

# **5 FAH-8 H-100 WEB DEVELOPMENT HANDBOOK**

## **5 FAH-8 H-110 WEB DEVELOPMENT**

*(CT:WEB-1; 09-29-2005)  
(Office of Origin: IRM/BPC/RG)*

### **5 FAH-8 H-111 PURPOSE**

*(CT:WEB-1; 09-29-2005)*

This handbook prescribes the basic procedures and practices for developing Web sites/pages domestically and abroad. It is intended:

- (1) For the use of officers, supervisors, or other personnel who are directly or indirectly responsible for management of Web site programs;
- (2) For the design, development, and maintenance of the Web pages; and
- (3) To establish the base standard, not to limit the developer's creativity.

### **5 FAH-8 H-112 SCOPE**

*(CT:WEB-1; 09-29-2005)*

- a. This handbook contains specific guidelines for design, development, and maintenance of the Web pages. It also presents guidance on managing Web development programs.
- b. Information contained in this handbook is relevant to Web pages on all Department of State networks, including but not limited to:
  - OpenNet+
  - ClassNet

- The Internet

It is applicable to SIPRNet except where requirements of this handbook conflict with Department of Defense requirements for SIPRNet.

- c. As a minimum, the requirements in 5 FAH-8 H-500, ACCESSIBILITY AND USABILITY apply to Web enabled applications.
- d. Although individual Web sites do not require approval of the IT Change Control Board (IT CCB) Web based applications may be of sufficient scope as to meet IT CCB criteria. Web applications development staff should consult with their bureau IT CCB representative when making this determination.
- e. Recommendations for additions, deletions, or revisions to this handbook should be forwarded to IRM's Office of Information Resources Management Policy and Regulations (IRM/BPC/RG), to be considered during regular reviews.
- f. Requirements and policies for approval of content are outside the scope of this handbook. Refer to post/bureau procedures for obtaining appropriate approvals.
- g. Issues not addressed within this handbook are omitted by design rather than oversight. These other issues should be addressed to the Internet Steering Committee for consideration.

## **5 FAH-8 H-113 CODE EXAMPLES AND TYPOGRAPHICAL CONVENTIONS**

### **5 FAH-8 H-113.1 Code Examples**

*(CT:WEB-1; 09-29-2005)*

Examples of hypertext markup language (HTML) and cascading style sheet (CSS) code shown in this handbook are not the only way to meet the various requirements for Web site development. They have been tested on a computer configured in accordance with DS/SI/CS specifications and are provided for the benefit of Web site developers who may not know how to implement the feature being described.

### **5 FAH-8 H-113.2 Typographical Conventions**

*(CT:WEB-1; 09-29-2005)*

Code examples are shown in **fixed pitch Courier typeface**. The constant width property of the characters allows the reader to distinguish between single and multiple spaces.

## **5 FAH-8 H-114 REFERENCES**

### **5 FAH-8 H-114.1 Authorities**

*(CT:WEB-1; 09-29-2005)*

The following references were used in the preparation of this Handbook. If additional information is needed, please refer to these sources:

- (1) Executive Order 12958 as amended — Classified National Security Information;
- (2) Americans with Disabilities Act of 1990, 42 U.S.C. § 12101 note et seq.;
- (3) Rehabilitation Act of 1973, 29 U.S.C. § 794d et seq., as amended (Section 508);
- (4) Children's Online Privacy Protection Act, 15 U.S.C. § 6501 et seq.;
- (5) Government Paperwork Elimination Act, 44 U.S.C. § 3504;
- (6) Information Technology Management Reform Act of 1996 (Clinger-Cohen Act), Public Law 104-106, Division E;
- (7) Federal Information Security Management Act of 2002, Public Law 107-347, Section 301, 44 U.S.C. § 3541-3549;
- (8) OMB Memorandum M-99-18, Privacy Policies on Federal Web sites;
- (9) OMB Circular A-130, Management of Federal Information Resources, 61 Federal Register 6428 (1996);
- (10) OMB Memorandum M-05-04, Policies for Federal Agency Public Web sites, December 17, 2004;
- (11) OMB Memorandum M-00-13, Privacy Policies and Data Collection on Federal Web sites, June 22, 2000;
- (12) United States Information and Educational Exchange Act of 1948 (Smith-Mundt Act), as amended, 22 U.S.C. § 1461; and

- (13) 36 CFR § 1194.22 Web-based intranet and Internet information and applications.

## 5 FAH-8 H-114.2 Other Sources

*(CT:WEB-1; 09-29-2005)*

Internet Steering Committee - <http://isc.state.gov/>.

## 5 FAH-8 H-114.3 Electronic References

*(CT:WEB-1; 09-29-2005)*

Since Internet Web sites change frequently, a printed list of web references would be impractical. IRM/BPC/RG maintains an extensive list of web references at <http://rgweb.irm.state.gov/> under the "Web site Development" menu. All external references in this document can be found there.

## 5 FAH-8 H-115 ROLES AND RESPONSIBILITIES

*(CT:WEB-1; 09-29-2005)*

A successful design and production of a Web site requires an interdisciplinary team which may be comprised of FTE personnel and, when determined to be effective, contractors. The composition and overlap of duties of the web program team will vary, depending upon the needs of the Web site, available budget, and the availability of expertise. However, most Web site programs will require expertise in three distinct groups: content, graphic design, and technology.

There are many different titles for the various roles and responsibilities of a web team. The responsibilities associated with each role must be performed regardless of the title assigned to the role.

- (1) **Content Manager** - Responsible for defining the content of part or all of a Web site. The content manager will focus on the use of language throughout the Web site. Tasks may involve proofreading and editing copy, massaging content to ensure a common voice of the site, and creating new copy. The content manager is responsible for insuring the information provided on the Web site is current and accurate. The content manager is also responsible for ensuring information forbidden by 5 FAM 776.3 is not included on the Web site.

- (2) **Database Administrator** - If a database is used to maintain information displayed on a Web site, a Database Administrator will be responsible for ensuring high degrees of data integrity and data quality are maintained.
- (3) **Developer** - Responsible for creating the Web site to meet the requirements and specifications of the Web site development program. The development team works closely with the content manager and database administrator to produce a Web site that meets these goals. Depending on the size of the program, this may be a team.
  - (a) **Information Architect** - Responsible in a broad term for the design tasks of deciding how to structure, select, and present information (inclusive of information architecture, information visualization, and information retrieval).
  - (b) **Writer-Editor** - Responsible for routine, ongoing organization of content; writing/editing names of links, titles, and other Web page text; editing documents and defining appropriate breakdowns due to page length; reading document and selecting appropriate metatags, etc.
  - (c) **Graphic Designer** - Responsible for the graphic design and page layout that defines the graphic identity or look of the Web site.
- (4) **Program Manager** - An individual who may require program manager certification and who has overall responsibility for the initial development and operational maintenance of the Web site. The program manager is responsible for coordinating the requirements with those organizational elements that will use the site to convey information.
- (5) **Technical (Web Administration)** - Responsible for the server administration and the development or integration of site production tools and Web site applications. Provides advice regarding technology-related opportunities and limitations.

## 5 FAH-8 H-116 DEFINITIONS

*(CT:WEB-1; 09-29-2005)*

**Accessibility** - The degree to which the content of a Web site is available to everyone, including persons with disabilities.

**Active Server Pages (ASP)** - Microsoft's server-side technology for dynamically-generated Web pages in conjunction with a Microsoft Internet Information Services (IIS) Web server.

**Applet** - A small program, frequently in Java Script, that can be embedded in an HTML page. Applets differ from full-fledged applications in that they are not allowed to access certain resources on the local computer, such as files and serial devices (modems, printers, etc.), and are prohibited from communicating with most other computers across a network. The current rule is that an applet can only make an Internet connection to the computer from which the applet was sent.

**Authentication** - Providing a password or using an encryption key to prove you are who you say you are.

**Bandwidth** - The amount of data that can be transmitted in a fixed amount of time. For digital devices, the bandwidth is usually expressed in bits per second (bps) or bytes per second. For analog devices, the bandwidth is expressed in cycles per second (cps), or Hertz (Hz).

**Baud rate** - Rate at which packets of data are sent and received through the network. These rates are defined in terms of bps. The higher the baud rate, the faster the connection.

**Deprecated** - In the context of this document, deprecated is used in its specific technical meaning to describe a feature that has been phased out or is in the process of being phased out, and/or is no longer recommended for usage.

**Development network** - A dedicated standalone network comprised of not more than fifteen user accounts and used exclusively for developing Web sites and local applications.

**DMZ** - A DMZ, demilitarized zone, is a subnetwork that sits between a trusted internal network and an untrusted external network.

**Domain names** - The plain language address that points to a numeric internet protocol (IP) address. A fully qualified domain name includes a top-level, second-level, and third-level component. Domain name structure is:

- (1) Top-level - the extension or country code located at the right of the domain name. Top-level domain names that do not include a country code are assumed to be in the United States. Examples: .gov for government, .fr for France
- (2) Second-level - the top-level combined with a name which describes the company or organization. Example: state.gov

- (3) Third level - the second-level combined with the name of the host server where web based services can be located. Examples: www.state.gov identifies the Web server at the Department of State within the Federal government; www2.state.gov might identify a second Web server in the Department of State.
- (4) Subdomain - a further division of the second-level. Example: webx.irm.state.gov points to a host server named "webx" on subdomain "irm" of domain "state.gov"

**E-zine** - An electronic magazine or journal.

**Extensible Markup Language (XML)** - A simplified subset of Standard Generalized Markup Language (SGML), XML is a very extensible markup language used to describe many different kinds of data, with the end of making such data easier to share across systems and over the Internet.

**Extranet** - An extranet is partially accessible to authorized outsiders and requires a valid user name and password, which determines the level of access.

**Graphical Interchange Format (GIF)** - GIF files support 8-bit or 256-bit colors and are best used for illustrations and flat graphics.

**Home page** - The first page of a Web site that commonly acts as a menu to other pages. A Web portal is an example of a home page.

**HyperText Mark-up Language (HTML)** - The language used to describe Web pages. Browsers interpret HTML documents and display the text and graphics represented in the code.

**Information Architecture** - The content organization of a Web site (similar to the outline for a book with chapters, subchapters, cross-references, index).

**Internet** - (Upper case I) The commonly accepted name for the vast collection of inter-connected networks that all use the TCP/IP protocols and that evolved from the ARPANET of the late 60's and early 70's. The Internet has no access controls and is publicly accessible.

**internet** - (Lower case i) Any time you connect 2 or more networks together, you have an internet.

**Intranet** - A private network inside a company or organization that, at a minimum, resides behind a firewall and require a user name and password for access.

**Internet Protocol (IP) Address** – An identifier for a computer or device on a network employing Transmission-Control Protocol/Internet Protocol (TCP/IP). Networks using the TCP/IP protocol route messages based on the IP address of the destination. The format of an IP address is a 32-bit numeric address written as four numbers separated by periods. Each number can be 0 (zero) to 255. The local IP address of your computer is 127.0.0.1.

**IP Protocol** – A guaranteed delivery protocol within the TCP family of protocols. Individual packets that compromise a communication may be transmitted by different routes through the network to reach their destination. IP ensures:

- (1) Each packet reaches the destination; and
- (2) The packets are reassembled in the correct sequence (see also UDP Protocol).

**Java** - A powerful programming language originally developed by Sun Microsystems that is used by software developers to build a variety of applications, including Web pages.

**Joint Photographic Expert Group (JPEG)** - A method of compressing bitmapped images that allows for variable degrees of compression (low, medium, high, and maximum quality). There is some loss of image quality when a compressed image is decompressed.

**OpenNet+** – A physical and logical global network that uses Internet Protocol (IP) that links the Department of State's domestic and Local Area Networks (LANs) abroad. The physical aspect of the network uses Diplomatic Telecommunications Service (DTS) provided X.25 circuits for posts abroad, FTS-2001 provided X.25 circuits, leased lines and dial-up public switch networks. This includes interconnected hubs, routers, bridges, switches, and cables. The logical aspect of the network uses Network Management System (NMS) and TCP/IP software, and other operational network applications.

**Portable Document Format (PDF)** - Adobe's file format for creating documents that are independent (hence, portable) from the original software, operating systems and hardware used to create them. In addition to open source readers for many platforms, Adobe also provides the free Acrobat Reader software for viewing PDF files.

**Portable Network Graphics (PNG)** - A bitmap image format used largely on the World Wide Web. PNG allows for greater bit depth (more colors per image) than GIF yet, unlike JPEG, is a lossless compression format, meaning

that there is no loss of image quality when an image is compressed or decompressed.

**Script** – Also called a macro or batch file, a script is an ordered list of commands that can be executed as a unit without user interaction. During execution, a script can require a response from a user. A script language is a simple programming language with which you can write scripts. Common script languages include: Java Script, Visual Basic (VB), PERL and PHP: Hypertext Preprocessor (PHP).

**Search Engine** - A computer program that helps a user find information on the Internet.

**TCP/IP** - An acronym for Transmission Control Protocol/Internet Protocol. The set of rules that allows computers to communicate on a network.

**UDP Protocol** – A non-guaranteed delivery protocol within the TCP family of protocols. Individual packets that comprise a communication may be transmitted by different routes through the network to reach their destination. UDP is used when lost packets are tolerable, such as periodic readings from an outdoor weather station (see also IP Protocol).

**Upgrade** – a new version of a Web site or Web page designed to replace an older version of the same product.

**Uniform Resource Locator (URL)** - The address of a Web site that includes the protocol used to reach the target server (http, https, ftp, etc.) and the host system (domain name) on which the document resides. The URL may also include the directory path to the document, and the document filename. The URL <http://www.state.gov> identifies the protocol http and the domain name [www.state.gov](http://www.state.gov). The absence of a path and filename cause the host system to use locally assigned default values.

**Usability** - The ease with which a user can locate information on a Web site.

**Web Browser** - Software that communicates with Web servers via the HTTP protocol and translates HTML pages and image data into a nicely formatted, on-screen display, or in the case of browsers for the vision-impaired, other alternative interface technologies.

**Web Portal** - A term used to describe a Web site that is intended to be the first place people see when using the Web. Typically, a "Portal site" has a catalog of Web sites, a search engine, or both. A Portal site may also offer e-mail and other service to entice people to use that site as their main "point of entry" (hence "portal") to the Web. A Web portal is commonly referred to as simply a portal.

**Web site** – A Web site is a related collection of files and information that include a beginning file called a home page. An organization or individual tells you how to get to its Web site by giving you the IP address (e.g., 192.168.0.1) or domain name (e.g., *companyname.com* or *office.gov*) of its home page (e.g., <http://www.companyname.com>). Upon arrival at a home page you can navigate to all the other pages or information on that Web site. Multiple Web sites can cross-link to files on each other's sites or even share the same files. Web sites on the Internet first appeared in the form of HTML based files.

**World Wide Web Consortium (W3C)** – An association of corporations, research groups, non-profit organizations and governmental agencies that are working together to define a Web infrastructure based on open, interoperable standards.

## **5 FAH-8 H-117 THROUGH H-119 UNASSIGNED**