City of San Diego Web Technical Standards

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This document is provided to assist developers and designers in creating, updating and reviewing web pages, forms and web applications in accordance with the established requirements and guidelines for publishing content on the City's public and employee web sites, www.sandiego.gov and http://citynet.sannet.gov.

For information, contact Ellen Schauer, Dept of IT Web Manager, at eschauer@sandiego.gov.

1. Compatibility, Continuity and Usability, and Accessibility Refer to the City's "Web Standards and Guidelines" for specifics on web page layout and architecture. Although the City's general ADA guidelines are provided here, refer to The Federal Access Board (www.access-board.gov) and the World Wide Web Consortium (www.w3.org) web sites for specifics on making web content accessible to people with disabilities (ADA compliance).
a) Design web pages in Microsoft's currently released version of Internet Explorer and one full version prior to ensure proper formatting and functionality for 80% of the City's public user-base. Test for cross-browser functionality (IE, Firefox).
b) If not using a liquid layout, design for most common screen resolution (currently 1280x1024). Pages must not have a horizontal scroll when viewed in 1280x1024 or greater screen resolution. For Fixed Width layouts set width to 990px.
c) Server Side Includes (SSI), are part of the approved web page template and must be used on all standard web pages for global and local header and footer navigation. Contact webteam@sandiego.gov for guidelines and layout standards.
d) Style and placement of local navigation, title bar, and header graphics are part of the approved web page template and must remain consistent with the City's current standard web page layout.
e) All local footer text navigation links must be preceded and ended with vertical pipe characters.
f) When a link opens a new window, the new window should include standard browser menu options. The link should include a title attribute that states the link is opening a new window, e.g. <a href="" target="_blank" title="Register Now! – opens a new window">.
g) New windows should be sized smaller than originating page with option to maximize. Suggested size is 800x480.
h) Pull-down menus used for navigation must include a GO button (for ADA compliance). Pull-down menus for item/category selection, e.g. State, Date, do not require a GO button.
i) Text equivalent should be provided for every non-text element (e.g. alt or title attributes). This includes images, graphic representations of text, image map regions, animations, applets and programmatic objects, graphical buttons, sounds (played with or without user interaction), stand-alone audio files, audio tracks of video, video, and frames. Empty alt attributes (alt="") must be used for images used as bullets and spacers.
j) Scripts must be written inside the <head> section. If written inside <body>, a <noscript> alternative must be provided.
k) Link text must be descriptive of the target content. Do not use "click here" as link text. Clicking is device dependent (requires a mouse) and is meaningless to those using screen readers. (see examples in below) Examples of descriptive link text:

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Incorrect: <u>More…</u>   Correct: <u>More News…</u> Incorrect: <u>Form</u>   Correct: <u>Citizen Request Form</u>

l)	Links should not directly target images. Developers should embed the image within an html document so that alternative text (Alt Attribute) can be added.

m)	Image links – use Alt Attribute to describe target (i.e. Current News)
n)	Content-related images must be part of the HTML not in the CSS as a background image.
o)	Pages with links to videos, must include the following standard icon and text …

Videos on the City's website require Windows Media Player for viewing. If you have a disability and need an alternate format of a video presentation, email CityTV at CityTV@sandiego.gov.

… by inserting the following HTML code:
```
<!--start SCRIPT serverside include -->
<!--#include virtual="/includes/videoalt.html" -->
<!--end SCRIPT serverside include -->
```

2. Graphics & Images

Refer to the City's "Web Standards and Guidelines for specifics on web page graphics and images. All images must be reviewed and approved by the City's Web Team prior to posting (contact WebTeam@sandiego.gov).

a)	Use proper color value/contrast for optimum display for visually impaired users. Ref: www.w3.org
b)	Images must be properly sized for placement. Height and Width attributes must be used in the HTML for all images; image size must not be controlled by HTML.
c)	A descriptive alt attribute must be used with the <img src> tag to describe each visual, i.e. "Photo of Children Playing in Park". When the image is used as a link, the alt attribute should describe the target of the link.
d)	Image maps must use client-side map and text for hotspots (coordinates must be contained within the HTML code). For ADA accessibility, alternative HTML text links must be provided for each active region of an image map.
e)	Use of animation must serve a purpose other than catching the user's attention and must be approved on a case-by-case basis. (Consult Web Manager.)
f)	Line art/Illustrative graphics should be in GIF format for smaller file size. When saving GIFs in Photoshop use "Save for Web" option using 256 colors.
g)	Photos and graphics with complex tonal variation should be in JPG format for quality. When saving JPGs in Photoshop use "Save for Web" option at the high setting.
h)	Graphics with transparency should be in PNG format. (PNG transparency displays as white in IE 6) When saving transparent PNGs in Photoshop use "Save for Web" option at the PNG-24 transparency setting.
i)	Image resolution must be 72 dpi.
j)	The use of 360 degree panoramas and MOV files must be approved on a case-by-case

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	basis by the Web Manager.
k)	Images posted on the City's web site must be City-owned or purchased for use on the internet. Departments must obtain and retain the proper permissions to use non-City owned images on the web.
l)	Photos of individuals will not be used without obtaining consent if the photos would constitute an ad for the City or an event the City is promoting, or an endorsement of a political event, or for some commercial purpose. Photos of individuals taken in public places and used for newsworthy events may be used without consent. Signed consent forms are the responsibility of and must be kept on file by the posting department or office.
m)	Photo gallery has index page with links to each year. Each year's photos are kept in separate folders named after the year i.e. gallery/2009. Events will have their own folders inside each year folder. Each folder must have an index.shtml.
n)	The City's public website "branding" artwork (banner graphics and layout) must not be used on or by other websites, internal or external, or for any purpose other than to promote the City's public website.

3. Links

Refer to the City's "Linking Policy" for specifics on adding external links to the City's web site.

a)	Link text must be descriptive of the target content. Do not use "click here" as link text. Clicking is device dependent (requires a mouse) and is meaningless to those using screen readers. Incorrect: More… Correct: More News… Incorrect: Form Correct: Citizen Request Form
b)	Text links should not directly target images. Thumbnail images that link to larger images must have an alt attribute = "View Larger Image of [description of target image]".
c)	Internal City site links must be relative, not absolute (don't use 'http://www.sandiego.gov/myPage /index.shtml'). External site links must include http:// to be fully qualified.
d)	Mailto links must display the email address as the link text to enable the user to copy/paste the email address. All mailto link paths must be encoded (also link text where applicable) to minimize email address harvesting. webteam@sandiego.gov encodes to: `<a href="mailto:webteam@sandiego.gov"> webteam@sandiego.gov</a>` See Email Encoder at http://citynet/it/services/webservices/emailencoder.shtml or contact webteam@sandiego.gov.
e)	Do not place any commercial advertising in any form including banner ads, logos, shopping carts, buttons, links or text ads on the City's Web site. Contact Web Manager for details.
f)	Links to commercially oriented or corporate sites as well as sites that are heavy in

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	commercial advertising must be reviewed and approved by the City's Corporate Partnership Program Director and the City's Web Manager.
g)	Links cannot be made to personal web pages that exclusively promote the individual or the individual's opinions. Links to sites that are primarily political in nature or those that advocate a particular position are also not allowed.
h)	Links to web applications and/or online web services must be reviewed and approved by the City's Web Manager.

4.	**Tables**
a)	Use relative sizing and positioning (% values) rather than absolute (pixels) on variable width pages.
b)	Use of tables for layout will be reviewed on a case-by-case basis (applicable to websites developed before 2010). For more information contact webteam@sandiego.gov .
c)	Layout tables must make sense when read in linear order (order in which page content appears) as this is how assistive technologies render the page (tables are ignored).
d)	In data tables, headers and data cells must be in the same table.
e)	Data tables must identify the header cells that label the data cells in the same column or row using the TH element.
f)	Data table cells and headers must be properly associated using either the scope attribute or using id and headers attributes.

5.	**Frames**
a)	Use of iframes will be reviewed on a case-by-case basis. (consult Web Manager).
b)	Use of frames for layout is not allowed.
c)	Framing of the City's website or City website content by other websites is not allowed.

6.	**On-line Forms** (Refer to Sample HTML Form Template for layout and coding standards.)
a)	Forms designed to be completed and submitted on-line must allow people using assistive technology to access all information and functionality required to complete and submit the form (including directions, cues, label tags, and field elements).
b)	Forms must include input field validation
c)	Forms which collect personal information must reside on the secure server.

7.	**Downloadable Files and Forms**
a)	Standard linking format must be used for downloadable files and include document title, file type (PDF) and name. [Doc Title] (PDF)
b)	Proprietary file types (requiring the user to purchase software to view) should not be used on the City's public website (consult Web Services Manager.) If files, e.g. Word or Excel, are posted for a specialized audience, they must be accompanied by a PDF version. Proprietary file types posted on Citynet must be in City standard formats and current versions.
c)	Most document file types should be converted to text searchable PDF format, which can be

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	viewed with the free Adobe Reader, prior to being posted to the City's public website. If scanning is necessary, use of OCR software is required for screen reader accessibility and searchability.
d)	Downloadable file sizes must be indicated to the right of each link for file sizes greater than 5Mb (PDF: 7Mb).
e)	PDF files must not be larger than 20Mb, and must be "optimized for the web" when rendered to PDF. Files larger than 20Mb must be broken down into multiple files when possible (exceptions must be approved on a case-by-case basis (consult Web Services Manager).
f)	All new or non-standard file types must be added to MIME table on the web server by the server administrator.
g)	All downloadable files must include a City of San Diego header and a descriptive title so they can stand-alone if found through an external search engine.
h)	All downloadable forms posted on the City's public website or Citynet must go through the City Clerk's Office for approval and must include the City Clerk assigned Forms Control number (Refer to City Administrative Regulation 85.20).
i)	All downloadable forms must include a City of San Diego header, a descriptive title and instructions on how to process the form.
j)	When posting a file or downloadable form, search to ensure that the file doesn't already exist. Do not post duplicate files in multiple places. The owning department of a file's content should host the file and all other departments should link to the original.

8. Multimedia

Refer to the City's "MultiMedia Policy & Procedures" for process and approval when creating multimedia.

a)	Video files must be available for viewing in Windows Media Player format and hosted by Granicus, the City's webcasting provider (contact CityTV for Granicus encoding)
b)	Videos posted on the City's web site must be City owned. Departments must obtain and retain the proper permissions to use non-City owned videos on the web.

c)	Pages with links to videos, must include the following standard icon and text …
	
	 Videos on the City's website require Windows Media Player for viewing. If you have a disability and need an alternate format of a video presentation, email CityTV at CityTV@sandiego.gov.
	
	 … by inserting the following HTML code:
	 `<!--start SCRIPT serverside include -->`
	 `<!--#include virtual="/includes/videoalt.html" -->`
	 `<!--end SCRIPT serverside include -->`

d)	Videos of individuals will not be used without obtaining consent if the videos would constitute an ad for the City or an event the City is promoting, or an endorsement of a political event, or for some commercial purpose. Videos of individuals taken in public places and used for newsworthy events may be used without consent. Signed consent forms are the responsibility of and must be kept on file by the posting department or office.
e)	Videos that are commercially oriented or heavy in commercial advertising must be reviewed and approved by the City's Corporate Partnership Program Director and the City's

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	Web Services Manager.
f)	Videos are not allowed that exclusively promote an individual or an individual's opinions. Videos that are primarily political in nature or those that advocate a particular position are also not allowed.

2. Coding	
a)	HTML should be coded to HTML 4.01 strict. <!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01//EN" "http://www.w3.org/TR/html4/strict.dtd">
b)	Proprietary, WYSIWYG tools must not be used for auto generating HTML (e.g. Front Page, IWeb or in design mode in Dreamweaver).
c)	The <title> tag must identify the page name and the web site. Home page format: [Web Site Name] | City of San Diego Interior page format: [Page name <h3>/title] | [Web Site Name]
d)	Meta data should include complete titles, descriptions, keywords and be included on every page. <meta name="description" content="City of San Diego Council District 5"> <meta name="keywords" content="city, san diego, city of san diego, city council, council district, district 5, cd5, carmel mountain ranch, mira mesa, rancho bernardo, sabre springs, san pasqual, scripps ranch, sorrento mesa">
e)	For web pages developed prior to the 2009 redesign, body content should be 10 pt. for home pages/12 pt. for all other pages. After the 2009 redesign, standard font styles (size, text color, link color, underlining, etc.) are determined by the global font.css file located at: http://www.sandiego.gov/global/css/font.css. As a rule, when text is in a fixed sized element (button, photo carousel) its font size is also fixed (px); when text is in a variable sized element (left column, main content) its font size is variable (em).
f)	Main content should use black text on white background.
g)	All HTML must be validated. Refer to Section 11, Testing and Validation.
h)	All mailto link paths must be encoded (also link text where applicable) to minimize email address harvesting. See Section 3e for details.
i)	Tag and attribute names must be lowercase as per the W3C HTML 4.01 Strict standards.
j)	All attribute values must be in double quotes ("").
k)	File names must be in lowercase.
l)	Hyphens, underscores, special characters, tildes, spaces, or periods must not be used in directory or file names.
m)	Pages that contain server side includes must have a .shtml file extension. Files without server side includes must have an .html extension.
n)	Absolute URLs should not be used when referencing a link on the City web site. Absolute addresses are used for outside links or applications only.
o)	Outside applications linking to the City's website should point to www.sandiego.gov/...
p)	Do not underline text for emphasis. Use <strong> for bold or <em> for italics (do not use deprecated tags <b> or <i>).

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q)	The alt attribute must always be used with the <img src> tag.
r)	All images must have Height and Width attributes which must match the actual image dimensions. Image dimensions must not be controlled by HTML.
s)	HTML headings must be specified using standard HTML heading tags (i.e. <h2>) for search engine readability. Each page must only contain a single <h1>, <h2> and <h3> tag. Exception: Pages referenced in sub-folders of the tertiary navigation may have a second <h3> tag to clarify the sub-section with a class of smallTitle. i.e. <h1>Commission for Arts and Culture</h1> <h2>Public Art</h2> <h3 class="smallTitle">Civic Art Collection</h3> <h3>Featured Artwork</h3>
t)	Unordered List code ( ) must be used instead of graphic bullets.
u)	Use CSS for page layout and content styling; table-less layout is preferred. CSS styles must be declared in the <head> of the page prior to the server side include /global/includes/headcontrol.html. The head control include allows override of CSS for Accessibility and Mobile views.
v)	Server Side Includes (SSI) must be used on all standard web pages for global and local header and footer navigation. Contact webteam@sandiego.gov for guidelines and layout standards.
w)	Source code should be indented consistently and according to the structure of the HTML for readability.
x)	Source code comments must be included for historical and maintenance purposes.
y)	Content must not be duplicated in multiple places. If multiple pages are required to display the same content, i.e. News Box on home page and internal News page, then the content must be saved in an XML file; the XML file can then be utilized by multiple pages to display the content.
z)	Current websites redesigned with the template offer a mobile view layout to mobile devices. If a mobile device is not displaying mobile view it may need to be added to the list of devices manually. Visiting http://www.sandiego.gov/webteam/mobile.html on the mobile device will display browser information about the mobile device so a unique way of identifying this mobile device can be determined and added to the mobile device list.

3. Quality Assurance

a)	Ensure that new content is relative to the section you are posting it in, is not duplicated elsewhere on the City's website, is accurate, well organized (include sub-headers for context), and easy to understand (text should be written for a 5th grade level).
b)	When content is updated, search for any duplicate/related content throughout the City's web site that might need deleted, updated and/or provides a linking opportunity. The owning department of a subject's content should host the content and all other departments should link to the original.
c)	When posting a file or form, search to ensure that the file doesn't already exist. Do not post duplicate files in multiple places. The owning department of a file's content should host the file and all other departments should link to the original.
d)	Contact Web Team as soon as possible at webteam@sandiego.gov when web pages or files need to be deleted **(old files will display in search results if not deleted!)**

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e)	Ensure that appropriate cross-links to other City web pages have been added.
f)	Ensure that a new website is added to WebTrends for statistical tracking (City's Web Team to contact DPC WebTrends Admin for setup).

4. Testing and Validation

The QA steps below need to occur in development, staging and production environments.

a)	Run all HTML through an HTML validating program to verify that it is coded to doctype specifications. Refer to section 9a for doctype specifications.
b)	Run all HTML through W3C validation http://www.w3.org/ to ensure a minimum Priority 1 ADA compliance or contact Web Team at webteam@sandiego.gov for testing.
c)	Test for cross-browser functionality (IE, Firefox). View web pages in Microsoft's currently released version of Internet Explorer and one full version prior to ensure proper formatting and functionality.
d)	Ensure alt attributes are included for all <img> tags.
e)	Run spell check.
f)	Test all links to confirm links are going to the correct destination. Ensure external links are consistent with the City linking policy. Refer to section 3f.
g)	Test all mailto's by submitting a test message and ***confirming receipt***. Mailto's must be encoded. Refer to section 3e.
h)	Test all HTML and PDF forms for functionality. HTML Form Checklist - Are the form's instructions at the beginning of the form? - Determine if any error messages displayed upon submittal appear at the top of the form. Does the error message include the word "error"? Does the error message identify the fields that are incorrect? - Do all fields include labels or title attributes indicating purpose and constraints of field (such as * asterisk for required fields)? Use the mouse and click on the label. When field labels are explicitly labeled, the focus should go into the associated field. If there is not a label, does descriptive text display when hovering over the field to indicate that the title attribute is being used? Fields use either a label element or the title attribute ***not*** both. - Tab through form (tab order should move left-to-right and top-to-bottom). - Submit completed form to verify it functions as expected (example: if it submits to a mailbox, verify that the information did reach the mailbox). PDF Form Checklist - Tab through form (tab order should move left-to-right and top-to-bottom). - Check character limitations - Verify accuracy of any calculations - Is the form text searchable?
i)	Ensure complete system testing on all components of on-line web applications.

5. Web Enabled Applications and Web Services (Refer to Sample Form Template for layout and coding standards (although coded in HTML, the same "rules" apply to web applications).

a)	All web enabled applications and web services must go through the City's governance process for review and approval of alignment with IT spend and City website standards (reference http://citynet/it/governance/index.shtml or Contact the City's Web Manager).
b)	RFPs and Contracts require specific language for ADA compliance, PCI compliance and adherence to City sponsorship guidelines (consult with City's Web Manager for

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	information).
c)	Domain names and SSL Certificates are approved and registered by the City's Web Manager and Security Manager.
d)	The City's Web Team must be provided with 2-4 weeks lead-time for review of accessibility (ADA compliance), usability, branding, and final City website presentment of a link to the application.
e)	All web applications must follow the City's form standards (refer to Sample Form Template for layout and coding standards. Although coded in HTML, the same "rules" apply to web applications).
f)	HTML pages (static content such as info pages and FAQs) should be hosted on the City's web servers for more cost-effective support and maintenance.
g)	Links to Web applications must open in a new browser window and do not include the City's global navigation include.
h)	Web applications must contain code that calls the City's standard web application header server-side include instead of a header graphic. Code varies according to whether the application is on City owned servers or 3rd party hosted (which must not include the City's official website branding). The code is maintained by the City's Web Team.
i)	Disclaimer/Privacy notices must be reviewed by the City's website legal consultant (contact the Web Manager) to ensure there is no conflict with the overall website disclaimers.
j)	Ensure that the first field has the focus after the page loads (e.g. Username field in a login form).
k)	Ensure complete unit, system, integration testing of all web applications and/or web services.
l)	Maintenance/Downtime must follow the City's approved Change Management process and notification process must include City's Web Manager.

6.	**Google Search**
a)	Contact Web Team at webteam@sandiego.gov to add or remove Google keyword matches.
b)	Requests for Google subcollections (to search dept specific content only) are reviewed on a case-by-case basis by Web Team.
c)	Contact Web Team as soon as possible at webteam@sandiego.gov when outdated web pages or files need to be deleted **(old files will display in internal and external search results if not deleted!)**

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Glossary of Terms

absolute address	A fixed address in memory. The term absolute distinguishes it from a relative address, which indicates a location by specifying a distance from another location.
ADA	Americans with Disabilities Act
animation	A simulation of movement created by displaying a series of pictures, or frames.
ASCII files	Files that are comprised of alphanumeric characters. Some FTP programs refer to ASCII files as "text files.
body content	The "body tag" designates the main body of text on a web page.
CSS	Cascading Style Sheets; an addition ot HTML for controlling presentation of a document, including color, typograpghy, alightment of text and images, etc.
dpi	Dots per inch; indicates the resolution of images. The more dots per inch, the higher the resolution.
encoding	The process of converting an analog source (such as an analog audio signal) into digital format. An encoder is the software that does the converting.
frames	A feature that enables the Web author to divide the browser display area into two or more sections (frames). Although frames provide flexibility, many designers avoid them because they are supported unevenly by current browsers.
GIF	Graphic Interchange Format; common file format of web graphic images. GIF is a palette-based, 8-bit format that compresses images with the lossless LZW compression scheme. GIF is most appropriate for images with areas of flat color and sharp contraxt.
GIS	Geographic Information Systems; tools used to gather, transform, manipulate, analyze, and produce information related to the surface of the Earth. This data may exist as maps, 3D virtual models, tables, and/or lists.
global navigation	Navigation links specific to the broad architecture of the City's entire web site.
HTML	Hypertext Markup Language; the format of web documents.
hypertext links	Links that reference another document. Such links are sometimes called hot links because they take you to other document when you click on them.
Imagemap	A single image that contains multiple hypertext links.

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Glossary of Terms (continued)

js
: JavaScript; a client-side scripting language developed by Netscape that adds interactivity and conditional behavior to web pages.

JPEG
: A glossy compression algorithm developed by the Joint Photographic Experts Group. It is used by files in the JFIF format, which are commonly referred to as "JPEG files." JPEG is most efficient at compressing images with gradations in tone and no sharp edge contrasts. Photographic images are typically best saved in JPEG format.

local navigation
: Navigation links specific to the architecture of a department or program's web pages on the City's web site.

lossy compression
: A method for reducing file size of a file without loss of data; in lossless compression, redundant information is removed.

meta data
: Data about data. Meta data describes how and when and by whom a particular set of data was collected, and how the data is formatted.

MIME types
: Multimedia Internet Mail Extensions. A protocol that defines a number of content types and subtypes, and allow programs like web browsers, newsreaders, and email clients to recognize different kinds of files and deal with them appropriately. A MIME type specifies what media a file is, such as an image, audio, or video, and a subtype identifies the precise file format.

Optimize
: In programming, to fine-tune a program so that it runs more quickly or takes up less space.

palette
: A table in an 8-bit indexed color file (such as GIF) that provides color information for the pixels in the image.

PDF
: Portable Document Format; a file format developed by Adobe Systems used for capturing formatted page layouts for distribution. PDF documents, when viewed with the required Adobe Acrobat Reader, will appear exactly as they were intended.

pop-up window
: A window that suddenly appears (pops up) when you select an option with a mouse or press a special function key.

Proprietary
: Privately owned and controlled. Implies that the company has not divulged specifications that would allow other companies to duplicate the product.

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Glossary of Terms (continued)

pull-down menu	A menu of commands or options that appears when you select an item with a mouse. The item you select is generally at the top of the display screen, and the menu appears just below it, as if you had pulled it down.
relative address or path	Indicates a location by specifying a distance from another location.
resolution	Refers to the sharpness and clarity of an image.
rollover	The act of passing the mouse pointer over an element's space, or the events triggered by that action (such as a changing graphic or pop-up message).
RSS	The acronym used to describe the de facto standard for the syndication of Web content. RSS is an XML-based format and while it can be used in different ways for content distribution, its most widespread usage is in distributing news headlines on the Web.
SSI	Server Side Includes: Special placeholders in an HTML document that the server is to replace with actual data just before sending the final document to the browser.
W3C	The World Wide Web Consortium: a consortium of many companies and organizations that "exists to develop common standards for the evolution of the World Wide Web." It is run by a joint effort between the Laboratory for Computer Science at the Massachusetts Institute of Technology and CERN, the European Particle Physics Laboratory, where the WWW was first developed.
XML	(Extensible Markup Language) is a flexible way to create common information formats and share both the format and the data on the World Wide Web, intranets, and elsewhere.