



IHS Web Development Team

WEB DESIGN AND PROGRAMMING STANDARDS AND GUIDELINES

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Office of Information Technology (OIT)
Division of Information Resource Management
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DOCUMENT REVISION HISTORY

Date of Change	Location of Revision	Revision
March 2007	Entire document	Revisions to this document were extensive. Chapter 13 (IHS Web Design Guidelines), Chapter 14 (Glossary), Chapter 15 (Appendix A), Chapter 16 (Appendix B) and Chapter 17 (Contact Information) were added. The entire document was edited and completely reformatted using an OIT template.
December 2007	Entire document	<p>Note: Cross-reference links appear as bold text.</p> <p>Removed Meta Tags (formerly section 4.3) and Site Links (formerly 4.6) standards from Required Code and renumbered subsequent standards, as well as removing Meta Tags (formerly 14.36) from IHS Web Design Guidelines.</p> <p>Revised Website Security (removed table of cookies and updated login/logout information.).</p> <p>Added Section 508 Requirements for IHS Websites, Custom Banners, and File Uploads. Changed TOTM to IHS Web Manager throughout. Added Software Requirements Specification (SRS) to Application Version Releases.</p> <p>Updated the following:</p> <ul style="list-style-type: none"> • Procedures and Instructions under Development Programming Space • Valid Titles under Required Code • Lists of formats under File Formats <p>Under IHS Web Design Guidelines, updated the following:</p> <ul style="list-style-type: none"> • Adobe Flash (see Accessibility guidelines) • Screen resolution (see Browsers guidelines) • Exit Disclaimer (see Disclaimers guidelines) • Alt tags and page titles (see Text-Only Alternative for Pages Containing Graphics guidelines)

PREFACE

The purpose of this document is to provide guidelines for the Indian Health Service (IHS) web development team, as well as subcontracted web developers working with IHS. It includes federal regulations, where applicable, as well as Health and Human Services (HHS) requirements.

For news on future updates, subscribe to the Web Developers listserv from the list at:

<http://www.ihs.gov/cio/listserver/index.cfm?module=list&option=list&num=65&startrow=51>

SECURITY

This document does not impose additional security requirements on the user, nor does it relieve the user of any security requirements. All federally mandated standards and guidelines will be implemented upon creation—HHS/IHS standards will be grandfathered in unless noted otherwise.

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1.0 Introduction

This document contains standards and guidelines for web design and programming which, when applied, will ensure consistency throughout the Indian Health Service (IHS) websites and will improve the quality of programs written by web team members and field developers. These standards explicitly define the minimum level of requirements that all web pages should follow. All designers and developers are expected to conform to the following standards and are subject to IHS validation.

Programming standards are incorporated at various levels and have different aims. There are industry-wide standards, corporate standards, and even project- or group-level standards. Standards can be developed with different objectives in mind, such as:

- **Quality.** This is an issue of primary concern in every software development organization. Introducing programming standards that reduce the possibility of run-time errors greatly contributes to software quality. Examples of such rules include prohibiting the use of uninitialized variables, dereferencing null pointers, and so on.
- **Maintainability.** Large programs have their own set of special problems. For such software systems, standards that prescribe how identifiers shall be named, or how modules and classes shall be organized, make the software more understandable, and therefore more tractable. This, in turn, reduces the cost of upgrading and maintaining the software.

1.1 Conformance

All web content using the IHS domain must abide by all rules covered within this document. Failure to do so will result in the application or website not being posted to the live servers. If the site or application is live and then fails to comply (at some point), the Federal web team lead has the authority to take it down until it is in compliance. In areas that are not covered under these standards and guidelines, it is expected that the web page or site will conform to accepted industry standards.

1.2 Standard Development

The federal web team lead and web team members will participate in modifying these web programming standards and guidelines yearly. If an issue arises before the review period, modifications will occur as soon as possible. All modifications will be announced to the “Cyberteam” and “Webdevelopers” listserv by email.

2.0 Development Programming Environment

This section describes components that comprise the IHS development environment.

2.1 Web Page Templates

All site and page development must use IHS templates as a wrapper for site content.

2.1.1 Justification and Reasoning

The IHS web page templates are compliant with Section 508 of the Rehabilitation Act of 1998, as amended, which is contained in Appendix A: Rehabilitation Act on page 71.

IHS header (see Header on page 57 for more information) and footer (see Footer on page 54 for more information) contain infrastructure-related logic, and government-wide required links. This provides the user comfort and acknowledgement that they are still on the IHS.gov domain and are reading government information.

Look and feel is consistent across the IHS website.

2.1.2 Exceptions

None

2.1.3 Procedures and Instructions

Your web team account representative will provide the appropriate templates when your website is created.

2.1.4 Language Differences

ASP Templates and CFML templates are available.

2.1.5 Languages Affected

ASP, CFML

2.1.6 Related Topics

See Required Code (Global Include Files) on page 7, Language Dependencies on page 29.

2.2 Fusebox Methodologies

IHS uses a modified version of Steve Nelson's Fusebox methodologies for application development.

IHS Fusebox uses the terms *module*, *option*, and *suboption* in place of *fuseaction* in both Uniform Resource Locators (URLs) and form parameters. The IHS infrastructure checks for these three reserved words and sets other parameters accordingly.

2.2.1 Justification and Reasoning

Creates modular and scalable websites which are easier to maintain.

2.2.2 Exceptions

Fusebox use is suggested but is not mandatory.

2.2.3 Procedures and Instructions

The following example shows the required content of a ColdFusion index file.

```
Example variable assignments:
CFML: In Index.cfm
<cfswitch expression="module">
  <cfcase value="clinical">
    <cfinclude template="dsp_clinical.cfm">
  </cfcase>
</cfswitch>

<cfswitch expression="module">
  <cfcase value="treatment">
    <cfinclude template="index_treatment.cfm">
  </cfcase>
</cfswitch>

CFML: In index section file: index_treatment.cfm
<cfswitch expression="option">
  <cfcase value="longterm">
    <cfinclude template="dsp_clinicalTreatment.cfm">
  </cfcase>
</cfswitch>

NOTE: Other index file and/or index section file configurations are
acceptable.

Example Menu Links:
ASP:
<a href="index.asp?module=clinical&option=treatment">Display
Clinical Treatment options</a>

CFML:
<a href="index.cfm?module=clinical&option=treatment">Display
Clinical Treatment options</a>
```

2.2.4 Language Differences

Depends on the syntax of each language.

2.2.5 Languages Affected

ASP, CFML, JSP, PHP

2.2.6 Related Topics

See Language Dependencies on page 29, Style Guide (File Naming Conventions for IHS Fusebox Applications) on page 25.

2.3 Development Programming Space

All IHS web development will be performed within the development environment, including that conducted by outside contractors and subcontractors.

2.3.1 Justification and Reasoning

The IHS has developed a unique development environment that would be almost impossible to duplicate without the help of the system administrator.

All servers are backed up every night to reduce the possibility of introducing a virus and to copy new or changed data and files which can be restored in case of data loss or corruption.

2.3.2 Exceptions

None

2.3.3 Procedures and Instructions

It is advised that before development begins or contractors are hired, the person initiating development should obtain approval of the topic by the IHS Web Manager

After completing the Web Site Request form and the site has been assigned to a web team account representative, the development space is created on the development server and permissions are set up for outside contractors and their team.

If an outside contractor is used, a website request form is still required to initiate the process of creating a folder space for containing development work.

2.3.4 Language Differences

Not applicable

2.3.5 Languages Affected

Not applicable

2.3.6 Related Topics

See Language Dependencies on page 29, Server Environment (Web Server Environment) on page 40.

2.4 Development Database Server

All database entities must be housed on the IHS Microsoft SQL Server.

2.4.1 Justification and Reasoning

IHS environment configuration

Security and support purposes

2.4.2 Exceptions

None

2.4.3 Procedures and Instructions

Contact the web team account representative assigned to the site to request access to a SQL database or to import a compatible database to the development SQL server. This should be in the website request form that requests folder space, as well.

2.4.4 Language Differences

It is the responsibility of the outside contractor to modify any code affected by importing a non-SQL database to the IHS SQL server.

2.4.5 Languages Affected

File-based databases, such as Access, are specifically prohibited.

2.4.6 Related Topics

See Server Environment (Database Server Environment) on page 39, See Language Dependencies on page 29.

3.0 Development Processes

This section describes components that comprise the IHS development processes.

3.1 Application Version Releases

All application development must be done in version releases.

3.1.1 Justification and Reasoning

To meet the requirements of Federal law NIST 800-53– Security controls (See Appendix B: Other Requirements on page 78).

3.1.2 Exceptions

None

3.1.3 Procedures and Instructions

Write requirement specifications for each version release of an application. A requirements document or Software Requirements Specification (SRS) must be submitted to the IHS Web Manager for the purpose of keeping a digital copy.

The version number and date must be placed in the top comments section of an application's index file. Suggested format for this information is:

Version: 1.0; Version Release Date: 10/04/2006 (date format: mm/dd/yyyy).

Before deploying the new version release, back up the previous version of code and SQL for the database tables. The Enterprise Manager function in Microsoft SQL Server, Generate SQL generates SQL automatically from existing tables. This back up should be given to the IHS Web Manager, or designated recipient.

3.1.4 Language Differences

Not applicable

3.1.5 Languages Affected

Not applicable

3.1.6 Related Topics

See Development Programming Environment (Development Database Server) on page 5.

4.0 Required Code

This section describes items required on web pages hosted on IHS web servers.

4.1 Root Directory File Name

The initial file in each website's root directory shall be named *index*.

4.1.1 Justification and Reasoning

IHS standard

4.1.2 Exceptions

None

4.1.3 Procedures and Instructions

The word *index* should be all lowercase characters.

4.1.4 Language Differences

The extension shall follow the naming conventions of the language being used.

4.1.5 Languages Affected

HTML, ASP, CFML, PHP, JSP

4.1.6 Related Topics

None

4.1.7 Languages Affected

All tagged languages (ASP, HTML, CFML, PHP, JSP).

4.1.8 Related Topics

See Server Environment (Web Server Environment) on page 40.

4.2 Global Include Files

All IHS web pages will use the global cascading style sheet (CSS), header, footer, section, and navigation menu include files. IHS template CSS variable names include:

- HeaderLinks_small
- FooterLinks

- NavPlugInClass
- KeyIHSlinksTextx
- smallText

If a programmers or designer creates their own CSS, they must name their variables differently or it will change the appearance of our standard template which is not allowed.

See the examples of includes in Procedures and Instructions on page 8.

4.2.1 Justification and Reasoning

Global include files are necessary to establish the proper environment for all languages. The CSS is required to render the header, footer, and section file includes properly. (See the example shown in Procedures and Instructions on page 8.)

The header is required to allow for setting global environment, while header, footer, and section includes are required for proper navigation of the entire IHS site. For more information, see also Header, Footer, and Navigation in Chapter 14.0.

The navigation menu contains the individual website navigation, links to plug-ins used in the website, and website contact information. The only include which is not global is the menu file.

4.2.2 Exceptions

There are no exceptions for the global CSS, header, footer, and section include files.

Hard-coded versions of the include files are not permissible substitutes. Links to the actual global include files must be used.

In certain cases, the navigation menu may be omitted, but must be approved by the IHS Web Manager.

4.2.3 Procedures and Instructions

In websites that do not incorporate Fusebox methodologies, each file must contain global and menu include files. The menu file resides in the directory of the individual site. If using Fusebox, only the main index file requires the global and menu include files.

The web page templates for ASP and CFML already contain links to the global include files.

The following example shows the tags for the include file.

```

ALL:
<link rel=stylesheet
href="/GeneralWeb/WebComponents/StyleSheets/SectionPages.css"
type="text/css">

ASP:
<!--#include
virtual="/GeneralWeb/WebComponents/Navigation/NavBars/navigation.asp
"-->
<!--#include
virtual="/GeneralWeb/WebComponents/Navigation/NavBars/footer_navigation.asp"-->

CFML:
<cfinclude
template="/generalweb/webcomponents/navigation/navbars/navigation.cfm">
<cfinclude
template="/generalweb/webcomponents/navigation/navbars/footer_navigation.cfm">

```

Note: Global include files are not available for PHP and JSP.

4.2.4 Language Differences

The only difference between language-dependent includes is the extension used. All global files have the same root name.

4.2.5 Languages Affected

ASP, HTML, CFML, PHP, JSP

4.2.6 Related Topics

See Development Programming Environment (Web Page Templates) on page 2; Style Guide [Cascading Style Sheets (CSS)] on page 28, Website Security on page 36.

4.3 Valid Titles

All web page title tags must be unique. The homepage of each site should be the base name or topic of the site and each section should have title tags that include the both the home page name and the section name. Table 4-1 lists examples using tags associated with the IHS Web Team website.

Table 4-1. Valid Title Tags

Page Name	Required Title Tag
Web Team Homepage	<title>IHS Web Team</title>
Section "Team Members"	<title>IHS Web Team – Team Members</title>

Page Name	Required Title Tag
Section “Current Projects”	<title>IHS Web Team – Current Projects</title>

4.3.1 Justification and Reasoning

Titles are necessary to inform users of what page in the site they are viewing.

4.3.2 Exceptions

None

4.3.3 Procedures and Instructions

The title tag must occur within the head tags and should contain the site name and page topic. The IHS web templates have a blank title tag which requires a value, as shown in the following example.

```
<html>
<head>
<title>Page Title</title>
</head>...
```

4.3.4 Language Differences

None

4.3.5 Languages Affected

ASP, HTML, CFML, PHP, JSP

4.3.6 Related Topics

See Development Programming Environment (Web Page Templates) on page 2.

4.4 Starting Comment Block

All web pages must contain a starting comment block with line items for the file name and author as well as line items for the creation and modification dates, purpose of the page, and any special functionality involved that would be important to note.

4.4.1 Justification and Reasoning

Standardizes searching, reading, and the use of utilities for producing reports on the value of the items.

Provides useful information for later updates or changes to the page by the same or different developer.

4.4.2 Exceptions

Avoid using the “Updated” comment for bug fixes. Use “Updated” comments for functionality changes.

4.4.3 Procedures and Instructions

Add the block prior to the *body* tag for pages with *html* tags. Add the block to the top of include files.

The following example shows the comment block with historical information contained in the index file.

```
ASP:
<!--
  File name:   sample.asp
  Author:      John Doe
  Created:     1 January, 2003
  Updated:     1 February, 2003
               1. Added comments blocks to code
  Purpose:    display project information
  Note:       called by sample2.asp to get values
-->

CFM:
<!---
  File name:   sample.cfm
  Author:      John Doe
  Created:     1 January, 2003
  Updated:     1 February, 2003
               1. Added comments blocks to code
  Purpose:    display project information
  Note:       called by sample2.cfm to get values
--->
```

4.4.4 Language Differences

Syntax for each language comment tag.

4.4.5 Languages Affected

ASP, HTML, CFML, JSP, JavaScript, VBScript

4.4.6 Related Topics

See Development Environment (Web Page Templates) on page 2, Style Guide (Comments) on page 27.

4.5 Database Variables

Variables shall be assigned to database and datasource names.

4.5.1 Justification and Reasoning

Website security

4.5.2 Exceptions

None

4.5.3 Procedures and Instructions

Assign variables in application file

4.5.4 Language Differences

Syntax, filename

4.5.5 Languages Affected

ColdFusion, ASP, JSP, VBScript

4.5.6 Related Topics

See Recommended Code (Global Variables) on page 17, Language Dependencies [ColdFusion Markup Language (CFML)] on page 30.

4.6 Style Sheets

See Style Guide –Cascading Style Sheets on page 28.

4.7 Plug-In Variable or Equivalent

Only the IHS plug-in variable should be used. See Recommended Code– Global Variables on page 17.

4.8 SQL Database Queries

All web applications that use SQL Queries must be coded to prevent *SQL Injections*. When you let a query string pass a parameter, ensure that only the expected information is passed.

4.8.1 Justification and Reasoning

By having applications that query SQL databases on the IHS domain, we place those servers at risk because of a hacking technique known as SQL injection. Knowing that this risk is out there, all application programmers must use as many techniques as necessary to ensure that their applications are not vulnerable.

4.8.2 Exceptions

None

4.8.3 Procedures and Instructions

Since all database-driven websites should be coded in ColdFusion, always use *cfqueryparam* tags in your queries that use URL or FORM variables as parameters.

4.8.4 Language Differences

None

4.8.5 Languages Affected

ColdFusion

4.8.6 Related Topics

None

5.0 Restricted Code

This section describes items whose use is limited or totally prohibited as determined by HHS and the IHS Web Manager.

5.1 Frames

Web pages shall not incorporate frames into their sites.

5.1.1 Justification and Reasoning

HHS has ruled that no Operating Division (OPDIV) of HHS will use frames on any website. For additional information, see:
<http://www.hhs.gov/web/policies/frames.html>.

5.1.2 Exceptions

Reserved for IHS.

5.1.3 Procedures and Instructions

Not applicable

5.1.4 Language Differences

None

5.1.5 Languages Affected

ASP, CFML, PHP, JSP

5.1.6 Related Topics

See Required Code on page 7.

5.2 Java Applets

Web pages shall not incorporate java applets into their sites.

5.2.1 Justification and Reasoning

Java applets can present a security problem.

5.2.2 Exceptions

Exceptions: Case-by-case basis.

5.2.3 Procedures and Instructions

Not applicable

5.2.4 Language Differences

None

5.2.5 Languages Affected

ASP, CFML, PHP, JSP

5.2.6 Related Topics

None

5.3 Cookies

Web pages shall not use persistent cookies on any IHS website. A persistent cookie contains information about a website visitor that is written to the website visitor's computer and remains there after they exit the website. See Part 8 - Information Resources Management, Chapter 11 - Use Of Persistent Cookies in the Indian Health Manual at:

<http://www.ihs.gov/PublicInfo/Publications/IHSManual/Part8/pt8chapt11/pt8chapt11.htm>

5.3.1 Justification and Reasoning

HHS does not allow persistent cookies on their website or the website of any OPDIV of HHS. For more information, see

<http://www.hhs.gov/ocio/policy/2000-0009.html>

5.3.2 Exceptions

The IHS Web Manager has been granted the authority to set one persistent cookie which must be named *IHSWho*. The reason for the exception comes from the fact that the IHSWho cookie only stores the username of the current user, and has been in use since 1998. Without this cookie, the IHS infrastructure would have to be completely rewritten, which falls under undue burden clause.

5.3.3 Procedures and Instructions

Not applicable

5.3.4 Language Differences

None

5.3.5 Languages Affected

ASP, CFML, PHP, JSP

5.3.6 Related Topics

None

5.4 Pop-Up Windows

Web pages shall not use pop-up windows.

5.4.1 Justification and Reasoning

Pop-up windows present accessibility and usability issues. If a user does not have javascript, then the pop-up window will not work and therefore limits user access to content.

5.4.2 Exceptions

Modal Pop-Up Windows: If a child window is timed and timing is restricted to one minute or less, modal windows are not required.

Timed Pop Ups: If a child window is modal, timed windows are not required.

5.4.3 Procedures and Instructions

Upon approval of the IHS Web Manager, pop-up windows may be either modal or timed (or both modal and timed) to prevent overwhelming the user with many child windows.

5.4.4 Language Differences

None

5.4.5 Languages Affected

JavaScript

5.4.6 Related Topics

None

6.0 Recommended Code

This section describes IHS global and site-specific variables.

6.1 Global Variables

Variables have been added to the IHS underlying web structure to allow developers to change default characteristics.

6.1.1 Justification and Reasoning

Permits use of already available variables.

6.1.2 Exceptions

Optional, except that the plug-in variable, or an equivalent, should be used to adhere to accessibility requirements.

6.1.3 Procedures and Instructions

The following example shows the global variables that must be added to your code.

```

ASP & CFML:
DebugFlag - Local debug flag here [0=off,1=on default=0]
NavAlignment - Site navigation position variable
['left,right,justify,center; default=center]
NavShowSecurity - Displays security shell links [0=off,1=on
default=0]
NavShowNav - Displays header/footer; used for 'print page'
[0=off,1=on default=1]
NavSectionBgcolor - Sets section background color [default='cccccc']
NavSectionClassLink - Sets section link CSS
[default='HeaderLinks_small']
NavSectionWidth - Sets the width of the section link include
[default=140]
NavSectionHeight - Sets the height of the section link include
[default=58]
NavSectionAlign - Sets the horizontal alignment of the section link
include [default='center']
NavSectionValign - Set the vertical alignment of the section link
include [default='middle']
NavMenu_Bgcolor - menu background color [default='cccccc']
NavMenu_Width - width of left side menu [default=120]
NavMenuClass1 - menu style sheet [default='HeaderLinks_small']
NavMenuAlign - menu alignment [default='left']
MenuTextLogin - name for login link [default='Login']
MenuTextLogout - name for logout link [default='Logout']
MenuTextRegister - name for register link [default='Register']
MenuTextProfile - name for edit profile link [default='User
Profile']
MenuImageLeft - image icon left of login/logout/register/profile
links [default=none]
MenuImageRight - image icon right of login/logout/register/profile
links [default=none]
MenuImageXSize - image icon width in pixels if 'MenuImageLeft' or
'MenuImageRight' is used [default=0]
MenuImageYSize - image icon height in pixels if 'MenuImageLeft' or
'MenuImageRight' is used [default=0]
PlugIn - list of plugs needed for website; required for Section 508
of the Rehabilitation Act of 1998, as amended, compliancy - not case
sensitive [ACROBAT,PDF,FLASH,SWF,ZIPFILE,ZIP,WORDPERFECT,WDP,
WORD,DOC,EXCEL,CSV,POWERPOINT,PPT), REALPLAYER,REAL default='']
NavPluginClass - Plugin include link style sheet setting [default='
NavMenuClass1']
NavPluginAlign - Plugin include horizontal alignment
[default='NavMenuAlign']
SiteTimingsClass - style sheet setting used for CPU and wall clock
timings [default='HeaderLinks_small' if 'OnRequestEnd.cfm' is used]

```

6.1.4 Language Differences

These variables should be set in either GLOBAL.ASA or APPLICATION.CFML based on the language used.

6.1.5 Languages Affected

ASP, CFML

6.1.6 Related Topics

See Programming Environment (Web Page Templates) on page 2, Required Code (Global Include Files) on page 7, Website Security on page 36.

6.2 Site-Specific Variables

Set site-specific variables for static values that are used multiple times within the site.

6.2.1 Justification and Reasoning

Programming best practice guidelines

6.2.2 Exceptions

Optional

6.2.3 Procedures and Instructions

Set database, datasource, and email addresses of technical and managerial site personnel in variables within the application file.

6.2.4 Language Differences

Code is language-dependent.

6.2.5 Languages Affected

ASP, CFML, JSP, PHP

6.2.6 Related Topics

See Required Code (Database Variables) on page 11, Language Dependencies [ColdFusion Markup Language (CFML)] on page 30.

7.0 Required Processes

This section describes error handling, validation, and URL encryption for IHS web pages and sites.

7.1 Error Handling

Trap all errors that can be handled programmatically.

7.1.1 Justification and Reasoning

IHS standard

7.1.2 Exceptions

None

7.1.3 Procedures and Instructions

Provide general, user-friendly display screens where appropriate.

Send dynamic email with error description to the person in charge of maintaining the site.

For more information on error handling, see HHS standard:

<http://www.hhs.gov/web/policies/standards2/errorpage.html>

7.1.4 Language Differences

Add error-handling code in native language of application.

7.1.5 Languages Affected

ASP, CFML, PHP, JSP

7.1.6 Related Topics

None

7.2 Validation

This section establishes standards and guidelines for validating tags, links, and forms.

7.2.1 Tag Validation

All web pages shall be validated using the validation feature of the application used to create the web page. If it does not include a tag validator, the developer shall validate the web pages manually. **Web pages that fail validation cannot be posted.**

7.2.1.1 Justification and Reasoning

All web page coding must be validated to ensure correct rendering.

7.2.1.2 Exceptions

None

7.2.1.3 Procedures and Instructions

Consult the user manual for the application used to create the web page or site and use the validation procedures and instructions described in the user manual. If there are none, the web page or site must be manually validated.

7.2.1.4 Language Difference

Not applicable

7.2.1.5 Languages Affected

ASP, HTML, CFML, JSP, JavaScript, VBScript, SQL

7.2.1.6 Related Topics

None

7.2.2 Link Validation

All links contained within a web page shall be validated by the developer upon creation of link. The IHS Content Manager shall periodically test all links within a website once it is in production to ensure good links.

7.2.2.1 Justification and Reasoning

IHS websites need to be current and accurate.

7.2.2.2 Exceptions

None

7.2.2.3 Procedures and Instructions

Click on each link to confirm its destination or use an adequate software tool.

7.2.2.4 Language Difference

Not applicable

7.2.2.5 Languages Affected

ASP, HTML, CFML, JSP, PHP, JavaScript, VBScript

7.2.2.6 Related Topics

None

7.2.3 Form Validation

User input shall be validated by the language used to author the website, and cannot rely solely on JavaScript.

7.2.3.1 Justification and Reasoning

Validating user input minimizes bad data from good users and protects information from malicious users.

7.2.3.2 Exceptions

None

7.2.3.3 Procedures and Instructions

When validating for a database insertion or update, validation usually includes checks against the database, including datatype checks. Other validation includes but is not limited to proper casing, maximum or minimum length of a value, and spell checking.

7.2.3.4 Language Difference

Validation procedures must be written in the language of the site.

7.2.3.5 Languages Affected

ASP, CFML, JSP, PHP

7.2.3.6 Related Topics

See Language Dependencies [Sequential Query Language (SQL)] on page 31.

7.3 Encryption of URLs Passing Database Values

Encrypt URL-passed database values that could be manually altered by a user.

7.3.1 Justification and Reasoning

This implementation helps to protect database integrity by preventing alteration of database-bound values passed in a URL.

The preferred method for passing data to a database for the purpose of updating a database field is the use of a form. However, if it's absolutely necessary to use a URL variable to pass a database-bound value, that value must be encrypted.

7.3.2 Exceptions

None

7.3.3 Procedures and Instructions

Encrypt values in a URL that passes data to be uploaded to a database. Decrypt the values after passing them through a URL.

7.3.4 Language Differences

Encryption procedures must be written in the language of the site.

7.3.5 Languages Affected

ASP, CFML, JSP, PHP

7.3.6 Related Topics

None

8.0 Style Guide

This section describes IHS style elements for web pages and sites, including indenting, empty and non-empty tag elements, file naming conventions, case use, comments, and cascading style sheets.

8.1 Indenting

Indenting must be set on tags which constitute a block of code.

8.1.1 Justification and Reasoning

Indenting allows a developer unfamiliar with a particular source file to quickly orient themselves visually.

8.1.2 Exceptions

None

8.1.3 Procedures and Instructions

Indenting must be used in *if*, *loop*, and *case* structures, *table*, *tr*, and *td* tags.

The following code provides an example of the required indented structure.

```
Table tags:

Sample #1
  <table><tr><td>
    statement #1
    statement #2
  </td></tr></table>

Sample #2
  <table><tr>
    <td>statement #1</td>
    <td>
      statement #2
    </td>
  </tr></table>

Sample #3
  <table>
  <tr>
    <td>statement #1</td>
  </tr>
  <tr>
    <td>
      statement #2
    </td>
  </tr>
  </table>
```

```
Select tags:
<select name="select_list">
  <option value="1">Hello</option>
  <option value="2">Good Bye</option>
</select>
```

Control Structures (ASP):

```
IF:
<%
  if (Len(Request.ServerVariables("QUERY_STRING")) > 0) then
    statement 1
    statement 2
  end if
%>

CASE:
<%
  section = LCase(section_input)
  select case section
    Case "hello"
%>
  <!--#include file="hello.asp"-->
<%
  Case "goodbye"
%>
  <!--#include file="goodbye.asp"-->
<%
  Case Else
%>
  <!--#include file="nosure.asp"-->
<%
  End Select
%>
```

8.1.4 Language Differences

The only language differences are syntactical.

8.1.5 Languages Affected

ASP, HTML, CFML, JSP, JavaScript, VBScript

8.1.6 Related Topics

None

8.2 File Naming Conventions for IHS Fusebox Applications

Provide consistent file naming for developer usability purposes.

8.2.1 Justification and Reasoning

Consistent file naming conventions help developers identify the purpose of a file quickly.

8.2.2 Exceptions

No exceptions for applications using IHS Fusebox-method of development.

8.2.3 Procedures and Instructions

The following code is an example of Fusebox file naming conventions.

```
IHS Fusebox application.
Usage: <type>_<module><option>.<extension>, where:

Type: type of file (dsp, act, qry, or index)
Module: value of the module variable
Option: value of the option variable (if exists)
Extension: extension of file (asp, cfm, jsp, php, html, htm)

dsp_<file_name>: display file
act_<file_name>: action/processing file
qry_<file_name>: query file
index_<module_name>: index file for module being called (if exists)

The letter immediately following the '_' may be upper or lower case,
however, the first letter in each following word should be upper
case; all other letters in the name should be lower case.

The values of module and option variables, if used, may be in lower
case.

Examples:
Http://wwwdev.ihs.gov/Sitefolder/index.cfm?module=add&option=student
<cfinclude template="dsp_addStudent.cfm" />
```

8.2.4 Language Differences

None

8.2.5 Languages Affected

ASP, CFML, JSP, PHP (using IHS Fusebox)

8.2.6 Related Topics

See Development Programming Environment (Fusebox Methodologies) on page 2.

8.3 Case Use

All tags and their attributes shall be in lower case. Variables can be coded entirely in lower case, a combination of upper and lower case, and separating characters with the underscore ('_'). **Web pages shall not be coded entirely in upper case.**

8.3.1 Justification and Reasoning

Tags cased in this manner make source code easier to read, especially if the reader is not the original developer.

8.3.2 Exceptions

None

8.3.3 Procedures and Instructions

Leave *Caps Lock* key in off (unlocked or lowercase) position.

8.3.4 Language Differences

None

8.3.5 Languages Affected

ASP, HTML, CFML, JSP, SQL, JavaScript, VBScript

8.3.6 Related Topics

None

8.4 Comments

All web pages shall contain usable comment blocks placed at the beginning of each page section. A page section can be defined as a region of the page pertaining to a certain activity or set of related functionality.

8.4.1 Justification and Reasoning

Serve as an aid to any developer having to modify source code and to determine the function and purpose for a set of code.

8.4.2 Exceptions

None

8.4.3 Procedures and Instructions

Describe the purpose or functionality, or both, for code routines.

8.4.4 Language Differences

Not applicable

8.4.5 Languages Affected

ASP, HTML, CFML, JSP, SQL, JavaScript, VBScript

8.4.6 Related Topics

See Required Code (Starting Comment Block) on page 10.

8.5 Cascading Style Sheets (CSS)

Web pages shall use CSS as an include file and avoid inline styles. CSS create a consistent appearance across all pages of a website.

8.5.1 Justification and Reasoning

CSS have become the standard for formatting text and content.

Use is in accordance with WC3 standards to separate presentation from logic.

8.5.2 Exceptions

None

8.5.3 Procedures and Instructions

The following example shows how a CSS is added to your site.

```
Example:  
<link rel="stylesheet" href="MySitestylesheet.css" title="My Web  
Page" type="text/css">  
<p class="bigfont">My content.</p>
```

If the CSS is disabled, the page should still show content in the appropriate order. This is a Section 508 requirement (d).

8.5.4 Language Differences

None

8.5.5 Languages Affected

ASP, HTML, CFML, JSP

8.5.6 Related Topics

See Required Code (Global Include Files) on page 7.

9.0 Language Dependencies

This section establishes the standards and guidelines for languages used to create IHS websites and pages.

9.1 Active Server Pages (ASP)

Note: ASP should not be used. Information provided here is for legacy purposes only.

This section establishes standards and guidelines for creating IHS web pages using ASP.

9.1.1 Virtual vs. File Includes

Use virtual includes when referencing ASP pages not located in your root directory. Otherwise, use file includes for all local references.

9.1.1.1 Justification and Reasoning

Coordinates with server configurations.

9.1.1.2 Exceptions

None

9.1.1.3 Procedures and Instructions

The following examples show the different coding required for ASP virtual include files and include files that reside in the same directory:

```
<!--#include virtual="/directory/include_file.asp"-->
```

```
<!--#include file="include_file.asp"-->
```

9.1.1.4 Language Differences

Not applicable

9.1.1.5 Languages Affected

ASP

9.1.1.6 Related Topics

None

9.2 ColdFusion Markup Language (CFML)

9.2.1 Variable Scoping

Variable scopes used with ColdFusion include variable, application, session, client, request, and attributes. Application scope variables recommended time-out is 24 hours or less.

9.2.1.1 Justification and Reasoning

To conserve web server resources.

9.2.1.2 Exceptions

Not applicable

9.2.1.3 Procedures and Instructions

ColdFusion Reference Manual

9.2.1.4 Language Differences

Not applicable

9.2.1.5 Languages Affected

CFML

9.2.1.6 Related Topics

See Required Code (Database Variables) on page 11, Recommended Code (Site-Specific Variables) on page 19.

9.3 PHP

The IHS has installed the PHP engine on the development server. It has not been set up on the production server.

9.3.1 Justification and Reasoning

IHS evaluation.

9.3.2 Exceptions

Prior permission to use this language is required from the IHS Web Manager.

9.3.3 Procedures and Instructions

Contact the IHS Web Manager.

9.3.4 Language Differences

Not applicable

9.3.5 Languages Affected

PHP

9.3.6 Related Topics

None

9.4 Java Server Pages (JSP)

The IHS hosts both the JRUN and TOMCAT engines on our internet and intranet servers. Global components have not been created for JSP.

The web infrastructure was not developed for this language, and cannot be used for entire site development.

9.4.1 Justification and Reasoning

Not applicable

9.4.2 Exceptions

Prior permission to use this language is required from the IHS Web Manager.

9.4.3 Procedures and Instructions

Contact the IHS Web Manager.

9.4.4 Language Differences

Not applicable

9.4.5 Languages Affected

JSP

9.4.6 Related Topics

None

9.5 Sequential Query Language (SQL)

Sequential query language (SQL) is used to communicate with most databases.

9.5.1 Design Considerations

All tables shall incorporate a primary key. All tables, with the exception of many-to-many tables, shall incorporate documentation fields.

9.5.1.1 Justification/Reasoning

It is good database design to include a primary key to record the creation and modification dates and to identify the users who make changes to the database.

9.5.1.2 Exceptions

Many-to-many tables and static lookup tables

9.5.1.3 Procedures and Instructions

Add these documentation fields to database tables:

- WhoCreated – user ID or internet protocol (IP) address of user who added record
- WhoUpdated - user ID or IP address of user who updated record
- Created – date
- Updated - date

9.5.1.4 Language Differences

Not applicable

9.5.1.5 Languages Affected

SQL

9.5.1.6 Related Topics

See Development Programming Environment (Development Database Server) on page 5, Server Environment (Database Server Environment) on page 39.

9.6 JavaScript

The use of JavaScript is permitted as long as its functionality can also be performed by an alternative method and is a non-critical enhancement.

9.6.1 Justification and Reasoning

JavaScript is a flexible and powerful language.

9.6.2 Exceptions

Note: Javascript that executes active server calls is not permitted as it provides no notification to screen readers.

Not applicable

9.6.3 Procedures and Instructions

Ensure that web page functionality can be accomplished by methods other than JavaScript. <no script> tags must describe what the script does.

9.6.4 Language Differences

Not applicable

9.6.5 Languages Affected

JavaScript

9.6.6 Related Topics

None

9.7 VBScript

VBScript is a Microsoft scripting language based on Visual Basic and is used with ASP.

9.7.1 Justification and Reasoning

Not applicable

9.7.2 Exceptions

Not applicable

9.7.3 Procedures and Instructions

Consult the Microsoft Active Server Pages manual.

9.7.4 Language Differences

Not applicable

9.7.5 Languages Affected

VBScript

9.7.6 Related Topics

None

10.0 File Formats

This section lists file formats that are identified by IHS as either approved or disapproved.

10.1 Justification and Reasoning

To ensure the proper operation of the IHS web server, not all web file formats are available.

10.2 Exceptions

File formats not listed must also be approved. All approvals are performed by the IHS Web Manager.

10.3 Procedures and Instructions

This section lists file formats that either can be used (do not require approval) or can only be used if approval is first received from the IHS Web Manager.

The following file formats do not require prior approval:

- Hypertext Markup Language (HTML)
- ColdFusion Markup Language (CFML)
- Graphics Interchange Format (GIF)
- Joint Photographic Experts Group (JPEG)
- Windows Bitmap (BMP)
- Rich-Text Format (RTF)
- Portable Document Format (PDF)
- Microsoft WORD, EXCEL, and POWERPOINT

The following formats require prior approval:

- JAVA Applets (JAVA)
- Java Server Pages (JSP)
- JavaScript (JS)
- VBScript (VBS)
- Extensible Markup Language (XML)
- Portable Network Graphics (PNG)
- Scalable Vector Graphics (SVG)
- FLASH (SWF)—requires HHS approval before development is started

10.4 Related Topics

None

11.0 Website Security

IHS has developed website security logins for sites restricting user access. The security mechanism was developed in ColdFusion.

11.1 Justification and Reasoning

Provides a common security method and variables that can be used by all IHS ColdFusion sites.

11.2 Exceptions

Sites developed in languages other than ColdFusion must develop their own schemes and processes. Applications which incorporate infrastructure security on their own must use a *meta refresh* mechanism to force page reloads continually at timed intervals to determine if the user should be automatically logged off.

11.3 Procedures and Instructions

The following list provides a description of how website security elements are used:

Note: There may be numerous security-related requirements depending on the function of your website.

- Login/Logout

After five login attempts, the username is locked out of the system for 24 hours and an alert is emailed to system administrators of a potential problem. This is accomplished using a combination of the user's IP address and username.

A link also exists on the login form to allow users who have forgotten their password to reclaim it. System administrators are emailed copies of the email sent to the end user in case the user entered an invalid email address and cannot retrieve his password.

- Registration/User Profile

Another mechanism exists for users to modify their accounts including passwords, work location, employing company, their current title and position, and other future items. When users change their password, the new password is emailed to the user and is not displayed to them.

11.4 Website Security Implementation

In the menu include file, use the following include files to add a login/register link for a site.

CFML (only):

Displays the login/register on one line:

```
<cfinclude  
template="/GeneralWeb/WebComponents/Navigation/NavBars/Nav_Secure.cfm">
```

Or

Displays the login/register individually:

```
<cfinclude  
template="/GeneralWeb/WebComponents/Navigation/NavBars/Nav_Secure_Login.cfm">
```

```
<cfinclude  
template="/GeneralWeb/WebComponents/Navigation/NavBars/Nav_Secure_Profile.cfm">
```

11.5 Language Differences

Not applicable

11.6 Languages Affected

ColdFusion

11.7 Related Topics

See Restricted Code (Cookies) on page 15, Recommended Code (Global Variables) on page 17, and Part 8 - Information Resources Management Chapter 12 - Information Technology Security of the Indian Health Manual at:

<http://www.ihs.gov/PublicInfo/Publications/IHSMannual/Part8/pt8chapt12/pt8chapt12.htm>

12.0 Section 508 Requirements for IHS Websites

The Indian Health Service (IHS) Web Team strives for 100% compliance with all Section 508 accessibility standards, guidelines, regulations, and law. To further this effort, the IHS is implementing the following requirements to ensure we maintain accessible web sites for the public and our employees.

When a website becomes non-compliant with Section 508 standards, the Content Manager will have **four weeks** from the date that he or she is contacted by the IHS Web Manager to bring the site into compliance. If the issue is not resolved in that time, the website will be removed from the live web server until the site is Section 508 compliant.

12.1 Justification and Reasoning

Websites that remain online that are non-compliant with Section 508 are not accessible to all citizens and therefore are not allowed.

12.2 Exceptions

None

12.3 Procedures and Instructions

The IHS Web Manager will inform the website's Content Manager when a site is flagged as inaccessible. The Content Manager will then have two weeks from the notification to bring the website into compliance. In situations where an issue arises and the Content Manager is on travel, leave, or otherwise unable to comply, the IHS Web Manager will work directly with the website's Account Manager to make appropriate changes so the website does not have to be removed from the live web server.

If a non-compliant website is removed from the live web server and later made compliant, the IHS Web Manager will re-evaluate the website. When the site is in compliance, it will be moved back to the live web server.

12.4 Related Topics

None

13.0 Server Environment

The IHS development environment consists of internet development and staging virtual servers and intranet development and staging virtual servers. All virtual servers are hosted from one web server behind the IHS firewall.

13.1 Database Server Environment

This section provides information about SQL development and production servers.

13.1.1 Development SQL Server

Database design and website development must be performed on the development SQL server.

13.1.1.1 Justification and Reasoning

The IHS maintains a unique environment that cannot be duplicated on non-IHS servers.

13.1.1.2 Exceptions

None

13.1.1.3 Procedures and Instructions

Database and datasource request information is available on the IHS Web Developer's Community page on the IHS website. Enterprise Manager software should be used for database development. See:

<http://www.ihs.gov/GeneralWeb/HelpCenter/DevComm/index.cfm>

13.1.1.4 Related Topics

See Development Programming Environment (Development Programming Space) on page 4, Language Dependencies [Sequential Query Language (SQL)] on page 31.

13.1.2 Production SQL Server

Databases that are used for production websites must be implemented and operational on the production SQL server.

13.1.2.1 Justification and Reasoning

The IHS maintains a unique environment that cannot be duplicated on non-IHS servers.

13.1.2.2 Exceptions

None

13.1.2.3 Procedures and Instructions

Database and datasource request information is available on the IHS Web Developer's Community page on the IHS website. Enterprise Manager software should be used for database development. See:

<http://www.ihs.gov/generalweb/helpcenter/devcomm/policies/index.cfm?polopt=dbproced&polrel=dbproced>

13.1.2.4 Related Topics

See Development Programming Environment (Development Programming Space) on page 4, Language Dependencies [Sequential Query Language (SQL)] on page 31.

13.2 Web Server Environment

This section provides standards and guidelines for the web development, staging, and production servers.

13.2.1 Development Servers (Internet and Intranet)

All web page and site development must be performed on the development servers.

13.2.1.1 Justification and Reasoning

The IHS maintains a unique environment that cannot be duplicated on non-IHS servers.

13.2.1.2 Exceptions

None

13.2.1.3 Procedures and Instructions

If necessary, access to a new directory on the development server can be requested by a developer from the web server system administrator with the approval of a Web Site Request Form.

13.2.1.4 Related Topics

See Development Programming Environment (Development Programming Space) on page 4.

13.2.2 Staging Servers (Internet and Intranet)

When a new site is developed or an existing page is updated, the developer must submit the site to his or her designated web team account representative. The web team representative will assure that there are no coding errors and then will pass the site onto the IHS Web Manager who will check for compliance with Section 508 and other government-required code. If the page meets these requirements, the page will be moved from the development server to the staging server by the web team representative.

Then each night all new content is moved from the staging server to the production server automatically. For this reason, web development is not allowed on the staging server.

Also, sites or pages which were not validated, but were staged, will be removed from the staging and production servers. Developers who continue to develop on the staging servers or stage unverified content will have their access revoked.

13.2.2.1 Justification and Reasoning

To secure production code.

13.2.2.2 Exceptions

None

13.2.2.3 Procedures and Instructions

After a web page or site, created on the development server, is validated and approved, the web page or site is copied to the staging server. Then all content is automatically moved from the staging server to the production server each night.

13.2.2.4 Related Topics

None

13.2.3 Production Servers (Internet and Intranet)

Only the IHS web system administrator has access to the production servers.

13.2.3.1 Justification and Reasoning

To secure production code.

13.2.3.2 Exceptions

None

14.0 IHS Web Design Guidelines

This section establishes standards and guidelines that should be observed when creating or updating IHS websites and pages. The elements are presented in alphabetical order.

14.1 Accessibility

For the purpose of this document, this means ability to navigate, view, and use information available on IHS websites with or without the use of assistive devices, such as screen-reading web browsers. This is about making information accessible to all people (whether they have a disability or not).

14.1.1 Standards

Pages should provide graphic and table information in text format for users with disabilities. This includes using *alt* tags, and table summaries, headers, and so on.

For the visually impaired: Mandatory *alt* tags for graphics must be provided.

For the hearing impaired: Provide text transcriptions or descriptions for audio clips. Text must be synchronized with the audio in both movie and audio files.

Vision color deficiency/color blindness: Avoid use of the colors red, green, gray, or purple especially when conveying information based on color.

Epilepsy and seizures: Avoid the use of blinking lights.

Multimedia pieces, such as those created using programs like Macromedia Flash, must meet certain accessibility requirements. (See Appendix A: Rehabilitation Act for more information.) Among these requirements are buttons to control and stop the piece and synchronized text that follows the audio track. Contact your IHS Web Team Account Manager for a full list of multimedia requirements.

<p>Note: Use of Adobe (formerly Macromedia) Flash requires approval from IHS/HHS.</p>
--

14.1.2 Guidelines

Every attempt should be made to accommodate various browser software packages and low-bandwidth access.

14.2 Acronym Use

In addition to the Glossary on page 71, additional acronyms and terms can be found on the IHS website at:

http://www.ihs.gov/PublicInfo/PublicAffairs/Welcome_Info/ThisGlossary.asp and the IHS Security website at:

<http://home.ihs.gov/ITSC-CIO/security/secpgm/SecGlos.cfm>.

14.2.1 Standards

All acronyms should be defined at the first occurrence on each page since visitors can enter a page on the website from various points and may not have previously seen the acronym defined.

For example: The Local Area Network (LAN) Team is made up of 15 employees. The LAN Team is located in the Albuquerque Area Office.

Organizational acronyms should be in accordance with the acronyms appearing in the Glossary on page 71.

The exception to this standard is when an acronym is more commonly understood and recognized than the words or phrase from which it derives, for example: SARS or HIV. Contact the IHS Web Manager if additional guidance is needed.

14.2.2 Guidelines

None

14.3 Audio Clips

This section establishes standards and guidelines for audio clips used on IHS web pages and sites.

14.3.1 Standards

If audio clips are used, provide text transcriptions or descriptions.

14.3.2 Guidelines

If the transcription is scrolling text, it must stay in sync with the audio.

14.4 Browsers

Web pages produced by the IHS should be usable by all major browsers to ensure equitable access to the information.

Note: Intranet users can only use those browsers approved by the ISSO while Internet users have more choices. Therefore, web pages must be tested using ISSO approved browsers, as well as the top two used most frequently by the Internet community.

14.4.1 Standards

Websites must be backward compatible one complete version. For example: if the current released browser version is 7.0, web pages must also be capable of being viewed and used with version 6.x.

Uses of non-standard or browser-specific features are not allowed.

Pages must be designed to display on a monitor set to 1024 by 768 for new templates. This resolution is subject to change based on what HHS standards and guidelines.

Previously, standard resolution was 800 by 600 pixels. However, a recent HHS study found that only a small percentage of web visitors used the lower resolution and that it created a burden on website content in addition to users with larger resolution.

Note: Users may have to adjust the browser's print settings to print content on a web page that uses absolute pixel widths, web pages designed using percentages for width settings will print correctly regardless of the browser's print settings.

14.4.2 Guidelines

Web pages should be designed according to how the end user will most likely to access, view, or print the page.

Pages that are likely to be printed should be tested to ensure that they print properly on a standard letter-size paper, or have a downloadable copy in an easily printable format [such as Microsoft Word document (.doc), or Adobe Acrobat (.pdf)].

Providing a “Printer Friendly” version where you remove the side and top and bottom navigation is encouraged.

The following procedure provides instructions for creating a *printer-friendly* CSS for your web page.

To set up a print view of your web page:

1. Print the page in question.
2. Highlight everything you want to keep on the printout in green.
3. Mark elements that you don't want to keep in red.
4. Create a new stylesheet document.
5. Name it something like *print.css*.
6. Link your new stylesheet in the head section of your web page. For example:

```
<link href="print.css" type="text/css" rel="stylesheet" media="print">
```

7. Assign a class or id attribute in the HTM for each element of your page that you do not want printed, if this is not already done.

For example, if the site navigation is in a *div* tag, apply an id such as `<div id="nav">`. Note that an id must be unique within a document, but a class can apply to multiple elements.

8. Add a corresponding instruction to not hide the item in print.css. For example, if you don't want the navigation printed, write `div#nav {display: none}` into the print stylesheet.
9. Use print.css to further define how the remaining printable items appear. You can adjust positioning, page margins, typography, colors and more (http://www.envisionic.com/webtips/user_experience/printer_friendly.php)

14.5 Calendars

This section establishes standards for the use of calendars on IHS web pages.

14.5.1 Standard:

When possible the IHS Calendar should be used as a single point of information for posting IHS activities. Custom calendars may be used if the information is irrelevant to the general public with approval from the IHS Web Manager. The custom Calendar MUST comply with Section 508 of the Rehabilitation Act (see Appendix A: Rehabilitation Act on page 78), HHS, and IHS standards. It is not the responsibility of Office of Information Technology (OIT) to update the content of custom calendars, but rather the content manager of that particular site.

14.5.2 Guidelines:

None

14.6 Cookies

The following section establishes standards and guidelines for the use of cookies.

14.6.1 Standards

Persistent Cookies are NOT allowed. This is a government-wide rule. This is also in the Indian Health Manual. See: <http://www.ihs.gov/PublicInfo/Publications/IHSManual/Part8/pt8chapt11/pt8chapt11.htm>

Web pages shall not use persistent cookies on any IHS website. A persistent cookie can be defined as a cookie that is writing to the user's computer.

14.6.2 Guidelines

ColdFusion creates and uses the cookies *cfid* and *cfcookie* as persistent cookies with the *cfapplication* tag. To keep the cookies, but make them per-session cookies, insert these two lines of code after your *cfapplication* tag for session management:

```
< cfcookie name="cfid" value="#session.cfid#">  
< cfcookie name="cftoken" value="#session.cftoken#">
```

These lines in essence destroy the persistent cookies and replace them with per session cookies of the same name.

14.7 Copyright

Most content on federal public websites is in the public domain and should not include copyright or other intellectual property notices. However, when an organization uses or duplicates information available from the private sector as part of an information resource, product, or service, the organization must ensure that the property rights of the private sector source are adequately protected. These protections apply to any material posted to federal public websites, such as documents, graphics, or audio files. Organizations should also review content to determine if it is subject to international copyright laws and the relevant laws and regulations to ensure that their public websites meet the full range of requirements.

This section establishes standards and guidelines for material that requires a copyright notice.

14.7.1 Standards

Ensure that disseminated information complies with copyright law for those materials where others are the copyright holders.

14.7.2 Guidelines

When using independent illustrations or collections, no more than five images of an artist or photographer should be used.

Proper credit should be given to all copyrighted material.

When in doubt, give credit as if the material was copyrighted.

If credit is given for one item, credit must be given for all items. If the copyright holder requests that copyrighted material be removed, the site content manager will remove the material within 48 hours of notification. In the event that the site manager is unavailable and the 48-hour period has lapsed, the IHS Web Manager is authorized to remove the material.

14.8 Custom Banners

This section establishes the standards and guidelines on the use of custom banners or headers on the IHS.gov domain.

14.8.1 Standards

Custom headers or banners which are solid color (non-white) or have a repeating pattern must expand to the entire width of the page just as the IHS standard header does.

14.8.2 Guidelines

It is good practice to have a text or graphic header as it presents a common visual cue to the user that they are still on the same site or sub-site. The header should not be overwhelming in color(s) and/or height.

If the banner is a graphic it must have an appropriate alt tag. If the graphic is a repeating design element, the alt tag's value should be blank. The use of background images with text or emblems is prohibited.

14.8.3 Exceptions

None

14.9 Design Format

This section establishes standards and guidelines for website design.

14.9.1 Standards

None

14.9.2 Guidelines

Information should be obtainable with a minimum number of mouse clicks. Designers should try to navigate their whole site within two clicks from the homepage, so that users don't get lost inside their website.

Pages should be designed for efficient transfer over low-bandwidth connections, but we encourage images/graphics because they can be very important for displaying information; use a combination wisely. See the HHS standard for images at:

<http://www.hhs.gov/web/policies/standards/useimages.html>

Use a background color when using a background image in the event the user has graphics turned off.

Avoid using dark colors, such as black, maroon, and navy blue ,or bright backgrounds like yellow and pink.

14.10 Development Server

This section establishes standards and guidelines for accessing the development server to create a web development workspace.

Workspace on the IHS web development server is available to any IHS employee or contractor developing material for the IHS website. There are many tools available to approved IHS employees and contractors for adding functionality to web pages, such as scripting, Server-side Visual Basic (VB)-Script and SQL Server database access methods.

The following procedure provides instructions for establishing a web workspace and account so that you can use the development server.

To establish a workspace and account:

1. Review the procedures for setting up a website at:

http://www.ihs.gov/generalweb/helpcenter/devcomm/establish/index.cfm?establish_hopt=proced&establishrel=proced

2. Download the website request form from:

<http://www.ihs.gov/generalweb/helpcenter/devcomm/Policies/index.cfm?polopt=procedform>

3. Describe the project and include the name of the person responsible for the website and a work phone number where that person(s) can be reached.

After the request has been approved, an IHS Web Team member will be assigned as the point of contact. Contact this person for web-related guidance and assistance.

14.10.1 Guidelines

None

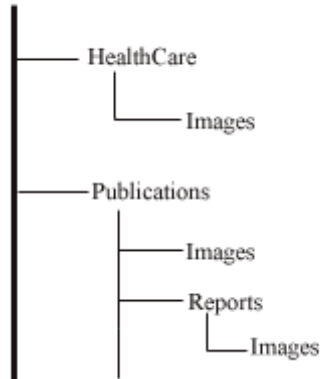
14.11 Directory Structure

This section establishes standards and guidelines for the electronic directory structure for websites, including graphic and image files.

14.11.1 Standards

A sub-directory for storing graphics files will be created for each directory to increase the modular approach of the web structure. All graphics needed for a website should reside in the images sub-directory relative to the web page directory. It is expected that it will be necessary to duplicate graphics commonly used throughout the site.

The following diagram shows an example of the directory structure.



Think of this as the directory structure for a website (such as the IHS intranet) with several sub-directories. In the IHS intranet directory is the Images sub-directory which includes the IHS logo as well as other subdirectories for various offices and programs. The sub-directories would also have Images sub-directories which would include image files specific to those offices and programs.

Each directory will have an owner who is responsible for its contents.

Each directory shall have a file named index.cfm or index.asp that points to all active files served from that directory.

All secondary documents shall have owner identification and a creation date or date of last update and information. Contact information could be in the form of a "mailto" link, an e-mail address or telephone number. This information should be placed in the left navigation bar to keep consistent with the IHS design.

14.11.2 Guidelines

Websites should be structured to be no deeper than three subdirectories. Avoid developing websites that require more than four clicks to display the deepest page in the site structure.

Examples:

Acceptable: dental/publication/reports/January/

Unacceptable: dental/publication/reports/archive/January/

14.12 Disclaimers

All Federal websites should include disclaimers addressing privacy, retention of information collected, links to external sites, and disclaimers of endorsement and liability. Aggressive use of disclaimers (notices, warnings) is encouraged.

14.12.1 Standards

The IHS standard footer, which is required for all IHS websites, has a general disclaimer. If your site requires a different disclaimer provide one.

14.12.2 Guidelines

Use of “universal” disclaimers is not necessary for IHS home pages. Instead, disclaimers should be included in individual documents when necessary. For example, a document that mentions specific commercial products might include a disclaimer stating that no endorsement is implied.

IHS web pages containing links to external web pages or particular internal links should include code provided in the Developer Community website (<http://www.ihs.gov/GeneralWeb/HelpCenter/DevComm/index.cfm>). A disclaimer releases IHS from responsibility for the material included. It also protects us from infractions related to Section 508 (see Appendix A: Rehabilitation Act on page 74.)

If your site links to a non-government site (any site using .com, .org .net, etc) you must use the HHS exit disclaimer icon. The icon should link to http://www.ihs.gov/GeneralWeb/WebComponents/ihs_disclaimers.asp and have an alt tag of “Exit Disclaimer.” The Exit Disclaimer is found at: <http://www.hhs.gov/web/useful/index.html>

14.13 Electronic Reading Room

This section establishes standards and guidelines for electronic reading rooms which are mandatory and are required by the Freedom of Information Act (FOIA) and Electronic Freedom of Information Act (EFOIA).

14.13.1 Standards

Mandatory Electronic Reading Rooms are required for FOIA and EFOIA documents created or modified after November 01, 1996.

14.13.2 Guidelines

This standard applies to IHS as a whole; no individual sites need to comply with this.

14.14 Email Messages

This section establishes standards and guidelines for email addresses included on websites and pages. Email addresses can also be personal identifiers. Their collection and potential retrieval may be subject to the Privacy Act (see Appendix B: Other Requirements on page 78).

14.14.1 Standards

None

14.14.2 Guidelines

Care should be taken not to avoid including private information that would violate the Privacy Act in email addresses.

In addition, a Privacy Act Disclaimer should be included on pages where email addresses contain Privacy Act information.

14.15 File Format

This section establishes standards and guidelines for the format of files that are viewed on the web, as opposed to the format of applications used to create websites and pages.

Note: ALL file formats must meet the accessibility requirements of Section 508, no exceptions. If files are placed online and found to be inaccessible, the IHS Web Manager has the authority to remove the file.

Sometimes it is easier to create web files in a format other than HTML. However, there are drawbacks. For example, when converting word processing, spreadsheet, or slide show files to Adobe® Portable Document Format (PDF):

- the contents of PDF files may not be included in site-wide full-text search indexes,
- PDF viewers are not embedded in most web browsers and must be downloaded,
- PDF files must be checked for accessibility (that is, compliant with Section 508 of the Rehabilitation Act) before posting to the web, or may have an alternate format that is inaccessible. (See Adobe Systems Incorporated® instructions on making Section 508-compliant PDFs at: <http://www.adobe.com/accessibility/>).

To make information available to as wide an audience as possible, the choice of file formats should be based on the following criteria:

- the intended use of the material by the target audience;
- the accessibility of the format to the target audience; and
- the level of effort required to convert the material to the format.

14.15.1 Standards

This following list establishes standards for file formats used on IHS web pages and sites:

- Material intended to be viewed, read, or browsed on-line should be prepared in HTML format (for text and tables) and GIF or JPEG for graphics.
- Proprietary formats, such as those from Corel WordPerfect®, Microsoft Word® and PowerPoint®, SAS®, Adobe Acrobat Portable Document Format® (PDF), may be used only if:
 - the conversion to HTML is not feasible or practical (contact your designated IHS Web Team member for approval)

- the intended audience is known to have ready access to software which can handle the proprietary format; or
- the intended use is data analysis or manipulation.
- Links to files in proprietary or unusual formats will be explicitly noted and instructions provided for using, downloading, or both using and downloading the appropriate helper application, such as the Microsoft Word viewer, Adobe Acrobat Reader.
- All required plug-ins must be listed in the left navigation bar using the code found on the development server, which is available to all web programmers.
- File size and format (file extension) must be posted following the link to the file. For example: Website Request Form (DOC – 115KB).

14.15.2 Guidelines

None

14.16 File Size

This section establishes the standards and guidelines for the maximum file size of both web pages and their content, including downloadable files.

14.16.1 Standards

Divide large or complex documents (those with 10 screens or are 5MB or more) into multiple, smaller files. Any file 5MB or more **MUST** get approval from the IHS Web Manager before being put online.

14.16.2 Guidelines

The following guidelines should be considered regarding file size:

- Keep pages smaller than 75KB, since many users still use dial-up modems with transfer rates of 56Kbps, or less. If this is not possible, contact your web team representative for suggestions.
- Include the file size and format in links for each downloadable file.

For example: [IHS Standards and Guidelines](#) (PDF - 2.35MB)

14.17 File Referencing

This section establishes the standards and guidelines for referencing files within code.

14.17.1 Standards

The following standards shall be observed when referencing other files within code:

- The default page for any directory should be named index. For example: index.asp, index.cfm, index.htm.
- References to files, anchors, and images residing on all Headquarters IHS Internet or Intranet servers shall be relative or absolute root pathnames, not absolute Uniform Resource Locators (URLs), to make documents and sites portable.

Example 1:

To address a file in the document that is*	<A HREF=
• in the same directory or folder (relative pathname)	"filename">
• down one level (relative pathname)	"directoryname/filename">
• up any number of levels (absolute root pathname)	"/topdirectoryIHS/subdirecto ryinpath/nextsub/filename">
• in a sibling directory (absolute root pathname)	"/topdirectoryIHS/subdirecto ryinpath/nextsub/filename">

* The *img* or *include* tag, in addition to the *anchor* tag, also follow this rule.

- The directory or folder names are separated by forward slashes. The filename includes the file extension, for example: .cfm.

Example 2:

A link from the file index.asp to the file coding.asp, when both files reside on the www.ihs.gov server in the directory /general/web, should be expressed as

NOT as

- Coding Include statements.
 - All ASP includes that reference a file in the same directory or subdirectory of the file in question use a FILE include with relative pathnames as in the following two examples:
 - <!--#include file="include/misc.asp"--> included file is in subdir 'include' of current
 - <!--#include file="myinclude.asp"--> included file is in same dir as calling file
 - All ASP includes that reference a file in a directory up the chain of the file in question use a VIRTUAL include with absolute root pathname starting from the top level directory as in the following two examples:
 - <!--#include virtual="/GeneralWeb/WebApps/myinclude.asp"-->
 - <!--#include virtual="/JobCareerDevelop/DHPS/misc.asp"-->

- ColdFusion include statements follow the same pathname rules shown in this section where the higher level file is not in a mapped directory, as in the following two examples:
- `<CFinclude template="myinclude.cfm">`
`<CFinclude template="/JobCareerDevelop/DHPS/misc.cfm">`
- Use absolute URLs (pathnames) when providing links to remote pages, such as web pages on another system.

14.17.2 Guidelines

None

14.18 File Uploads

This section establishes the standards and guidelines on file uploading from a web interface.

14.18.1 Standards

No user shall be allowed to upload documents or files to the IHS web server without being granted permission to do so by the application or websites federal POC (generally the content manager). This permission must be set up manually and cannot be an automated process.

14.18.2 Guidelines

All applications or web interfaces that do have the ability to upload files should use a layer of security where users can be granted permission to submit files. There should be restrictions on types of files based on what the purpose of the site is so that if you only want users with access to submit PDFs they cannot submit executable files (.exe). This adds an extra layer of protection for the site admins and web server.

14.18.3 Exceptions

Case-by-case

14.19 Footer

This section establishes standards and guidelines for web page footers. (See also Header.)

14.19.1 Standards

The following standards apply to web page footers:

- Standard footer information will be included at the bottom of every web page that resides on IHS Headquarters servers, or uses the IHS domain, or both. The footer will hold all federally required links.

- The footer information for IHS Headquarters servers is processed on the server prior to the web browser receiving the page. This works with all browsers. However, the footer information does require the web server to do the processing. When designing web pages, the footer information is not visible until the pages are moved to the IHS Headquarters Development server.

The standard footer file for IHS Headquarters Internet and Intranet web pages is used by including this code in the file immediately before the closing `</body>` tag. See Procedures and Instructions in Global Include Files on page 8 for more information.

14.19.2 Guidelines

None

14.20 Forms

This section establishes standards and guidelines for electronic forms used on the IHS domain.

14.20.1 Standards

When electronic forms are designed to be completed on-line, the form shall allow people using assistive technology to access the information, field elements, and functionality required for completion and submission of the form, including all directions and cues. (See Section 508 in Appendix A: Rehabilitation Act on page 74 for more information.)

14.20.2 Guidelines

Electronic forms should meet the following guidelines:

- Include or provide a means for contacting the site owner about the form.
- Use tab navigation that follows the order in which the form was meant to be read.
- Use forms whenever possible since they help all processes of e-business.
- Use the LABEL element when form controls are text input fields. Include any special instructions within field labels.
- Use the title attribute when text is not available.

14.21 Frames

Frames are compliant with any HTML 4.0 browser and are a part of the HTML 4.0 specifications.

14.21.1 Standards

Frames are not to be used. If for some reason the only way to convey the websites information to the screen requires the use of frames, the IHS Web Manager must give approval.

14.21.2 Guidelines

None

14.22 Graphics

This section establishes the standards and guidelines for graphics that are added to IHS web pages and sites.

14.22.1 Standards

This section lists standards for graphics on IHS web pages and sites.

- Graphics should have an associated alternative text (*alt*) tag (`alt="picture description"`) to comply with the Section 508 of the Rehabilitation Act for text-only browsers or for clients who have image loading turned off to read the page in a coherent manner.
- Web pages should only link to graphics located on the website server where their pages reside.
- Images should be no wider than 535 pixels or higher than 295 pixels to be displayed on the typical web browser's viewing window on a 1024 by 768 monitor.

See Section 508 in Appendix A: Rehabilitation Act on page 74 for more information.

14.22.2 Guidelines

This section lists guidelines for graphics on IHS web pages and sites.

- Use contrasting colors that are easily distinguished to help color blind people view the content.
- Graphics, icons, and images should be included to add clarity, not solely for decoration.
- Keep graphics small. Reduce either the physical size or the number of colors in the graphic. This reduces file size and accommodates dial-up users. Use GIF files, if possible, since they tend to be smaller than jpeg and bitmap.
- Include height and width attributes in the *img src*; this decreases download time. Since text can be printed on the screen leaving space for the image to follow.
- Reuse graphics.
 - Multiple use of the same graphic provides a consistent look throughout a website.

- When the browser downloads an image, it stays in memory and can be viewed again without accessing the server.
- Ask permission of the owner to use images found elsewhere that may be copyrighted before using them.

14.23 Header

This section establishes standards and guidelines for web page headers. (See also Footer.)

To standardize the process of finding information on websites that reside on IHS Headquarters servers, the header navigation "include" statement listed below is to be included on all web pages. To determine if a page may be an exception, please e-mail webmaster@ihs.gov. Websites that reside on other IHS servers are encouraged to use a similar format.

The navigation bar is processed on the server prior to the web browser receiving the page. This works with all browsers. However, the navigation bar does require the web server to do the processing. When designing a website, the navigation bar is not visible until the pages are moved to the IHS Development server. All development work should be done on the development server to ensure that the website functions correctly when it is moved to the live server.

14.23.1 Standards

The include statement for the header navigation bar for pages on the IHS Internet and Intranet servers should be placed immediately following the <body> tag. See Procedures and Instructions in Global Include Files on page 8 for more information.

14.23.2 Guidelines

None

14.24 Home Page

This section establishes standards and guidelines for home pages.

14.24.1 Standards

This section lists standards for home pages on IHS web pages and sites:

- Each IHS directory home page should be identified by an IHS logo.
- Since each page on Headquarters IHS servers should contain the standardized header which contains the IHS logo, each individual page need not display it. Under special circumstances where the header might not be used, the IHS logo should be placed on the page in an appropriate manner.

- Each document collection or program home page file should be named index.asp, index.cfm, index.htm, default.asp, default.cfm, or default.htm, if it resides on the IHS Headquarters server.

14.24.2 Guidelines

This section lists guidelines for home pages on IHS web pages and sites:

- If content cannot be made Section 508 compliant, provide a text-only version of the non-compliant section for the IHS Web Manager's review and approval.
- See Directory Structure on page 48 of this document for information about naming folders and directories.

14.25 Home Page Links

This section establishes standards and guidelines for home page links.

Congress and the President have issued requirements and initiatives that affect home page links. HHS also requires a link to their Internet home page. These requirements pertain only to the web server's primary home page not to individual home pages that reside on the web server.

14.25.1 Standards

This section lists standards for both mandatory and recommended home pages links on IHS web pages and sites:

- Mandatory links
 - Disclaimers
 - Electronic Reading Room
 - Freedom of Information Act ([FOIA](#)) and the US Government's Official Web Portal ([USA.gov](#))
 - No Fear Act (See Appendix B: Other Requirements on page 78)
 - Link to parent organization, HHS, by either logo or text link
- Recommended links
 - Frequently Asked Questions (FAQ)
 - Individual Home Pages
 - Search
 - Site Information
 - What's New

14.25.2 Guidelines

None

14.26 Image Maps

This section establishes standards and guidelines for image maps.

14.26.1 Standards

Provide alternative text for each active region of your image map (the area's) and provide alternative text in the *img* tag for the map itself. Alternative text for adjacent image map areas should be separated by brackets, vertical bars, or other punctuation so that the links don't run together in non-graphical browsers. This also prevents some older screen readers from reading adjacent links as a single link.

If this approach doesn't make the image map accessible, create an alternative page that is accessible.

Note: Be careful how you list links when you write code. The link order doesn't matter for people who use a graphical browser and a mouse, but it can affect screen readers and people who use a keyboard to tab through links.

14.26.2 Guidelines

The following example shows the code to implement an image map:

```

<map name="botbarmap39" >
<area shape="rect" coords="1,22,50,45" href="about/about.html" alt="[about cis]">
<area shape="rect" coords="50,21,100,50" href="news/new.html" alt="[cancer
news]">
<area shape="rect" coords="100,22,155,46" href="resources/resources.html" alt="[cis
resources]">
<area shape="rect" coords="155,22,218,47"
href="http://www.cancer.gov/publications/" alt="[publications ordering]">
<area shape="rect" coords="218,22,287,49" href="community/community.html"
alt="[cis regional programs]">
<area shape="rect" coords="287,23,340,50" href="research/research.html"
alt="[cancer research]">
<area shape="rect" coords="340,23,375,48" href="maint/map/map.htm" alt="[site
map]">
<area shape="rect" coords="375,23,430,47" href="contact/contact.html" alt="[contact
us]">
```

```
<area shape="circle" coords="445,21,22" href="index.html" alt="[home]">  
</map>
```

14.27 Information Approval and Clearances

This section establishes the standards and guidelines for determining the individual who will be responsible for content and accuracy of an organization's website.

14.27.1 Standards

Each IHS program or division should identify individual(s) to be responsible for the content of that organization's web pages. If the content becomes outdated or the site has clearly not been reviewed in over two years, the IHS Web Manager has the authority to take it offline if it is determined that the information is outdated or no longer appropriate.

If the site was approved, went live, and then was modified to the extent that it doesn't comply with the web standards, the IHS Web Manager has the authority to remove the site from the live server.

If the material to be placed on-line has already been approved for public dissemination and published in an IHS publication, no additional approval should be required.

If the material has not been previously approved and printed, the material should be reviewed by the sponsoring program authority for quality, accuracy, and adherence to existing standards and guidelines. If the material's quality, accuracy, and adherence do not meet or exceed the guidelines, the site will NOT go live.

Previously unpublished material should undergo review by the IHS Communication Products Manager or the IHS Office of Communications.

Information release must comply with any embargoes.

14.27.2 Guidelines

Special care should be exercised where there is a potential to disclose privacy or other information protected or otherwise inappropriate for release.

Quality reviewers can regularly spot-check disseminated information.

Whenever possible, electronic release should be coordinated with release of printed publications so that press releases and other publicity can mention electronic availability and include the URL.

14.28 Information Collections and Surveys

Be careful using on-line, informal surveys asking the public for information. The Paperwork Reduction Act (PRA) of 1995 (44USC35) (see Appendix B: Other Requirements on page 78) and 61CFR 6428 dated February 20, 1996, require that the Office of Management and Budget (OMB) must clear all information collection requests, with minor exceptions, and display an OMB control number prior to issue. Contact the appropriate agency Reports Clearance Officer (RCO) for more information on the PRA or to validate the releasability of such a request.

14.28.1 Standards

Surveys of 10 or more people require OMB certification and control number.

14.28.2 Guidelines

Users should be notified of any user information collection activities or use monitoring (or both) and the purpose for its use.

Information, which contains individual identifiers, such as email addresses, should not be retained for long periods of time.

14.29 Information and System Protection

This section establishes standards and guidelines for protecting information on IHS websites and IHS systems.

14.29.1 Standards

None

14.29.2 Guidelines

Follow existing security policies and procedures listed in this document when developing Internet services and content, and refrain from any practices that might jeopardize IHS computer systems and data files.

Do not import nor distribute any data or graphics to IHS employees or customers that would create a hostile work environment (prohibited in accordance with the Equal Employment Opportunity Act. (For more information, see the link to No FEAR Act in Appendix B: Other Requirements on page 78.) Where the situation warrants, coordinate security and privacy matters with the component's network administrator or server webmaster where content is stored.

Protect information entrusted to the agency. The continued protection of sensitive or confidential information, as well as the effective use of safeguards to assure the integrity of IHS information and systems will determine the extent to which the Internet and Intranet will be accessed and used to support IHS missions. On-line

computer security training sessions can be found on the IHS Internet at <http://www.isa.ihs.gov/>

14.30 Information Published

This section establishes the standards and guidelines for assuring the only valid, current information is present on an IHS website.

14.30.1 Standards

IHS offices or programs should establish a periodic review cycle of documents disseminated through the IHS Internet or Intranet to support IHS credibility and provide current, accurate information to the user. (See **Error! Reference source not found.** on page **Error! Bookmark not defined.** for additional information.)

Special care should be exercised where there is a potential to disclose private or protected information or other information inappropriate for release.

14.30.2 Guidelines

Web document owners are responsible for obtaining authorization prior to releasing or publishing information in paper or electronic format.

Clearance must be obtained if an electronic product is not a derivative of a publication that has already been cleared.

When publishing an electronic version of a previously published document, it is recommended that the document be encompassed within a table.

- A table width=80% is recommended to simulate margins to make the printed version of the document more closely reflect its original counterpart and create a sufficient margin for any monitor's size or resolution setting.
- It is important to assign both the table and the table cell(s) width based on percentages rather than pixels. Not all browsers have the ability to understand table structure in one format (i.e. percentages), and the table cells in another (i.e. pixels).

14.31 Java

Java is an object-oriented programming language developed by Sun Microsystems, Inc. and is a subset of the C++ language. A Java program, called a Java applet, can be included inside an HTML page and will run on all major browsers.

14.31.1 Standards

Java programs, applications, or applets incorporated into a web page should be thoroughly tested on multiple platforms and browsers and endorsed by your designated IHS Web Team point of contact (POC) prior to publication.

14.31.2 Guidelines

To prevent a blank line from appearing in a browser where Java is not enabled or supported, add an image or some HTML code to replace the applet.

14.32 JavaScript

JavaScript is a pure scripting, uncompiled, object-based, computer-interpreted language.

14.32.1 Standards

None

14.32.2 Guidelines

If JavaScript is used, provide alternatives for users without JavaScript-enabled browsers. Test web pages using all major browsers.

14.33 Left Navigation Bar

A left navigation bar must be used on any site that requires multiple links to be available from all pages on a site. A left navigation bar is part of the IHS template.

14.33.1 Standards

Every site should have its parent directory's link posted in the left navigation bar. Every major subject or category of a site should be listed in the left navigation bar.

An email address or mailto link must be provided on each page. In addition, you should provide a postal mailing address or phone number of the person(s) responsible for the content of the page. All means of contact should be provided for the user's convenience.

Example: Questions or Comments. Please contact the [Site Manager](#) which opens a blank email addressed to the person named on the website.

14.33.2 Guidelines

None

14.34 Links (Dead)

See also Links (Live)

Dead links inevitably occur as pages are modified, moved, or deleted and, as a result, damage a website's credibility.

14.34.1 Standards

Content managers are responsible for assuring there are no dead links on websites and pages for which they are responsible.

14.34.2 Guidelines

Verification should occur on a semiannual basis.

14.35 Links (Live)

See also Links (Dead)

This section establishes standards and guidelines for links found on IHS websites.

14.35.1 Standards

Links are required on each page within a document or collection to the home page for that document or collection.

All sites must link to their parent directory. This should be done in upper-left portion of the template so that it is consistent throughout the website.

14.35.2 Guidelines

Links to downloadable files should include the file size. It is recommended that file size not exceed 1megabyte and use the following format:

Website Request Form (doc – 115KB)

Links must be provided to the appropriate download site when files require specific applications to open or use them. In addition, a link to the IHS plug-ins page (<http://www.ihs.gov/generalweb/webcomponents/downloads/plugins.cfm>) must be provided.

14.36 Navigation

This section establishes the standards and guidelines for required navigation.

14.36.1 Standards

Web pages using the IHS.gov domain name shall have headers, footers, and left navigation bars.

14.36.2 Guidelines

Web pages should be designed to minimize user reliance on the navigational aids in web browser software, such as back and forward buttons, history lists, and so on.

Web pages should include links that act as back buttons to provide a means of moving backward through a collection of web pages.

14.37 Robots

Robot files inform spiders and crawlers about when to search the site, which directories are restricted, the number of simultaneous fingers, frequency of the hits, and so on.

14.37.1 Standards

None

14.37.2 Guidelines

A robots.txt file should be established on each web server's site root directory.

Subdirectories within the web can also have their own robots.txt file. This is done by the IHS Web Manager or server admin. Contact them if you do not want your folders indexed.

Procedures should be established for how to deal with spiders that don't follow the rules.

14.38 Security

In addition to federal regulations, this section establishes additional security standards and guidelines.

14.38.1 Standards

The designated web-server systems administrator has primary responsibility for site server(s) security.

14.38.2 Guidelines

Web authors should be aware of applicable security considerations, particularly in areas such as Common Gateway Interface (CGI) script development and executable (.exe) files.

14.39 Tables

This section establishes standards and guidelines for creating tables.

14.39.1 Standards

When tables are used, the same information must be made available in a way that complies with Section 508 of the Rehabilitation Act (see Appendix A: Rehabilitation Act on page 74).

14.39.2 Guidelines

Use *th* tags for data table headers. Include the ABBR attribute to provide a one word identifier the screen reader will announce as the header for each associated data cell. Use SUMMARY attribute and *caption* tag for all data tables.

For example:

```
< TABLE SUMMARY = "Patient Registration Data" >
< CAPTION >2000- 2002 Data from Research Institute< /CAPTION >
< TR>
< TH id = "h1" ABBR="First">First Name< /TH>
< TH id = "h2" ABBR="Last">Last Name< /TH>
< /TR>
< TR>
< TD headers = "h1">John< /TD>
< TD headers = "h2">Doe< /TD>
< /TR>
< TR>
< TD headers = "h1" >Ann< /TD>
< TD headers = "h2" >Smith< /TD>
< /TR>
```

For additional information on web accessibility, see <http://www.w3.org/WAI/>.

14.40 Templates

This section establishes standards and guidelines for using IHS web page templates.

14.40.1 Standards

IHS has developed web page templates that comply with Section 508 of the Rehabilitation Act. All site and page development must use these templates. Please contact your IHS Web Team Account Manager if you have any questions about the templates. A detailed description of how to use the IHS Web Templates is available at:

<http://www.ihs.gov/generalweb/helpcenter/devcomm/resources/index.cfm?resopt=Templates&resrel=Template>

14.40.2 Guidelines

None

14.41 Testing

This section establishes standards and guidelines for testing various web page elements.

14.41.1 Standards

All sites prior to public release will be reviewed for compliance by the IHS Web Manager.

Before any document or website is made publicly available, the following elements should be tested:

- Plain Language (see www.plainlanguage.gov)
- Grammar
- Hyperlinks
- Spelling
- Syntax
- Accessibility [see Section 508 of the Rehabilitation Act (29 U.S.C. 794d), as amended by the Workforce Investment Act of 1998 (P.L. 105-220), August 7, 1998 at <http://www.section508.gov/index.cfm?FuseAction=Content&ID=14>]

All pages should be tested using all major browsers to ensure that content appears as intended while on the development server.

14.41.2 Guidelines

For additional information on web accessibility, see <http://www.w3.org/WAI/>

14.42 Text-Only Alternative for Pages Containing Graphics

This section provides standards and guidelines for those pages that require alternative text to convey information that cannot be represented using *alt* tags.

14.42.1 Standards

A website's *index.asp*, *index.htm*, *index.cfm* page must also have a corresponding text-only page if, and only if, the page is unable to convey the information found on it using *alt* tags.

Note: Currently there are no widely used web software applications that cannot be made Section 508 compliant. So claiming this must be explained to the IHS Web Manager if you feel your site/page is excluded.

14.42.2 Guidelines

This section establishes guidelines for alternative text used on web pages to describe graphic content.

- Sites that are based on JavaScript require a textual alternative, such as the IHS Kid's page: <http://www.ihs.gov/PublicInfo/Publications/Kids/index.cfm>.
- Additional information on web accessibility is provided by the World Wide Web Consortium at: <http://www.w3.org/WAI/>.

14.43 Title

This section establishes standards and guidelines for titles used to name web pages.

14.43.1 Standards

Every document must have a title that reflects the content of the page. The title should be as short as possible, but fully informative and specific. For example: *FY 1999 IHS Budget* is preferable to *Budget*. The title should use the overall page name and the specific web page topic. Contact the IHS Web Manager if you need assistance.

14.43.2 Guidelines

Pages created for OPDIVs or programs that are known by a specific acronym (for example OMB) should include the acronym for that OPDIV or program in the title of that web page or site.

14.44 Under Construction Pages

This section establishes standards and guidelines for pages on IHS websites that are being modified or updated.

14.44.1 Standards

A viewer should NEVER come across a page that is labeled *Under Construction*.

This is also an HHS standard. See:

<http://www.hhs.gov/web/policies/standards2/emptypage.html>

All pages posted to the live server should be complete. If a section is not complete and the site needs to go live, that section's link may be removed and added later when the section is complete.

Web page development should be performed on a development server then transferred to the live web server thereby eliminating the need for *Under Construction* notices.

14.44.2 Guidelines

None

14.45 Uniform Resource Locators (URLs)

This section establishes standards and guidelines for URLs.

14.45.1 Standards

This section establishes standards for URL names.

- Create URL names that are understandable and use brief, simple words without becoming cryptic.
- Provide a link to redirect visitors to top level web pages whose URLs have changed. Redirects from parent-level pages are allowed for a maximum of six months. Change the links on sub-level pages of each main page to the new address, and not redirect. Add a comment in the code that shows when the redirect was added to know when the six months are up.

14.45.2 Guidelines

URL names must be in lowercase to avoid possible conflicts with case-sensitive operating systems such as UNIX.

14.46 Usability Guide

This section establishes standards and guidelines for website usability.

14.46.1 Standards

None

14.46.2 Guidelines

HHS-issued *Research-Based Web Design & Usability Guidelines* are based on extensive research in usability and accessibility. These guidelines are applicable to all federal websites. The resource has almost 200 guidelines; each includes a statement of principle and cites supporting research. Each guideline is rated on the strength of its supporting evidence and its relative importance to the overall success of a website.

As an OPDIV of HHS, IHS should adhere to and implement these guidelines.

See HHS-issued web design guidelines at <http://usability.gov/pdfs/guidelines.html>

14.47 Use Monitoring

This section establishes standards and guidelines for improving website use.

14.47.1 Standards

If a site receives very few hits in a 12-month period, the IHS Web Manager will contact the website content manager and discuss ideas to improve the site.

Improvements may include redesigning the website, moving the website to improve visibility so more people see it, or highlighting a section of the website.

A content manager may request the use statistics of their site from the IHS Web Manager at any time.

14.47.2 Guidelines

Use monitoring should include checking visits or hits with the IHS Web Manager.

15.0 Glossary

This section provides definitions for acronyms and terms used in this document.

Additional acronyms and terms can be found at:

http://www.ihs.gov/PublicInfo/PublicAffairs/Welcome_Info/ThisGlossary.asp
<http://www.ihs.gov/generalweb/helpcenter/devcomm/featurebar/index.cfm?fbaropt=gloss>

and the IHS Security website at:

<http://home.ihs.gov/ITSC-CIO/security/secpgm/SecGlos.cfm>.

Term	Definition
ASP	Active Server Page. A Microsoft server-side script engine.
BMP	Bit Map. An image file extension.
CFM or CFML	ColdFusion Markup Language. The Adobe Systems ColdFusion file extension or the code used to create web pages and sites.
CGI	Common Gateway Interface. A standard protocol for web servers.
Crawlers	A program or automated script which can be either harmless (such as those used by search engines to enhance usability) or for less ethical use (such as gathering personal information).
DOC	Document. A file extension of Microsoft Word.
Email	Electronic mail. See also website in this section.
FLASH	A multimedia authoring language used to create multimedia on web pages and sites.
FOIA or EFOIA	Freedom of Information Act or Electronic Freedom of Information Act.
FAQ	Frequently Asked Questions.
GIF	Graphics Interchange Format. An image file extension.
HTM or HTML	Hyper Text Markup Language. A web file extension or the code used to create web pages and sites.

Term	Definition
JavaScript	A prototype-based scripting language which is a registered trademark of Sun Microsystems. See also <i>JSP</i> .
JPEG	Joint Photographic Experts Group. A photographic file extension.
JSP	Java Server Page. A web file extension or the code used to create web pages and sites.
OMB	Office of Management and Budget.
OPDIV	Operating Division.
PDF	Portable Document File. A file extension of Adobe Acrobat.
PHP	Personal Home Page. This acronym is obsolete; it now refers to a hypertext preprocessor that is a server-side scripting language used for web development. PHP script can be embedded in HTML code.
PNG	Portable Network Graphics. An image file extension.
POC	Point of Contact.
PPT or PPS	A file extension of Microsoft PowerPoint.
RCO	Reports Clearance Officer.
Robots	A program or automated script which can be either harmless (such as those used by search engines to enhance usability) or for less ethical use (such as gathering personal information).
RTF	Rich Text Format. A file extension of Microsoft Word.
SAS	Statistical Analysis System. A SAS file extension.
Spiders	A program or automated script which can be either harmless (such as those used by search engines to enhance usability) or for less ethical use (such as gathering personal information).
SQL	Structured Query Language. A language used by database management systems.

Term	Definition
SQL injection	A general class of attacks that can allow disreputable users to retrieve data, alter server settings, or even take over your server if you're not careful. A SQL injection is not a SQL Server problem, but a problem with improperly written applications.
SRS	Software Requirements Specification
SVG	Scalable Vector Graphics. A image file extension used in XML .
SWF	A file extension used by Adobe Flash.
VBS	A VBScript file extension.
VBScript	Visual Basic Script. A code used to create web pages and sites.
Website	The American Heritage Dictionary lists the closed compound <i>website</i> , with the following rationale: “The development of website as a single uncapitalized word mirrors the development of other technological expressions which have tended to evolve into unhyphenated forms as they become more familiar. Thus email has recently been gaining ground over the forms E-mail and e-mail. . . . [and] there has been an increasing preference for closed forms like homepage, online, and printout.” (http://www.bartleby.com/61/57/W0075725.html).
WPD	Word Perfect Document. A file extension of Corel Corporation WordPerfect.
XLS	A file extension of Microsoft Excel.
XML	Extensible Markup Language.

16.0 Appendix A: Rehabilitation Act

This appendix includes both the link to Section 508 of the Rehabilitation Act (29 U.S.C. 794d), as amended by the Workforce Investment Act of 1998 (P.L. 105-220), August 7, 1998, as well as its content.

For the most current version of this section see:

<http://www.section508.gov/index.cfm?FuseAction=Content&ID=14>

Here is the full text of the 1998 Amendment to Section 508 of the Rehabilitation Act:

Section 508 of the Rehabilitation Act (29 U.S.C. 794d), as amended by the Workforce Investment Act of 1998 (P.L. 105-220), August 7, 1998

SEC. 508. ELECTRONIC AND INFORMATION TECHNOLOGY

(a) REQUIREMENTS FOR FEDERAL DEPARTMENTS AND AGENCIES.--

(1) ACCESSIBILITY.--

(A) DEVELOPMENT, PROCUREMENT, MAINTENANCE, OR USE OF ELECTRONIC AND INFORMATION TECHNOLOGY.--When developing, procuring, maintaining, or using electronic and information technology, each Federal department or agency, including the United States Postal Service, shall ensure, unless an undue burden would be imposed on the department or agency, that the electronic and information technology allows, regardless of the type of medium of the technology--

(i) individuals with disabilities who are Federal employees to have access to and use of information and data that is comparable to the access to and use of the information and data by Federal employees who are not individuals with disabilities; and

(ii) individuals with disabilities who are members of the public seeking information or services from a Federal department or agency to have access to and use of information and data that is comparable to the access to and use of the information and data by such members of the public who are not individuals with disabilities.

(B) ALTERNATIVE MEANS EFFORTS.--When development, procurement, maintenance, or use of electronic and information technology that meets the standards published by the Access Board under paragraph (2) would impose an undue burden, the Federal department or agency shall provide individuals with disabilities covered by paragraph (1) with the information and data involved by an alternative means of access that allows the individual to use the information and data.

(2) ELECTRONIC AND INFORMATION TECHNOLOGY STANDARDS.--

(A) IN GENERAL.--Not later than 18 months after the date of enactment of the Rehabilitation Act Amendments of 1998, the Architectural and Transportation Barriers Compliance Board (referred to in this section as the 'Access Board'), after

consultation with the Secretary of Education, the Administrator of General Services, the Secretary of Commerce, the Chairman of the Federal Communications Commission, the Secretary of Defense, and the head of any other Federal department or agency that the Access Board determines to be appropriate, including consultation on relevant research findings, and after consultation with the electronic and information technology industry and appropriate public or nonprofit agencies or organizations, including organizations representing individuals with disabilities, shall issue and publish standards setting forth--

(i) for purposes of this section, a definition of electronic and information technology that is consistent with the definition of information technology specified in section 5002(3) of the Clinger-Cohen Act of 1996 (40 U.S.C. 1401(3)); and

(ii) the technical and functional performance criteria necessary to implement the requirements set forth in paragraph

(1). (B) REVIEW AND AMENDMENT.--The Access Board shall periodically review and, as appropriate, amend the standards required under subparagraph (A) to reflect technological advances or changes in electronic and information technology.

(3) INCORPORATION OF STANDARDS.--Not later than 6 months after the Access Board publishes the standards required under paragraph (2), the Federal Acquisition Regulatory Council shall revise the Federal Acquisition Regulation and each Federal department or agency shall revise the Federal procurement policies and directives under the control of the department or agency to incorporate those standards. Not later than 6 months after the Access Board revises any standards required under paragraph (2), the Council shall revise the Federal Acquisition Regulation and each appropriate Federal department or agency shall revise the procurement policies and directives, as necessary, to incorporate the revisions.

(4) ACQUISITION PLANNING.--In the event that a Federal department or agency determines that compliance with the standards issued by the Access Board under paragraph (2) relating to procurement imposes an undue burden, the documentation by the department or agency supporting the procurement shall explain why compliance creates an undue burden.

(5) EXEMPTION FOR NATIONAL SECURITY SYSTEMS.--This section shall not apply to national security systems, as that term is defined in section 5142 of the Clinger-Cohen Act of 1996 (40 U.S.C. 1452).

(6) CONSTRUCTION.--

(A) EQUIPMENT.--In a case in which the Federal Government provides access to the public to information or data through electronic and information technology, nothing in this section shall be construed to require a Federal department or agency--

(i) to make equipment owned by the Federal Government available for access and use by individuals with disabilities covered by paragraph (1) at a location other than that where the electronic and information technology is provided to the public; or

(ii) to purchase equipment for access and use by individuals with disabilities covered by paragraph (1) at a location other than that where the electronic and information technology is provided to the public.

(B) SOFTWARE AND PERIPHERAL DEVICES.--Except as required to comply with standards issued by the Access Board under paragraph (2), nothing in paragraph (1) requires the installation of specific accessibility-related software or the attachment of a specific accessibility-related peripheral device at a workstation of a Federal employee who is not an individual with a disability.

(b) TECHNICAL ASSISTANCE.--The Administrator of General Services and the Access Board shall provide technical assistance to individuals and Federal departments and agencies concerning the requirements of this section.

(c) AGENCY EVALUATIONS.--Not later than 6 months after the date of enactment of the Rehabilitation Act Amendments of 1998, the head of each Federal department or agency shall evaluate the extent to which the electronic and information technology of the department or agency is accessible to and usable by individuals with disabilities described in subsection (a)(1), compared to the access to and use of the technology by individuals described in such subsection who are not individuals with disabilities, and submit a report containing the evaluation to the Attorney General.

(d) REPORTS.--

(1) INTERIM REPORT.--Not later than 18 months after the date of enactment of the Rehabilitation Act Amendments of 1998, the Attorney General shall prepare and submit to the President a report containing information on and recommendations regarding the extent to which the electronic and information technology of the Federal Government is accessible to and usable by individuals with disabilities described in subsection (a)(1).

(2) BIENNIAL REPORTS.--Not later than 3 years after the date of enactment of the Rehabilitation Act Amendments of 1998, and every 2 years thereafter, the Attorney General shall prepare and submit to the President and Congress a report containing information on and recommendations regarding the state of Federal department and agency compliance with the requirements of this section, including actions regarding individual complaints under subsection (f).

(e) COOPERATION.--Each head of a Federal department or agency (including the Access Board, the Equal Employment Opportunity Commission, and the General Services Administration) shall provide to the Attorney General such information as the Attorney General determines is necessary to conduct the evaluations under subsection (c) and prepare the reports under subsection (d).

(f) ENFORCEMENT.--

(1) GENERAL.--

(A) COMPLAINTS.--Effective 6 months after the date of publication by the Access Board of final standards described in subsection (a)(2), any individual with a disability may file a complaint alleging that a Federal department or agency fails to comply with subsection (a)(1) in providing electronic and information technology.

(B) APPLICATION.--This subsection shall apply only to electronic and information technology that is procured by a Federal department or agency not less than 6 months after the date of publication by the Access Board of final standards described in subsection (a)(2).

(2) ADMINISTRATIVE COMPLAINTS.--Complaints filed under paragraph (1) shall be filed with the Federal department or agency alleged to be in noncompliance. The Federal department or agency receiving the complaint shall apply the complaint procedures established to implement [Section 504](#) for resolving allegations of discrimination in a federally conducted program or activity.

(3) CIVIL ACTIONS.--The remedies, procedures, and rights set forth in [sections 505\(a\)\(2\) and 505\(b\)](#) shall be the remedies, procedures, and rights available to any individual with a disability filing a complaint under paragraph (1).

(g) APPLICATION TO OTHER FEDERAL LAWS.--This section shall not be construed to limit any right, remedy, or procedure otherwise available under any provision of Federal law (including sections [501](#) through [505](#)) that provides greater or equal protection for the rights of individuals with disabilities than this section

17.0 Appendix B: Other Requirements

This appendix lists other laws and regulations referenced in this document that are applicable to this document, website development, and web content and provides links for those laws and regulations.

In addition to the standards and requirements provided in this document, IHS websites and pages must also conform to the following:

- **Recommended Security Controls for Federal Information.** IHS websites and pages must also comply with Federal law NIST 800-53 For the most current version, see:
<http://csrc.nist.gov/publications/nistpubs/800-53/SP800-53.pdf>
- **No Fear Act.** The Notification and Federal Employee Antidiscrimination and Retaliation Act of 2002
<http://www.dotcr.ost.dot.gov/documents/ycr/nofearact.pdf>
- **Freedom of Information Act.** Freedom of Information Act 5 U.S.C. 552, As Amended By Public Law No. 104-231, 110 Stat. 3048
http://www.usdoj.gov/oip/foia_updates/Vol_XVII_4/page2.htm
- **Paperwork Reduction Act of 1995.** Public Law 104-13 (44 U.S.C. 35)at:
<http://www.cio.noaa.gov/itmanagement/pralaw.pdf>
- **Privacy Act of 1974 .** 5 U.S.C. § 552a, As Amended
<http://www.ihs.gov/AdminMngrResources/PrivacyAct/pdf/privacy-act-1974.pdf>
- **OMB Policies for Federal Public Websites:** The following website lists elements related to websites:
http://www.usa.gov/webcontent/reqs_bestpractices/omb_policies.shtml
- **Other resources for managing federal websites:**
<http://www.usa.gov/webcontent/index.shtml>
- **Web Site Development Procedures SOP 06-16, available from:**
<http://home.ihs.gov/ITSC-CIO/security/secpgm/ITproced.cfm>

18.0 Contact Information

If you have any questions or comments regarding this distribution, please contact the ITSC Help Desk by:

Phone: (505) 248-4371 or
888) 830-7280

Fax: (505) 248-4199

Web: <http://www.ihs.gov/GeneralWeb/HelpCenter/Helpdesk/index.cfm>

Email: ITSCHelp@mail.ihs.gov