files are part of the Dashboard Web application, but are either not presentation pages, or they are included implicitly in jsp files in the table above. There is no need to comment on these files for section 508 purposes.

Whazzup

Introduction

This section describes the testing methodology, results, and special modified features made to the EcMsWz--Whazzup web site into compliance with Section 508 of the Rehabilitation Act. InFocus and JAWS were used to perform test for web site accessibility and compliance with Section 508 guidelines.

Testing Methodology

Testing was performed using InFocus version 4.1.2 to determine accessibility and compliance based on Section 508 standards. InFocus generate the violation and provide a solution to fix it. The Whazzup web site is designed to allow system administrator to view at a glance the current status of both the ECS custom code and any performance issues with the UNIX servers. Most pages on the EcMsWz--Whazzup web site are dynamic and CGI files. Screen reader, JAWS, is used to verify the modification was made after run the InFocus.

Summary of Section 508 violation and modification reported by InFocus

After run the InFocus to test the Whazzup web pages the following major violations were fixed:

1. Used the "title" attribute of the FRAME element to briefly explain the function of each frame.
2. GIF Image was added an "ALT" attribute.
3. Every page was organized to be readable without requiring an associated style sheet. InFocus ran "Style sheets off" preview test on every web page to ensure pages are readable when style sheets are turned off.
4. Tables were added the "SUMMARY", "TH", "TR", and "TD" attributes.
5. Setting the "TITLE" attribute on a link allows user agents (visual and non-visual) to tell users about the nature of the linked resource.
6. In the select menu fields and buttons, "TABINDEX", "LABEL", and "FOR" attributes were added to receive focus on the elements.
7. Every web page was checked to linearize properly.
8. **Although color was used on the Whazzup web site to highlight server performance status all color marks were removed.** Color check is ignored for the Whazzup web pages because color never has any semantic value.

Special Modified Features of the Section 508 Whazzup Web Application

1. The Whazzup web site is refreshed automatically every two minutes. However, authors should not redirect users with this markup since is non-standard, it disorients users, and it can disrupt a browser's history of visited pages. The alternative format was provided an additional link on the main page that brings users to another same function sub web site that updates data every 24 hours. This allows users to continually receive updated information. Users also can manually update the information by select **Update** link in the menu bar or reload the page.
2. In the menu bar, an additional button was added under each Host Status, Mode Status, and Verify Mode selected menu. This allows users to have more time selecting the item. After selecting the choice users press a button to confirm submit. This purpose is to freeze moving content.
3. The **Size** link is showed a chart image with size rate change in 24 hours. Those charts are dynamic generated and updated every two minutes. The Alternative text (ALT) or long description (longdesc) attributes can't be provided to explain the content of chart. The alternative format is to list all size and date information on a text format web page. That allows user to get information through screen reader.

Spatial Subscription Server

Introduction

This document describes the testing methodology applied to the Spatial Subscription Server GUI to detect problems defined in Section 508 of the Rehabilitation Act. It further describes the changes that were applied to the code to bring the GUI into compliance.

Testing Methodology

Testing was performed using the InFocus tool, version 4.1.2, from SSB Technologies, Inc. The tool scanned each GUI page in order to assess compliance with Section 508 standards. InFocus generated a list of errors for each page, along with the recommended fix for each error. The majority of the errors were fixed by modifying the GUI code. It was determined that some of the errors could be safely ignored or fixed through alternative means. These are discussed below.

After the code was modified, InFocus scanned the corrected GUI pages again. Developers then operated the GUI in conjunction with the JAWS screen reading tool in order to evaluate accessibility by visually employed users. It was determined that persons with disabilities could use the revised GUI.

Summary of Fixes

The following types of errors were fixed in the GUI code:

1. Missing FRAME titles.
2. Missing NOFRAMES tags in framesets.
3. Missing titles in links.
4. Missing labels for text fields that are associated with form inputs or selects.
5. Missing FIELDSET tags for lengthy forms.
6. Missing table header tags.
7. Missing default option for select lists, when a default option could be determined.

In addition, each page was checked to ensure that

1. Tables can be read in a linear fashion by assistive technologies.
2. Pages are readable without associated style sheets.

The following errors could be safely ignored:

1. Colors, where they appear, are decorative and are never the basis for navigation or selection.

2. In some select lists, a default option cannot be assigned because the list is dynamically populated via a database query.
3. Anchors targeting JavaScript: the only appearance of JavaScript in anchors is the use of go(-1) to provide a link to the previous page.

The following errors were solved by means of an alternative fix:

1. Grouped options in lengthy select lists are not necessary because, in such instances, the user is provided the option of filtering the list. Frame titles were enhanced to explain the filtering capability.

Data Pool Maintenance GUI

Introduction

This section describes the testing methodology and results made to the Data Pool Maintenance GUI web site into compliance with 508 of the Rehabilitation Act.

InFocus and JAWS were used to perform for web site accessibility and compliance with Section 508 guidelines.

Testing Methodology

Testing was performed using InFocus version 4.1.2 to determine accessibility and compliance based on Section 508 standards. InFocus generate the violation and provide a solution to fix it. Most pages on the Data Pool Maintenance GUI web site are dynamic. Screen reader, JAWS, is used to verify the modification was made after run in InFocus.

Summary of Section 508 violation and modification reported by InFocus

After running InFocus to test the Data Pool Maintenance GUI web pages the following major violations were fixed.

1. Added missing FRAME title.
2. Added missing NOFRAMES tag.
3. Added title to Anchor targets for javascript.
4. In the text input fields and forms, "LABEL", "FOR" and "ID" attributes were added to receive focus on the elements.
5. Setting the "TITLE" attribute on a link allows user agents (visual and non-visual) to tell users about the nature of the linked resource.
6. Every web page was checked to linearize properly.
7. Every page was organized to be readable without requiring an associated style sheet. InFocus ran "Style sheets off" preview on every web page to ensure pages are readable when style sheets are turned off.

Color check is ignored for the Data Pool Maintenance GUI web pages because color never has any semantic value. "Grayscale" test was run by InFocus to preview what a web page would look like when color is not available (e.g. color blindness). This test was to assure that a page doesn't use color as the sole means of communicating information.

Data Pool Web Access GUI

Introduction

This document gives an overview of revisions made to the DataPool web access GUI for section 508. InFocus was used to test compliance with the requirements of section 508. InFocus generates ‘flags’ when an item in a web page is either not in compliance with accepted 508 guidelines. There are two varieties of these flags:

1. Objective non-compliance flags - Some violations are pretty ‘cut and dry’, e.g., a GIF image must have an alt attribute. InFocus will flag such items in a web page.
2. Subjective non-compliance flags - These are items that are often prefaced with ‘should’ in the 508 guidelines. InFocus has configuration settings that allow you to quantify violations of this type, e.g., the maximum number of options in a select list that are allowed without the use of optgroup tags.

For testing purposes I left the configuration settings at their default settings to be conservative, justifying those flags that pop up in that context. I have tested the DataPool web access GUI in a reasonably rigorous fashion and below have created 2 tables, a summary table and a detail table. The summary table (1) identifies the types of flags that occurred, in testing, (2) gives a description of the flag, (3) states the number of occurrences, and (4) justifies why the flag is not of concern. The detail table (1) lists all of the presentation web pages and gives a functional description each, (2) shows any flag that appears on each web page in testing with InFocus, and (3) provides an explanation why the flag can be ignored.

No flags occurred in testing that are of concern, all can be justifiably ignored.

Testing Methodology

Testing was performed using InFocus version 4.1.2 under the default settings. InFocus will generate flags when a web Page item is not in conformance, or not within the parameters in the configuration settings.

Two flags are always generated for web pages:

1. This page uses color elements. Paragraph (c) of the Section 508 standards prohibits the use of color as the sole method for indicating information on a web page.
2. This page contains layout tables and may not linearize properly. Paragraphs (g) and (h) of the Section 508 standards require that tables be coded according to the rules for developing tables of the markup language used.

These flags are generated because the user requires a manual check; InFocus is not able to verify conformity for those two items.

For the DataPool web access pages these flag may be ignored:

1. Color never has any semantic value.
2. All pages have been checked to linearize properly.

Below I summarize and itemize all flags (other than the above two) that are generated by InFocus under the default configuration settings. Many of the web access pages are template pages that generate a number of different reports. While it is not possible to test every possible report generated with the web pages a concerted effort has been made to test conformance of each these in a reasonable variety of manifestations.

Summary of section 508 violations (flags) reported by InFocus

Flags occurred in 6 places in testing with InFocus, using the default configuration parameter settings. These flags were of 3 types. None of these flags represents a real section 508 violation for the DataPool Web Access GUI.

Summary Table

InFocus Flag	InFocus Description	Number of Web Pages that it Occurs on	Reason Why these Occurrences are not Section 508 Violations
Manual: Blinking elements	Paragraph (j) of the Section 508 standards sets limits on the blink and flicker rate of screen elements, such as animated gifs and applets. Blinking elements should be avoided because they can cause seizures and distract users with learning disabilities. Authors should use alternative methods of emphasis for such elements. You can preview these elements by opening the Blinking Elements preview option under the Preview Menu Bar. Review this page to ensure that none of the screen elements blink.	1	There is an applet in DataPool Web Spatial search GUI. It's the applet causes this compliant. However, in the same page, we have a text alternative so that user can use the text version to set search criteria rather than via applet.
Insufficient color Contrast	There is insufficient contrast between foreground and background colors. Please enter a color in #RRGGBB format or pick one from the color chooser. The brightness difference should be above 125 and the color difference should be above 400. Ensuring sufficient color contrast will enable viewers who are color blind to view your site as well as those using monochrome screens. The effects of changing the color can be seen in either the "Sample" window or by using the "Preview" mode.	3	Some links are dynamically disabled in DataPool web GUI. The color contrast for these disabled links could not satisfy the request value. However, because they are disabled, no use for the user. There are no 508 violations here.

InFocus Flag	InFocus Description	Number of Web Pages that it Occurs on	Reason Why these Occurrences are not Section 508 Violations
'Table without table headers'	These flags are totally bogus, resulting when InFocus misinterpreted a layout tables as data tables.	2	This flag occurred because InFocus interpreted a table as a data table when in fact it was a layout table. It is not possible to set the InFocus data table configuration parameters in such a way that would allow InFocus to always identify a layout table as such; the layout tables are too varied in the DataPool web GUI to allow that. So InFocus mistakenly identifies some layout tables as data tables. The only section 508 concerns for layout tables are that they linearize properly. This has been checked. There are no 508 violations here.

Detail Table

Web Page Name	Page Description	Flags	Comments
Spatial.vm	This page allows user to set spatial search criteria.	Manual: Blinking elements	This flag occurs in 1 place. There is a text alternative for the applet.
Granules.vm Cloud.vm QA.vm	Show search results for user.	Color contrast	The disabled links are useless for users.
Date.vm Time.vm	These page allow user to set date and time search criteria.	Table without table headers	This flag occurred because InFocus interpreted a table as a data table when in fact it was a layout table.