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Spinning a Web: Publishing the SEI Software Configuration Management Research on the World Wide Web

Clifford C. Huff

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CASE Environment Project

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FOR THE COMMANDER

(signature on file)

Thomas R. Miller, Lt Col, USAF
SEI Joint Program Office

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Spinning a Web: Publishing SEI's Software Configuration Management Research on the World Wide Web

Abstract: Configuration management research has been performed by members of the CASE Environments Project over the course of the past five years. This report describes the contents of the configuration management research materials that have been published on the SEI World Wide Web (WWW) Server. Primary Web Structures and Methods for accessing information on the Web are described. A summary of the problems and challenges encountered and the Web publishing techniques employed in this process are discussed.

1 Background

During the past five years, various members of the CASE Environment Project have examined many issues in the area of Software Configuration Management (SCM). It was suggested that this SCM research be published in some electronic form. A number of different alternatives for electronic publication were examined. Most of the early options considered would have relied upon distribution of the material in a Compact Disk Read Only format (CD-ROM). Pursuit of this approach would require selection of an authoring tool solution and a significant investment in time and equipment to properly develop a quality product. During the investigation of the CD-ROM approach, the popularity of the publishing information on the World Wide Web (WWW¹ - hereafter referred to as the Web) was becoming apparent. This popularity was in large part due to the availability of an easy-to-use Web browser, Mosaic².

During the period when different publishing options were investigated, an experimental Web server was assembled and populated (from October 1993 to January 1994) with a broad range of general SEI information [Hefley 94]. Given the growing popularity of the Web and the success of the SEI experimental Web server, it was decided that this option provided the most ready means to reach external software developers and managers interested in configuration management and SEI's related SCM work.

This report documents the configuration management content that has been published on the SEI Web server. An overview of the general hypertext structure of this content as well as the Web access techniques employed are also presented. As with any new endeavor, such as publishing on the Web for the first time, a number of challenges were encountered. In order to help other first time Web publishers, some of these challenges and their associated solutions will be discussed.

-
1. The World Wide Web was originated at CERN, the European Laboratory for Particle Physics, in Geneva, Switzerland.
 2. Mosaic is a development of the National Center for Supercomputing Applications (NCSA), located at the University of Illinois at Urbana-Champaign. In addition to online information presented in a Web format, NCSA Mosaic provides a common interface to access other popular Internet services such as Gopher, FTP, WAIS, and NNTP Usenet News.

2 Accessing Our Research on the World Wide Web

2.1 What you need to have

To access the SEI SCM material, interested parties must use some form of Web browser. If you don't have a **Mosaic** browser, use anonymous ftp at *ftp.ncsa.uiuc.edu* and look in the */Mosaic* directory to get an appropriate browser for your system. NCSA Mosaic is available in X Window System, Apple Macintosh, and Microsoft Windows versions.

For those interested in an ASCII-only Web browser, we suggest you get a copy of **Lynx** from the University of Kansas. Lynx may be obtained by anonymous ftp from *ftp2.cc.ukans.edu* in the *pub/lynx* directory. Lynx is available in AIX, OSF, Sun4, Ultrix, VMS, and DOS versions.

In addition to the Web browser (i.e., Mosaic), personal computer users (i.e., Macintosh or IBM PC class computers users) generally need to have two additional items to be able to use a Web browser.

1. A network connection to the Internet

This can be a standard high-speed Ethernet LAN connection to a TCP/IP network, or this can be a lower-speed Serial IP connection (commonly known as SLIP) via a modem to an Internet access provider.

2. TCP/IP communications software

For personal computers, this typically takes the form of communications driver software which supports TCP/IP (and possibly SLIP) in order to establish a TCP/IP network connection to the Internet.

If you are uncertain about these additional components, hopefully a person in your organization (e.g., a network guru) will be able to answer your networking questions.

If you don't have access to such a networking guru, check out one of the many Internet starter kit books for your type of personal computer. In most cases, these books provide the software you need, plus pointers to Internet access providers. Also in most cases, a free trial with a Internet access provider is available.

The above requirements for personal computers are usually not a problem for those working on Unix workstations, since this TCP/IP connectivity is already provided.

2.2 Our Web address

The Uniform Resource Locator (URL) for direct access to the SEI Software Configuration Management (SCM) Area is:

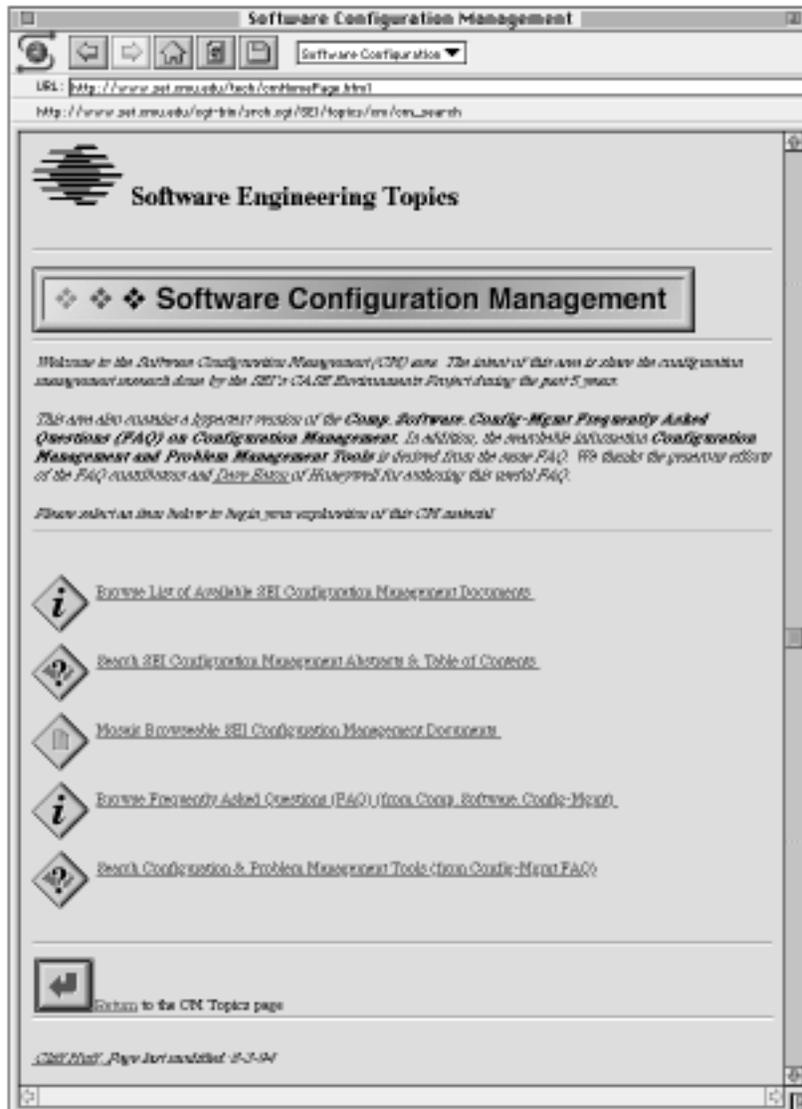
<http://www.sei.cmu.edu/tech/cmHomePage.html>

The Configuration Management Area is part of the SEI Web Server, which is located at this URL:

<http://www.sei.cmu.edu/>

To access the SEI Configuration Management Material (SCM), use your Web browser to open the SEI SCM URL (as listed above). If you are successful in connecting to the SEI Web Server and are using a graphical browser like Mosaic, a screen³ similar to the following will appear:

Figure 2-1: SEI SCM Home Page



³ The screen snap shots in this document were taken from a Macintosh running NCSA Mosaic 2.0 Alpha Release 6.

3 Basic Functions

Users can perform two basic functions while on the SEI SCM home page. The **search** function allows the user to specify a search of the SEI-SCM area information base. The **browse** function allows the user to browse SCM-related materials. Of the five options available to the user on the SCM home page, each option employs one of these two functions.

The five user options are:

- Browse List of Available SEI Configuration Management Documents
- Search SEI Configuration Management Abstracts & Table of Contents
- Access Mosaic Browseable SEI Configuration Management Documents
- Browse Frequently Asked Questions (FAQ) (from Comp.Software.Config-Mgmt)
- Search Configuration & Problem Management Tools (from Config-Mgmt FAQ)

Each of these five options are reviewed below.

3.1 Browse List of Available SEI Configuration Management Documents

Selecting “Browse List of Available SEI Configuration Management Documents” brings up the screen below (Figure 3-1). This screen permits users to see a complete list of the 32 SCM-related documents currently available. Once the user has selected a document from this list, the abstract and table of contents for that document will appear.

At the bottom of each document abstract and table of contents page, users are given the option of **downloading** that document in one of two forms, in a *Postscript (.ps)* or *Acrobat (.pdf - Portable Document Format⁴)* format. Postscript-formatted documents are intended to be sent to a Postscript-compatible printer to produce a printed version of the document. Acrobat-formatted documents are intended to be viewed electronically or printed through the use of an Acrobat-compatible reader. An Acrobat-compatible reader⁵ enables users to navigate through PDF-based documentation, using enhancements such as thumbnail page views, bookmarks (for indexes and tables of contents), hypertext links, keyword search, and electronic annotations.

If a user has an Acrobat reader on his system, he can set up his Mosaic browser to automatically launch an Acrobat reader (as a helper application) when downloading a PDF-based file, thus permitting immediate online viewing of the document.

4. A PDF-based file preserves the essential look and feel of a document regardless of the hardware platform, operating system, application products, or typeface specifications used to create the original—this includes complex documents that contain photographs, multiple fonts, and color.

5. Acrobat readers are available for Windows, DOS, Macintosh, and Unix-based platforms. For more information about Acrobat and obtaining an Acrobat Reader, contact your local computer software supply dealer, or Adobe Systems Inc. at 1-800-833-6687. It is anticipated that when Acrobat Version 2.0 becomes available, Adobe may supply a low-end, little- or no-cost Acrobat reader in the near future to promote the use of PDF-based documentation.

In some cases, users will have a **third option** (rather than downloading either the Postscript or Acrobat form of the document): to **browse** the complete document **online** via Mosaic.

This document selection screen is shown below.

Figure 3-1: SCM Document List Area



3.2 Search SEI Configuration Management Abstracts & Table of Contents

Selecting “Search SEI Configuration Management Abstracts & Table of Contents” brings up the screen below (Figure 3-2). This screen permits users to search through the abstracts and table of contents of the 32 SCM-related documents.

Figure 3-2: SCM Document Search Area

Search SEI CM Information

Search SEI CM

Submit

This is a searchable index. Enter search keywords. Press this button to submit the query.

12 Search SEI CM Information

The search is case insensitive. Any Perl regular expression is an allowable search term.

This search will examine all of the **Abstracts** and **Table of Contents** of the SEI Configuration Management related documents that can be retrieved from this CM Area.

Upon a successful search, you will be presented with a list of documents which met your search criteria. Select the highlighted document to view the document summary (abstract and table of contents) for that document.

At the end of each document summary, you have the option to retrieve the complete document in either Postscript or Adobe's Acrobat Portable Document Format (pdf).

Some documents may also include an option to browse the complete document via your Mozilla Browser.

The user can enter single or multiple keywords, which can be in the form of any regular *PERL* (Program Extract and Report Language) expression.

After submitting a search, users are notified if any documents are found that match their request. Those documents that do match the user's search request are listed. A sample return search for the term "spectrum" is shown below (Figure 3-3).

Figure 3-3: SCM Document Search Results Summary



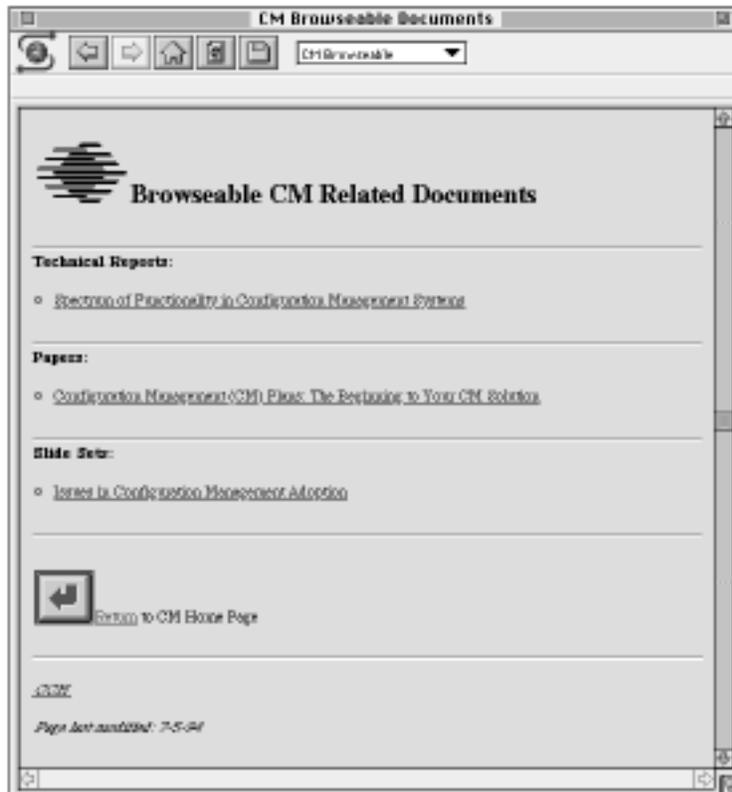
By selecting one of these underlined documents, a hypertext link is executed. This link takes the user to the abstract and table of contents for that particular document.

As with the browsing of documents (described above), once in a document abstract, users can download a document of interest in either Postscript or Acrobat format. In some cases, the user can browse the complete document via Mosaic.

3.3 Mosaic Browseable CM Documents

Selecting “Mosaic Browseable CM Documents” brings up a screen that permits users to see a list of SCM-related documents that can be viewed online via Mosaic. Selecting a document from this list takes the user to a document that contains the abstract and table of contents for that document. As with searching documents (described earlier), once in a document abstract, users can download a document of interest in either Postscript or Acrobat format, and browse the complete document via Mosaic. This document selection screen is shown below (Figure 3-4).

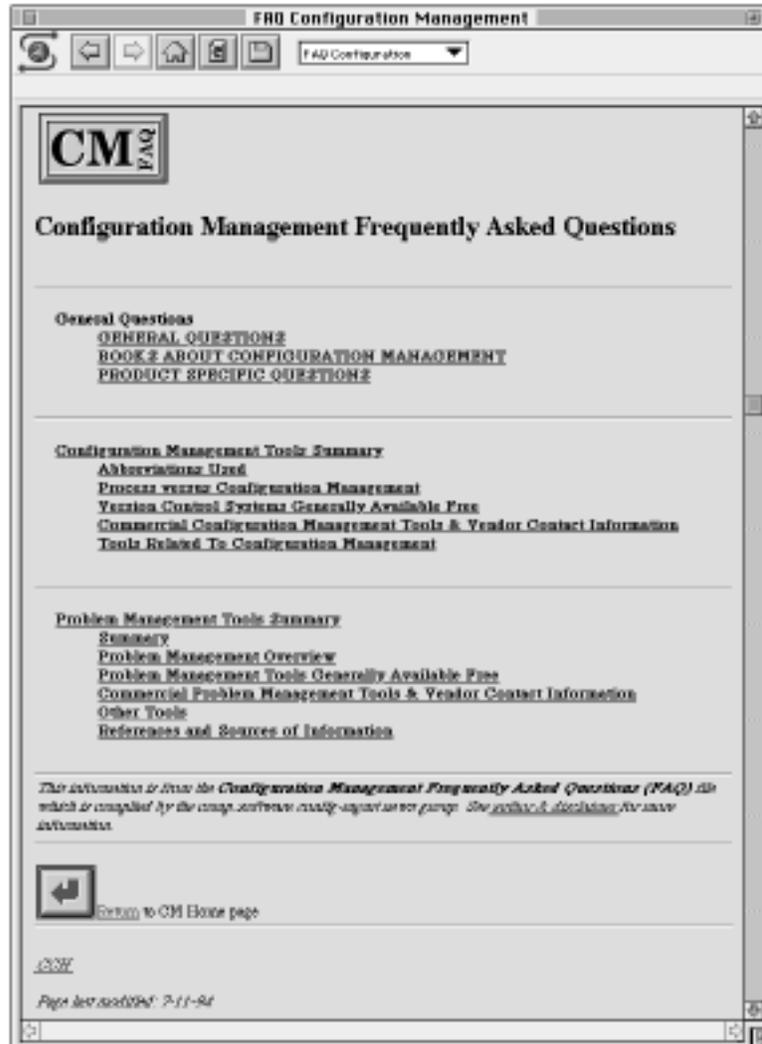
Figure 3-4: Online Browseable SCM Document Area



3.4 Browse Frequently Asked Questions (FAQ)

Selecting “Browse Frequently Ask Questions” takes the user to an area where he can view online the **Configuration Management Frequently Asked Questions (FAQ)** as compiled by the Usenet newsgroup *comp.software.config-mgmt* (See Figure 3-5). The original version of this FAQ is text-only and has been reformatted into a Mosaic-friendly format, thus simplifying and improving access to the extensive information contained in this FAQ.

Figure 3-5: Home Area for CM FAQ



3.5 Search Configuration & Problem Management Tools

Selecting “Search Configuration & Problem Management Tools” brings up the screen below (Figure 3-6) that permits users to search through a list of commercial and non-commercial configuration management and problem management tools identified by the Usenet configuration management newsgroup—*comp.software.config-mgmt*.

Figure 3-6: Tool Search Area

Search CM Tool Information

Search CM Tool

Clear case

Submit

This is a searchable index. Enter search keywords. Press this button to submit the query.

 **Search CM Tool Information**

Items you could search for include:

- o Product Name
- o Vendor Name
- o Product Features
- o Platforms served by Product
- o Vendor Address Information

The search is case insensitive. Any Perl regular expression is an allowable search term.

This search will look for Character Strings described in SEI CM related documents and CM Tools described in Elemental Questions.

Upon a successful search, you will be presented with a list of documents which met your search criteria. Select the desired document to view tool information retrieved.

Searching and examining documents that match a user's search criteria works the same as described above for searching of *SEI Configuration Management Abstracts & Table of Contents*. Sample search and result screens are shown below (Figure 3-7).

Figure 3-7: Tool Search Results



4 Content Overview

4.1 SEI-Developed Content

As mentioned before, the SEI SCM Web area provides access to 32 separate documents. These documents are of varying types. The basic document types provided are:

- **Bibliographies** of SCM-related documents (internal and external to the SEI)
- **Papers** on SCM by members of the CASE Environments Project
- **Slide Set Presentations** on SCM by project members
- **SEI Technical Reports** on SCM by project members

The number of documents and page count of the original source documents in each document type is summarized in Table 4-1.

Table 4-1: Document Type Summary

Type	No. of Documents	No. of Pages
Bibliography	4	48
Paper	4	99
Slide Set	17	852
Tech Report	7	347
Totals	32	1346

This represents a sizeable repository of SCM-related information that is electronically accessible. A complete list of the titles of these documents is listed in Table 4-2.

Table 4-2: SCM Document Title Summary

Bibliographies:
A Bibliography of Externally Published Works by the SEI Engineering Techniques Program
A Quick Guide to Information about Software Environments, Configuration Management, and CASE
Configuration Management Bibliography
Technical Reports:
A Case Study in Software Maintenance
Configuration Management Models in Commercial Environments
Issues and Techniques of CASE Integration with Configuration Management
Parallels in Computer-Aided Design Framework and Software Development Environment Efforts
Spectrum of Functionality in Configuration Management Systems
The Past, Present, and Future of Configuration Management
Tool Version Management Technology: A Case Study
Papers:
Concepts in Configuration Management Systems
Configuration Management (CM) Plans: The Beginning to Your CM Solution
Parallels in Computer-Aided Design Framework and Software Development Environment Efforts
Software Configuration Management: Advances in Software Development Environments
Slide Sets:
CM Really IS Exciting!
Configuration Management Services
Configuration Management Systems
Configuration Management With Industrial Strength Tools: A Tutorial on the Issues
Issues and Techniques of Integrating CASE Tools with CM Support
Issues in Configuration Management Adoption
Issues in Configuration Management Systems
Overview of Configuration Management for Computer-Aided Design Systems
Parallels in CAD Framework and SDE Efforts
State-of-the-Art in Environment Support for Configuration Management
Strategies for Configuration Management in a CASE Environment
The Past, Present, and Future of Configuration Management (Original Slide Version)
The Past, Present, and Future of Configuration Management Automation (Videotape Version)
Trends in Configuration Management

4.2 Externally Available Content

In addition to the SEI SCM-related documents, one area is dedicated to the **Configuration Management Frequently Asked Questions (FAQ)** as compiled by the Usenet newsgroup—*comp.software.config-mgmt*. Highlights of this area include:

- **General Questions**
 - General SCM Questions (like *What is Configuration Management?*)
 - List of Books About Configuration Management
- **Configuration Management Tools Summary**
 - Discussion of Process Management versus Configuration Management
 - Information on Publicly-Available Version Control Systems
 - Information on Commercial Configuration Management Tools (on 29 different products) plus Vendor Contact Information
 - Information on Tools Related to Configuration Management
- **Problem Management Tools Summary**
 - Problem Management Overview
 - Information on Publicly-Available Problem Management Tools
 - Information on Commercial Problem Management Tools (on 18 different products) plus Vendor Contact Information
- **References and Sources of Information**

5 Observations on the Creation Task

The construction of this web of SCM material was a challenging and rewarding process. In an effort to share whatever insights and lessons we have gained from this task, we would like to discuss some of our observations about publishing information of this type on the Web. These observations are centered around these topic areas:

- basic process
- ratio of content-to-framework structure
- document hierarchy structures
- document linking/access mechanism
- hand-built manual vs. automated Web-building
- key challenges and solutions

5.1 Basic Process

The basic process for creation of this SCM area on the Web was:

1. Survey and catalog existing SEI-originated SCM materials.
2. Gather copies of surveyed material into a single area and create Acrobat versions of the documents that are viewable online (e.g., some of the documents only existed in a Postscript version).
3. Assess quality and relevance of the material identified for potential publishing on the Web.
4. Become familiar with the Web's Hypertext Mark Up Language (HTML)⁶.
5. Become familiar with what is possible as a Web publisher (e.g., use of hypertext links inside and between documents, document styles, information access techniques—searching, graphical maps, etc.)
6. Gain HTML creation and editing experience by selecting a specific class of document to translate into an HTML format (we selected translation of a FrameMaker Slide presentation into an HTML format).
7. Consult the local WebMaster⁷ concerning local guidelines for HTML document wrappers, use of relative and absolute URL references within HTML documents, location and use of common elements on the SEI Web server (e.g., commonly-used bit-mapped GIF-based⁸ icons).
8. Develop a conceptual framework for organizing and accessing the information.
9. Perform a sanity check—seek advice with other project members on the planned content and structure of the SCM Web area.
10. Search for and assemble a collection of tools to aid the HTML construction and debugging process.
11. Create custom buttons and masthead artwork, as required, in a style that matches the 3-D, metallic appearance of existing SEI style buttons and mastheads (e.g., buttons for downloading of either Postscript or Acrobat formatted documents). (See Appendix B for examples of current icons.)
12. Create and debug HTML documents to populate the desired framework.

For some classes of documents with a regular structure (e.g., CM product descriptions), develop a database with HTML report templates to insure a consistent format and to automate construction of this type of HTML document.

⁶. We suggest you start with Peter Deuel's concise and easy-to-use *HTML Reference Guide* located at this URL: <http://fire.clarkson.edu/edu/tc/html/htmlmenu.html>

⁷. This person is responsible for the setup and administration of your local Web server.

⁸. Comuserve's Graphical Interchange Format (GIF)

5.2 Ratio of Content to Framework Structure

As mentioned before, this work has placed 32 SCM-related documents within the Web for access by interested internal and external users.

In general, the SCM materials were split over two separate areas as shown in Table 5-1 below.

Table 5-1: SCM Area File Summary

Area/File Type	No. of Files	Size of Files	Average Size per Document	Average Size per Page
FTP	64	15.8 MB	246 KB	5.8 KB
<i>.ps</i>	32	6.7 MB	209 KB	4.9 KB
<i>.pdf</i>	32	9.1 MB	284 KB	6.7 KB
Web	251	857 KB	3.4 KB	–
<i>.html</i>	235	734 KB	3.1 KB	–
<i>.gif</i>	16	123 KB	7.7 KB	–

The first area is the anonymous FTP area where the *ps* and *pdf* versions of the documents can be retrieved either by anonymous FTP or by retrieval within the SCM area Web framework by use of hypertext ftp links.

The second area is the area within the SEI Web server directories where the supporting HTML files reside. A small portion of these HTML files (19%) are of a framework nature (see Table 5-2 for more detailed data). Thus these files exist solely to access the content in the SCM area. A majority of these HTML files (81%) replicate a portion of the content available from the FTP area. These are the files that permit complete online browsing of selected SCM files.

Table 5-2: Structure vs. Content File Summary

Area	No. of Files	% of HTML files	Size of Files	Average Size per Document
<i>Structure Related</i>				
<i>.html</i>	44	19%	122 KB	2.8 KB
<i>Content Related</i>				
<i>.html</i>	191	81%	612 KB	3.2 KB
<i>.gif</i>	16	–	123 KB	7.7 KB

5.3 Document Hierarchy Structures

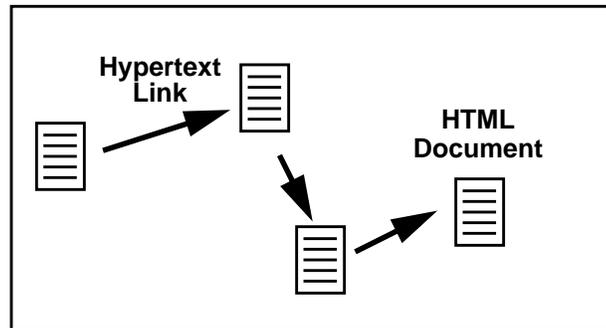
In the course of developing the conceptual framework for the SCM material, a number of common hypertext structures evolved. These were:

- Point-to-point arbitrary structure
- Slide structure
- Table of content (TOC)—outline structure
- Graphic image to many documents structure

Point-to-Point Arbitrary Structure

This structure (as shown in Fig. 5-1) represents a random set of hypertext links from one document to another document that is marked up in HTML format. With this this type of structure, it is easy to navigate forward, but impossible to navigate backwards without the use of the **back** (link) button or link history function found in most Web browsers (like Mosaic).

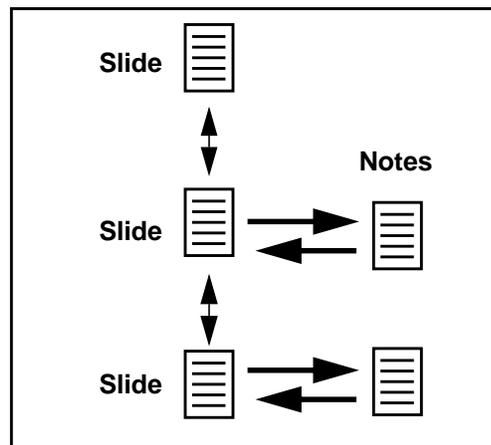
Figure 5-1: Arbitrary Structure



Slide Structure

This structure (as shown in Fig. 5-2) represents a structured set of hypertext links from one slide (marked up in HTML format) to the next slide. This structure includes *sidetrips* to *note pages* for further explanation of key points in a slide.

Figure 5-2: Slide Structure

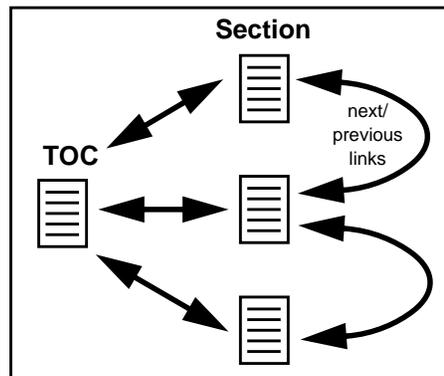


With this regular structure, users find navigation through the slide set to be intuitive⁹.

TOC-Outline Structure

This structure (as shown in Fig. 5-3) represents another structured set of hypertext links from the Table of Contents (TOC) (organized in an outline form) to the various sections of a larger document (like a technical report). Next and previous links between document sections are also included to enhance document browsing.

Figure 5-3: TOC-Outline Structure



Like other regular structures, users seem to have an intuitive understanding of how to navigate through this structure¹⁰.

9. To experience the slide set structure, try this URL:
http://www.sei.cmu.edu/SEI/topics/cm/slides/adoption/SlidesCMadoption_01.html

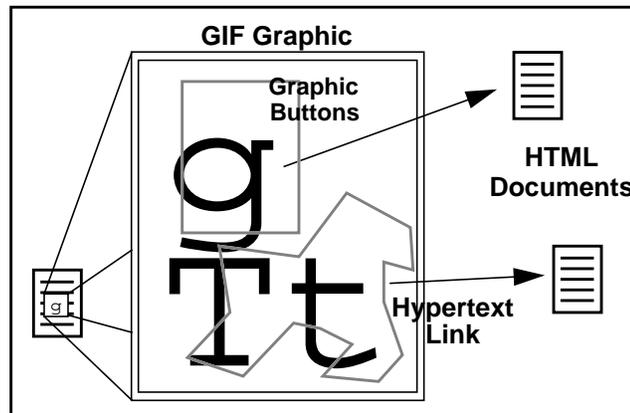
10. To experience the TOC-outline structure, try this URL:
http://www.sei.cmu.edu/SEI/topics/cm/tech_rep/TR11_90/TOC_TR11_90.html

Graphic Image to Many Documents Structure

This structure (as shown in Fig. 5-4) represents a document structure that is known as *image mapping*. From the user's viewpoint, an image appears in the middle of a document. The border of this graphic image will be highlighted to denote that by clicking on an element of the image, a hypertext link to another document may be activated.

In order to accomplish this, the Web author needs to define which areas of the graphic image to map to which document. Current image map interfaces permit authors to define *hot regions* as either an area defined by a *circle*, a *rectangle*, or a *polygon*. It is very useful to have support tools like **WebMap** (Macintosh-based) or **MapEdit** (X-based) to automate the process of defining these hot regions.

Figure 5-4: Graphic Document Mapping Structure



This structure is also intuitive once a user knows he can navigate to other hyperlinked documents by this means¹¹.

¹¹. To experience the graphic to many structure, try this URL:
http://www.sei.cmu.edu/SEI/topics/cm/tech_rep/TR11_90/fig3-5_CMSpectrum.html

5.4 Document Linking/Accessing Techniques

The actual linking and accessing of documents on the Web are all accomplished by pointers to other documents. These pointers are all formatted according to Uniform Resource Locator (URL) format. URLs provide a common naming scheme for accessing areas and objects that exist all around the world in Web space. An example URL is the one for SEI SCM area which is: <http://www.sei.cmu.edu/tech/cmHomePage.html>.

The way in which these URLs are supplied for linking to other documents is the essence of the document linking/access techniques. For navigating around the SEI SCM area, we have employed three basic types of document-linking mechanisms:

- **Standard HTML Doc to HTML Doc Links**

This represents a hard-coded URL embedded within an HTML document that points to one another HTML document¹² somewhere in Web space. This can be to another document in the same directory area or a document located on another Web server located on the other side of the world.

- **ISMAP GIF Graphic to HTML Doc Links**

This represents another form of hard coding of URLs. But in this case, the *graphic-to-many-documents structure* is used (as described in Section 5.3 above). This defines a one-to-many document relationship as defined by an **image map table**.

The image map table provides a lookup mechanism where the x, y coordinates of the click point in the graphic are examined by the Web server to see if they fit within a region (as defined by rectangular, circular, and/or polygonal shapes) that is mapped to a URL. If they do, then the hypertext link to that document, as defined by the URL, is executed¹³. (For more details on how to do this, refer to Appendix E: Notes on Using Image Maps on the SEI Web Server.)

- **Automated CGI Search to HTML Doc Links**

This represents a form of soft coding of URLs. This mechanism searches a predetermined list of files to match keyword search terms. If a match is made, the **CGI¹⁴search script** notes the name of the file. After the predetermined search list of files have been scanned, the CGI search script automatically creates an HTML document, formatted with the names of the noted files and the corresponding hypertext link to that file. This automatically-created HTML document is served back to the user, so that the user may browse those documents that match their search criteria¹⁵. (For more details on how to do this, refer to Appendix D: Notes on Using CGI Search on the SEI Web Server.)

12. To experience *point to point document linking*, try this URL, which is the SCM Home page:
<http://www.sei.cmu.edu/tech/cmHomePage.html>

13. To experience *graphical map document linking*, try this URL:
http://www.sei.cmu.edu/SEI/topics/cm/tech_rep/TR11_90/Fig3-5_CMSpectrum.html

14. CGI stands for Common Gateway Interface and provides a standardized way of hooking in external programs to a Web Server to perform additional tasks like keyword searching or performing ISMAP graphic lookups.

5.5 Hand Built Manual vs. Automated Web Building

The task of building the Web of HTML documents to provide SCM-related information has been largely a manual, labor-intensive operation. This is fine for relatively small numbers of HTML documents and hypertext links, but for a very large Web of information some form of automation is critical.

For future Web authoring, we plan to use automated Web authoring tools. We have made some use of tools that create HTML documents from documents formatted in FrameMaker¹⁶ and Microsoft Word. Both of these conversions have relied upon a utility called **RTF-to-HTML**¹⁷. This tool converts RTF (Rich Text Format¹⁸) to HTML documents. For most documents, this does produce reasonable HTML output.

Even greater potential for automated Web building appears possible with **WebMaker**.¹⁹ WebMaker is designed to directly convert FrameMaker documents or book files into a set of interlinked HTML files. Some of the more notable design features of WebMaker are:

- generation of a configurable hierarchy of interlinked HTML based upon a configuration file
- translation of FrameMaker cross references into hypertext links
- generation of tables of contents, indices, and glossaries
- production of hypertext links to external HTML documents
- conversion of imported graphics, FrameMaker native graphics, equations, and tables into an appropriate graphic format
- conversion of footnotes to hypertext links

The Spectrum of Functionality in Configuration Management Systems technical report located in the SEI SCM area²⁰ has a browseable online version that was manually created in an organizational structure very similar to that WebMaker would produce. We have found this organization to be very good and we are looking forward to see how well WebMaker creates Web-formatted documents.

15. To experience *search-based document linking*, try this URL:
http://www.sei.cmu.edu/cgi-bin/srch.cgi/SEI/topics/cm/cm_search

16. In order to use the RTF-to-HTML converter for FrameMaker documents, it is first necessary to save the FrameMaker document in MIF format (Maker Interchange Format) and then use Frame's MIF-to-RTF export utility. When using the MIF-to-RTF utility, we found it best not to convert Frame's autonumbered strings. There are direct Frame- to-HTML converters available (like the one located at URL <ftp://bang.nta.no/pub>), but we have no experience in their use.

17. This tool was created by Chris Hector (cjh@cray.com). See Appendix F: Web-HTML Development Tools for a URL for this tool.

18. RTF was created and designed by Microsoft Corporation. Many popular word processors can read and write RTF-formatted documents.

19. WebMaker is another product from the folks at CERN, who developed the World Wide Web. For more detail information on WebMaker check out this URL: <http://www1.cern.ch/WebMaker/WEBMAKER.html>.

20. Spectrum URL: http://www.sei.cmu.edu/SEI/topics/cm/tech_rep/TR11_90/TOC_TR11_90.html

5.6 Key Challenges and Solutions

As with any new endeavor, like publishing on the Web for the first-time, a number of challenges were encountered. While the following list does not incorporate all of the challenges that we encountered, this list represents potential key challenges that might face others first-time Web publishers.

- Identification of potential content to be published
- Access to source documents
- Access to HTTP (HyperText Transport Protocol) Web server for development
- Access to suitable development platform

Identification of potential content to be published

Challenge

- At the outset of this task, we had an unknown quantity/quality of SCM source material.

Solution(s)

- An audit of CASE Environments Directories was conducted. Of particular interest were SCM materials created by Susan Dart and Peter Feiler as a result of their extensive SCM research.
- In addition, we used the search capabilities of the prototype SEI Web Server to search of abstracts of SEI Documents for relevant SCM materials.
- Results of this audit were fed into a FileMaker SCM Resource Database²¹ where the information could be tracked and additional notes on the documents could be added.

Access to source documents

Challenge

- Many of the SCM documents that we found only existed in the form of a Postscript file, which did not lend itself to easy browsing of the contents and electronic extraction of text and graphics.

Solution(s)

- Use of a suite of commercial Postscript-related products from Adobe.
- Use of Adobe Distiller 1.0 to create PDF files from the raw Postscript files. This permitted the use of an Adobe Acrobat Reader 1.0 to browse the file content electronically.

²¹. This FileMaker database later turned out to be quite useful for the automated creation of some of the HTML documents.

- Use of Acrobat Reader to efficiently extract text from the PDF files to aid in the creation of document abstracts and table of contents for the SCM document that would be published on the Web.
- Use of Adobe Illustrator 5.5 to extract and edit graphics from Postscript files, now in PDF format. This process was remarkably easy and yielded very good results.

Access to HTTP Web server for development

Challenge

- During the initial experimental construction of HTML documents for the SCM area, we did not have direct access to the information structures for the SEI HTTP Web server. Because of this, any HTML files that we wanted to test or use had to be placed on the SEI Web server by the WebMaster. This limited access meant, for all practical purposes, that experimentation with CGI-based scripts could not readily be performed for:

- ISMAP Graphic to Documents access
- CGI Searching of HTML documents by keyword searching

This limited the initial HTML development and testing to that which could be done within the domain of a personal computing environment.

Solution(s)

- Use of Mac-based HTTP Web server. This permitted testing of different document structures (e.g., Slide or Table of Content structures) and some limited testing of ISMAP Graphic document access.

The Mac-based HTTP Web server was capable of most other CGI-type functions, but there were two drawbacks to this approach:

- The time and knowledge required to set up the server for special functions may be significant.
- This acquired knowledge is of little or no use when finally using the SEI HTTP server.
- Access to SEI Production HTTP Server by being added to the SEI WWW UNIX group, which permitted the necessary read/write access permissions to modify files and directories on the SEI Web Server.

This solution was fine for the addition of one trusted individual, but will not appropriately meet the security needs of the WebMaster for the large number of other individuals developing content for the SEI Web server.

- Because of the problems cited above, there is a long-term plan for providing an internal SEI HTTP Development Web Server to parallel the configuration of the production SEI HTTP Web Server.

Access to suitable development platform

Challenge

- The original development platform for this task was a Macintosh IIx²² which had insufficient performance, memory, and disk space for efficient Web development.

In the course of HTML development, it is typical to have a development cycle of *edit-debug*, where the editing is performed on some form of HTML editor and debugging is done by loading the current HTML document into a Web browser, like Mosaic. Most of the overhead in this cycle is taken by the time it takes the Web browser to load, format, and display the HTML document under development. The faster this can be done, the more productive a Web author can be.

In addition, it is often desirable to have other HTML-related development applications open, like having several different types of graphical editors to create or touch up graphic images.

Solution(s)

- Use a faster, better-equipped development system. In this case, we ended up borrowing a Macintosh Quadra 840av²³.
 - The newer system provided an order of magnitude improvement in performance. Operations that previous took many tens-of-seconds now take only a few seconds.
 - With the increase in RAM memory by a factor of four, we did not have to concern ourselves with juggling the suite of open applications.
 - Creating the SCM material required around 200 MB of disk space to hold the source documents in their original, Postscript, PDF, and HTML formats and to store the applications used during development.
 - Taken together, using this new equipment turned out to be a very productive Web development environment.

^{22.} This Macintosh IIx is configured with a 16 MHz 68030 processor, 8 MB of RAM, and 230 MB of disk space, with only 15 MB of free disk space.

^{23.} This Macintosh Quadra is configured with a 40 MHz 68040 processor, 32 MB of RAM, and 1 GB of disk space.

6 Conclusion

The World Wide Web is fast becoming one of the most popular uses of the Internet and a preferred means of disseminating information from large and small organizations to individuals. Over time, it will be very interesting to analyze the frequency with which users access this body of Software Configuration Management information. We hope it becomes a useful and an often-used resource.

This initial effort in publishing this class of information on the Web was an instructive experience that we hope can be applied to other similar SEI and CASE Environments Web-based dissemination efforts.

We also hope that other first time Web-authors, after referring to this report, will be able to use the document as a resource for in their own Web publishing efforts.

Acknowledgments

In particular, I would like to thank the original authors of the SEI SCM materials who provided a rich source of information: Susan Dart (CaseWare - Formerly SEI), Peter Feiler (SEI), Kurt Wallnau (SEI) and Grace Downey (SEI). I would also like to thank the author of the Usenet CM FAQ: Dave Eaton (Honeywell).

This Web development effort received terrific support and attention from Bill Hefley (SEI), who is the current WebMaster for the SEI. I would like to thank my past and present SEI CASE Environments Project Leaders, Dennis Smith and Alan Brown, for their encouragement and support for this effort. Additionally, I would like to thank Sandra Bond (SEI) and Julia Deems (CMU), the technical writers who provided their time and talents in the production of this technical report.

I would also like to thank Dave Carney (SEI), Ed Morris (SEI), Alan Christie (SEI), Walt Lamia (SEI), and Leonard Green (NSA Resident Affiliate) for their comments and feedback during this development.

References

- [Hefley 94] Hefley, William. *Exploring Hypermedia Information Services for Disseminating Software Engineering Information*. (CMU/SEI-94-TR-03). Pittsburgh, PA: Software Engineering Institute, Carnegie Mellon University, February 1994.

Appendix A Notes on Web Slide Creation

While these notes have specific comments for SEI Web authors, many of the ideas and suggestions can be applied by other Web authors at other sites in the creation of HTML pages that include graphics.

A.1 Preparation

A.1.1 Getting Copies of Slides

1. Get electronic copy of original slide set (in either FrameMaker or PowerPoint)

If slides are in FrameMaker on a Unix host and you want to work on the slides on a Macintosh, use Fetch to transfer the files. Remember to transfer the files in a *binary* format.

2. Get hard copy of original slide set

- photocopy originals, or
- print a set of slides in 1-up (or N-up format to save paper) (e.g., 4-up – this means printing 4 slides to a single page)

A.1.2 Coordination with Webmaster

1. Consult Webmaster (currently Bill Hefley) on the following:

- a) Become familiar with standard SEI WWW conventions
 - (1) SEI WWW resources (what they are, locations, and aliases)

Shown below is diagram of these resources from the user's point of view. Following this diagram is a description of each of the key areas (denoted in gray).

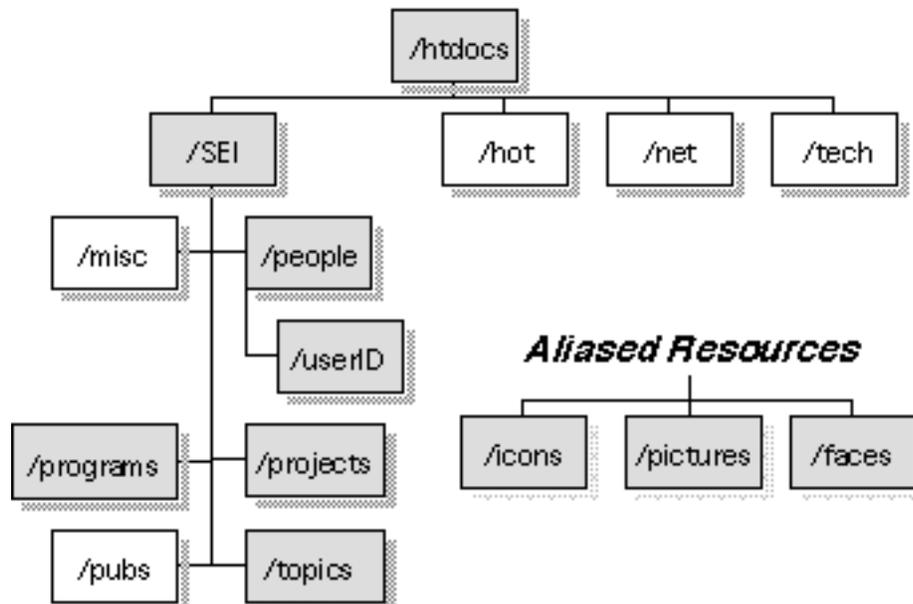


Figure A-1: SEI WWW Document Root

(1) SEI WWW common resources (con't)

- **/icons** – common buttons
see attached thumbnails of icons for reference
- **/pictures** – common figures

Author Specific Resources

- **/faces** – author/people thumbnail photos
- **/SEI/people/userID/author.html** – author information

Key Document Areas

- **/programs** – covers SEI program areas
- **/projects** - covers SEI projects
- **/topics** - currently includes special topic areas like software configuration management & process

(2) URL (Uniform Resource Locator) for development Mosaic Server
(e.g., <http://www.internal.sei.cmu.edu/>)

(3) SEI WWW HTML Slide Templates

A set of slide templates for SEI slides can be found in Appendix C.

(4) Naming Conventions

Any GIF file should have an extension of.GIF (not .gif)

(5) Access privileges

What access privileges you need to create for your WWW contributions to be managed by Webmaster.

b) Final location of slide .html documents and slide .gif pictures in relation to SEI WWW document root (e.g., <http://www.sei.cmu.edu/htdocsSEI/topics/cm/slides>)

(1) **Your path to use:** _____

- (2) This is important because all references to the Mosaic documents in the SEI WWW tree should use absolute path references from the WWW document root.
- (3) This is necessary should the SEI implement a searching mechanism like WAIS (Wide Area Information Server) to search SEI-based WWW pages for information. Results of a WAIS-type search may only be usable with absolute (not relative) references.

c) Entry and exit points for your slides

- (1) Planned WWW SEI entry point (e.g., from which SEI WWW .html document/page do you intend to point to your slide set)

Entry Point: _____

- (2) Planned WWW SEI return point (e.g., to which SEI WWW .html document/page do you intend to point to at the end of your slide set)

Return Point: _____

d) Coordination of hand over of your materials to Webmaster

A.1.3 Gathering the Tools

1. The basic development tools you need are:
 - a) a text editor, and
 - b) a tool to convert your graphics into a GIF (Graphics Interchange Format).
2. To meet these basic needs, if you are using a Macintosh, we suggest use of *BEdit* and *GIFConverter*.
3. Both of these tools can be acquired from the Public Domain AppleShare Server located in the basement AppleTalk Zone in your Chooser.
 - a) BEdit Notes
 - (1) It is suggested that in addition to the basic BEdit application, you also use the HTML extensions to BEdit.
 - (2) Both BEdit and the HTML extensions are here:

Public Domain: */Public Domain/Internet Exploration../Mosaic/HTML Dev. Goodie Box../HTML Editors../BEdit..*

For non-SEI Web authors, see Appendix F for URL of BBedt application and HTML extensions for BEdit.
 - (3) Once you have copied over the necessary files, unstuff *BEdit* and move the extensions from the *BEdit HTML extensions..* folder into the *BEdit Extensions* folder, found in the BEdit folder.
 - b) GIFConverter Notes
 - (1) GIFConverter is located here:

Public Domain: */Public Domain/Internet Exploration../Mosaic/HTML Dev. Goodie Box../GIF Utils../GIFConverter 2.3.7..*

For non-SEI Web authors, see Appendix F for URL of GIFConverter application.

A.2 Extracting Text & Graphics

A.2.1 Text Extraction

1. From PowerPoint
 - a) **Open** PowerPoint Slide Document
 - b) Save in a Outline (*RTF format*) - Select **Save As** from File Menu and in Dialog Box select File Type as: *Outline (RTF format)* file format
 - c) **Quit** PowerPoint
 - d) **Open** RTF file in Microsoft **Word** and then save the file in text only format.

Note: *It is possible to run the RTF file through an RTF to HTML converter, but our experience to date suggests this is not useful for material done in a slide presentation format.*

2. From FrameMaker

- a) **Open** FrameMaker Slide Document
- b) **Save** in a **plain text** format - Select **Save As** from File Menu and in Dialog Box select File Type as: *Plain text file* format
Note: *It is possible to save the Frame document in an MIF format and then convert it to RTF with a Frame-supplied utility and then run the file through the RTF to HTML convert, but our experience to date suggests this is not useful for material done in a slide presentation format.*
- c) Quit FrameMaker

3. Once the file is in a text-only format, the text can be edited and accessed using BBedit later on.

A.2.2 Graphics Extraction

1. **Open either the FrameMaker or PowerPoint document**

2. **Copy each graphic, one graphic at a time to one of the following:**

- Scrapbook
- GIFConverter
- MacDraw II or MacDraw Pro
- SuperPaint 3.0

3. **Determine where to copy the graphics, based on:**

- a) your need/desire to revise your original graphics
 - (1) In most cases it is better to make your graphic about 66% of its original size.
 - (2) This is useful for two reasons:
 - Many Web readers use systems that are limited by their small screen size (e.g., 13-inch).
 - Since the graphics must be in a GIF format, the larger the graphic the larger the file size of the graphic, which requires more time to transfer – especially for users with a low speed connection to the Internet.
- b) your Macintosh's ability to have several major applications like FrameMaker and GIFConverter open at once.
 - (1) If you don't enough Macintosh memory, just copy the graphics into the Scrapbook for later access.

A.2.3 Tips for scaling graphics

1. **Shrink your graphic by using the zoom-in features in FrameMaker or PowerPoint.**

- a) Once you have the graphic at the size you want, use **Flash-It** to capture your graphic.
- b) Flash-It is part of the SEI baseline and provides the ability to select portions of your screen to save either to disk (in a pict file) or to the scrapbook. *For non-SEI Web authors, the URL for Flash-It is: <ftp://ftp.hawaii.edu:mirrors/info-mac/Graphic/util/flash-it-302.hqx>*
- c) Check your Control Panel to see how your copy of Flash-It is configured (e.g, which keys activate Flash-It and which keys save the image in the scrapbook or to a pict file).

2. Shrink your graphic by using the scale command in FrameMaker, PowerPoint, or MacDraw, etc.

- a) Make sure you do this on a copy of the document/graphic, because this is a permanent change.
- b) This does not always work well, because the letters (a.k.a. fonts) are not scaled appropriately.

3. Shrink your graphic by copying into Microsoft Word.

- a) Insert graphic
- b) On selected graphic, resize handles should appear
- c) Hold down **Shift** Key and resize graphic. At the lower left corner of the window, Word will indicate the percentage of scaling.
- d) Copy scaled graphic into GIFConverter.

A.3 Graphics Generation

A.3.1 GIFConverter Actions

- 1. Open GIFConverter
- 2. Create New Graphic
- 3. Copy graphic from the Scrapbook (or other applications like FrameMaker, etc.)
- 4. Paste graphic into GIFConverter Untitled Window
- 5. If image colors don't appear to be correct (*hey they look funny...*), select Change Color Palette—Standard 256 Colors from the Image menu Item. This should correct the problem.
- 6. Save the graphic. Make sure the file type is GIF and file extension is .GIF.
- 7. Repeat Steps 2-6 until you have created all the graphic files you need.

A.4 HTML Generation

A.4.1 Slide Templates

- 1. In general, you will be taking your PowerPoint or FrameMaker slide materials and placing that material in one of four types of slides templates. For each slide, one HTML document will eventually be created using one of these four templates. These slide templates are:
 - a) Title slide template
 - b) Slide with text-only template
 - c) Slide with imbedded graphics template
 - d) Notes slide template
 - e) Author template
- 2. A set of these templates is located in the Appendix C: HTML SEI Slide Templates. These templates include a set of example entries.
- 3. A copy of these templates can be found on the Public Domain AppleShare Server located in the basement AppleTalk Zone in your Chooser. This is the path:

Public Domain: */Public Domain/Internet Exploration../Mosaic/HTML Slide Templates..*

A.4.2 Notes on Slide Templates

1. Author Template Notes

a) If this is the first set of slides that you have created, you need to create an author.html file.

(1) The file name should be: **author_userId.html**

Example: *author_cch.html*

(2) This file will be placed in **/SEI/people/userID**.

Example path: */SEI/people/cch/author_cch.html*

A.4.3 HTML Editing

1. Authors can work in one of two modes of HTML creation. Just decide ahead of time how you want to work.

a) Work with the entire slide set as a single document, inserting the appropriate templates where necessary. Later on, this one large document will be divided into separate HTML files—one per slide page.

b) Start immediately working on the slides in a one-HTML-document-per-slide mode.

2. For those unfamiliar with HTML formatting concepts, we suggest that you use Mosaic to explore sites that have HTML tutorials.

There are a number of places that you can go, but we suggest you start with Peter Deuel's excellent ***HTML Reference Guide*** located at this URL:

<http://fire.clarkson.edu/edu/tc/html/htmlmenu.html>

A.5 File Transfer

Use Fetch for file transfers between your Macintosh and a Unix host.

1. When downloading FrameMaker Files from a Unix host, use a *binary* file transfer format.
2. When uploading HTML files to a Unix host from your Macintosh, use *automatic* or *text* file transfer.
3. When uploading GIF files to a Unix host from your Macintosh, use a *binary* file transfer format.

A.6 Testing

Be sure to thoroughly test your Mosaic Slide links and graphics downloads.

Minimal testing should include:

1. Links to and from your slide presentation.
2. Links from one slide to another slide (accessed in linear fashion).
3. If you have note pages, links to and from note pages to your slide.
4. Any other links that are used in your presentation to jump around the slide presentation in a non-linear hypertext fashion.

Appendix B Icon Thumbnails

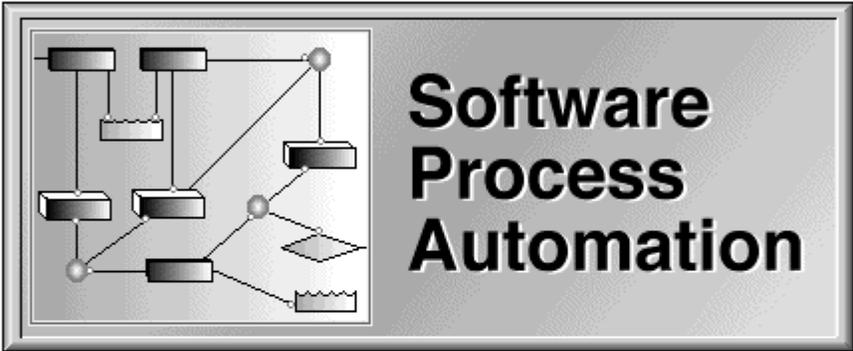
B.1 GIF Icons–SEI Preferred Standard

 arpa1.gif	 ButtonCMfaq.GIF	 ButtonNotes.GIF
 Button_Next.GIF	 ButtonDMBlank.GIF	 ButtonOverview.GIF
 Button_Previous.GIF	 ButtonDMDoc.GIF	 ButtonOverview3DLg.gif
 Button-DnLg.GIF	 ButtonDMDownload.GIF	 ButtonPDF.GIF
 Button-Quest3D.GIF	 ButtonDMInfo.GIF	 ButtonPS.GIF
 Button-UpLg.GIF	 ButtonDMQuest.GIF	 ButtonReturn.GIF
 ButtonBrowse.GIF	 ButtonDMQuestSearch.GIF	 ButtonReturnSm.GIF
 ButtonCheck.gif	 ButtonInfoLg.gif	 check.gif



❖ ❖ ❖ **Software Configuration Management**

PlateSCM.GIF



ProcessAutoPlate.GIF

 **Software Engineering Institute**

SEILogoPlate.gif

B.2 XBM Icons

 back.xbm	 movie.xbm
 ball.xbm	 sound.xbm
 binary.xbm	 speaker.gif
 blank.xbm	 telnet.xbm
 ftp.xbm	 text.xbm
 image.xbm	 unknown.xbm
 index.xbm	
 menu.xbm	

Appendix C HTML SEI Slide Templates

C.1 Title slide template: TMPL_TITLE_SLIDE_01.html

```
<HTML>
<!------->
<!--PUT NAME OF THIS HTML SLIDE BELOW.-->
<!------->
<!-- Replace: SLIDE_SETNAME_NN.html -->
<!-- Example: CMAdoption_01.html -->
<!------->
<!--$id: SLIDE_SETNAME_01.html$ -->

<HEAD>
<!------->
<!-- PUT SLIDE TITLE BELOW. -->
<!------->
<!-- Replace: SLIDE TITLE -->
<!-- Example: A CM Solution Model -->
<!------->
<TITLE>SLIDE SET TITLE</TITLE>
<LINK REV = "MADE" HREF="mailto:webmaster@sei.cmu.edu">
</HEAD>

<BODY>

<!------->
<!-- THIS SETS UP THE SEI LOGO & SEI HEADER FOR THE SLIDE.-->
<!-- NO MODIFICATIOINS ARE REQUIRED -->
<!------->
<h3><A NAME="Logo"><IMG SRC=/icons/SEI_Icon.GIF ALT="[SEI Logo]"> </A>
Software Engineering Institute </h3>
<HR>

<!------->
<!-- PUT YOUR SLIDE TITLE(S) HERE. -->
<!------->
<!-- Replace: SLIDE SET TITLE FIRST LINE -->
<!-- Example: Configuration Management -->
<!------->
<!-- Replace: SLIDE SET TITLE LINE N -->
<!-- Example: A CM Solution Model -->
<!------->
<!-- Replace: GRAPHIC DESCRIPTOR -->
<!-- Example: CM Solution Model Diagram -->
<!------->
<!-- Replace: SIZE_OF_GRAPHIC K -->
<!-- Example: 5.1K -->
<!------->
<h1>SLIDE SET TITLE FIRST LINE</h1>
<h3>SLIDE SET TITLE LINE N</h3>

<!------->
<!-- PUT DATE OF YOUR SLIDES HERE. -->
<!------->
<!-- Replace: DATE -->
<!-- Example: 19 MAY 1994 -->
<!------->
<p><i>DATE</b></i>

<p><i>Software Engineering Institute</i><br>
<i>Carnegie Mellon University</i><br>
```

```

<i>Pittsburgh PA 15213</i> </p>

<p><i>Sponsored by the U.S. Department of Defense</i> </p>

<P>
<HR>

<!------->
<!-- THIS SETS UP THE NEXT SLIDE BUTTON. -->
<!------->
<!-- Replace: /SEI_WWW_PATH/SLIDE_NEXT_NN.html -->
<!-- Example: /SEI/topics/cm/slides/CMAdoption_02.html -->
<!------->
<A HREF="/SEI/topics/process/slides/SLIDE_SETNAME_02.html">
<IMG SRC=/icons/Button_Next.GIF ALT="[button]"> next</A>

<HR>

<!------->
<!--PUT LAST UPDATE DATE & AUTHOR INFORMATION -->
<!------->
<!-- Replace: MON/DAY/YEAR -->
<!-- Example: 5/19/94 -->
<!------->
<!-- Replace: /SEI/people/USERID/author_USERID.html -->
<!-- Example: /SEI/people/cch/author_cch.html -->
<!------->
<!-- Replace: USERID@sei.cmu.edu/(412) 268-XXXX -->
<!-- Example: cch@sei.cmu.edu/(412) 268-7605 -->
<!------->
<ADDRESS>Last Update: MON/DAY/YEAR -
<A HREF="/SEI/people/USERID/author_USERID.html">USER NAME
</A> USERID@sei.cmu.edu/(412) 268-XXXX </ADDRESS>

</BODY>
</HTML>

```

C.2 Slide with text only template: TMPL_TEXT_NN.html

```
<!------->
<!-- Template created by C. Huff -->
<!-- Software Engineering Institute -->
<!-- 19 May 1994 Version 1.0 -->
<!-- cch@sei.cmu.edu -->
<!------->

<HTML>
<!------->
<!--PUT NAME OF THIS HTML SLIDE BELOW.-->
<!------->
<!-- Replace: SLIDE_SETNAME_NN.html -->
<!-- Example: CMAdoption_03.html -->
<!------->
<!--$id: SLIDE_SETNAME_NN.html$ -->

<HEAD>
<!------->
<!-- PUT SLIDE TITLE BELOW. -->
<!------->
<!-- Replace: SLIDE TITLE -->
<!-- Example: A CM Solution Model -->
<!------->
<TITLE>SLIDE TITLE</TITLE>
<LINK REV = "MADE" HREF="mailto:webmaster@sei.cmu.edu">
</HEAD>

<BODY>

<!------->
<!--THIS SETS UP THE SEI LOGO & SEI HEADER FOR THE SLIDE.-->
<!-- NO MODIFICATIOINS ARE REQUIRED -->
<!------->
<h3><A NAME="Logo"><IMG SRC=/icons/SEI_Icon.GIF ALT="[SEI Logo]"> </A>
Software Engineering Institute </h3>

<HR>

<!------->
<!-- PUT SLIDE TITLE BELOW. -->
<!------->
<!-- Replace: SLIDE TITLE -->
<!-- Example: A CM Solution Model -->
<!------->
<H1>SLIDE TITLE</H1>

<!------->
<!-- PUT THE TEXT OF YOUR SLIDE IN HTML FORMAT BELOW. -->
<!------->

PUT YOUR HTML TEXT HERE!

<!------->
<p>

<HR>

<!------->
<!--THIS SETS UP THE NEXT & PREVIOUS SLIDE BUTTONS. -->
<!------->
<!-- Replace: /SEI_WWW_PATH/SLIDE_NEXT_NN.html -->
<!-- Example: /SEI/topics/cm/slides/CMAdoption_04.html -->
```

```

<!------->
<!-- Replace: /SEI_WWW_PATH/SLIDE_PREVIOUS_NN.html -->
<!-- Example: /SEI/topics/cm/slides/CMAdoption_02.html -->
<!------->
<A HREF="/SEI_WWW_PATH/SLIDE_NEXT_NN.html">
<IMG SRC=/icons/Button_Next.GIF ALT="[button]"> next</A>
<A HREF="/SEI_WWW_PATH/SLIDE_PREVIOUS_NN.html">
<IMG SRC=/icons/Button_Previous.GIF ALT="[button]"> previous</A>

<!------->
<!--THIS SETS UP A LINK TO A NOTES PAGE. -->
<!--DELETE THIS SECTION, IF YOU DON'T WANT TO LINK TO A NOTES PAGE -->
<!------->
<!-- Replace: /SEI_WWW_PATH/SLIDE_NOTE_NN.html -->
<!-- Example: /SEI/topics/cm/slides/CM_Notes_02.html -->
<!------->
<A HREF="/SEI_WWW_PATH/SLIDE_NOTE_NN.html">
<IMG SRC=/icons/ButtonNotes.GIF ALT="[button]"> notes</A>

<HR>

<!------->
<!--PUT LAST UPDATE DATE & AUTHOR INFORMATION -->
<!------->
<!-- Replace: MON/DAY/YEAR -->
<!-- Example: 5/19/94 -->
<!------->
<!-- Replace: /SEI/people/USERID/author_USERID.html -->
<!-- Example: /SEI/people/cch/author_cch.html -->
<!------->
<!-- Replace: USERID@sei.cmu.edu/(412) 268-XXXX -->
<!-- Example: cch@sei.cmu.edu/(412) 268-7605 -->
<!------->
<ADDRESS>Last Update: MON/DAY/YEAR -
<A HREF="/SEI/people/USERID/author_USERID.html">USER NAME
</A> USERID@sei.cmu.edu </ADDRESS>

</BODY>
</HTML>

```

C.3 Slide with graphic template: TMPL_GRAPHIC_NN.html

```
<!------->
<!-- Template created by C. Huff -->
<!-- Software Engineering Institute -->
<!-- 19 May 1994 Version 1.0 -->
<!-- cch@sei.cmu.edu -->
<!------->

<HTML>
<!------->
<!--PUT NAME OF THIS HTML SLIDE BELOW.-->
<!------->
<!-- Replace: SLIDE_SETNAME_NN.html -->
<!-- Example: CMAoption_03.html -->
<!------->
<!--$id: SLIDE_SETNAME_NN.html$ -->

<HEAD>
<!------->
<!-- PUT SLIDE TITLE BELOW. -->
<!------->
<!-- Replace: SLIDE TITLE -->
<!-- Example: A CM Solution Model -->
<!------->
<TITLE>SLIDE TITLE</TITLE>
<LINK REV = "MADE" HREF="mailto:webmaster@sei.cmu.edu">
</HEAD>

<BODY>

<!------->
<!--THIS SETS UP THE SEI LOGO & SEI HEADER FOR THE SLIDE.-->
<!-- NO MODIFICATIOINS ARE REQUIRED -->
<!------->
<h3><A NAME="Logo"><IMG SRC=/icons/SEI_Icon.GIF ALT="[SEI Logo]"> </A>
Software Engineering Institute </h3>

<HR>

<!------->
<!--PUT YOUR SLIDE TITLE AND SLIDE GRAPHIC HERE.-->
<!------->
<!-- Replace: SLIDE TITLE -->
<!-- Example: A CM Solution Model -->
<!------->
<!-- Replace: /SEI_WWW_PATH/GRAPHIC.GIF -->
<!-- Example: /SEI/topics/cm/slides/Model.gif -->
<!------->
<!-- Replace: GRAPHIC DESCRIPTOR -->
<!-- Example: CM Solution Model Diagram -->
<!------->
<!-- Replace: SIZE_OF_GRAPHIC K -->
<!-- Example: 5.1K -->
<!------->
<h1>SLIDE TITLE<</h1>
<IMG SRC=/SEI_WWW_PATH/GRAPHIC.GIF
ALT="[GRAPHIC DESCRIPTOR]"><br>
<I>SIZE_OF_GRAPHIC K</I><p>

<HR>

<!------->
<!--THIS SETS UP THE NEXT & PREVIOUS SLIDE BUTTONS. -->
```

```

<!------->
<!-- Replace: /SEI_WWW_PATH/SLIDE_NEXT_NN.html -->
<!-- Example: /SEI/topics/cm/slides/CMAdoption_04.html -->
<!------->
<!-- Replace: /SEI_WWW_PATH/SLIDE_PREVIOUS_NN.html -->
<!-- Example: /SEI/topics/cm/slides/CMAdoption_02.html -->
<!------->
<A HREF="/SEI_WWW_PATH/SLIDE_NEXT_NN.html">
<IMG SRC=/icons/Button_Next.GIF ALT="[button]"> next</A>
<A HREF="/SEI_WWW_PATH/SLIDE_PREVIOUS_NN.html">
<IMG SRC=/icons/Button_Previous.GIF ALT="[button]"> previous</A>

<!------->
<!--THIS SETS UP A LINK TO A NOTES PAGE. -->
<!--DELETE THIS SECTION, IF YOU DON'T WANT TO LINK TO A NOTES PAGE -->
<!------->
<!-- Replace: /SEI_WWW_PATH/SLIDE_NOTE_NN.html -->
<!-- Example: /SEI/topics/cm/slides/CM_Notes_02.html -->
<!------->
<A HREF="/SEI_WWW_PATH/SLIDE_NOTE_NN.html">
<IMG SRC=/icons/ButtonNotes.GIF ALT="[button]"> notes</A>

<HR>

<!------->
<!--PUT LAST UPDATE DATE & AUTHOR INFORMATION -->
<!------->
<!-- Replace: MON/DAY/YEAR -->
<!-- Example: 5/19/94 -->
<!------->
<!-- Replace: /SEI/people/USERID/author_USERID.html -->
<!-- Example: /SEI/people/cch/author_cch.html -->
<!------->
<!-- Replace: USERID@sei.cmu.edu/(412) 268-XXXX -->
<!-- Example: cch@sei.cmu.edu/(412) 268-7605 -->
<!------->
<ADDRESS>Last Update: MON/DAY/YEAR -
<A HREF="/SEI/people/USERID/author_USERID.html">USER NAME
</A> USERID@sei.cmu.edu </ADDRESS>

</BODY>
</HTML>

```

C.4 Notes slide template: TMPL_NOTES_NN.html

```
<!------->
<!-- Template created by C. Huff -->
<!-- Software Engineering Institute -->
<!-- 19 May 1994 Version 1.0 -->
<!-- cch@sei.cmu.edu -->
<!------->
<HTML>
<!------->
<!--PUT NAME OF THIS HTML SLIDE BELOW.-->
<!------->
<!-- Replace: SLIDE_SETNAME_NN.html -->
<!-- Example: NotesCMadoption_03.html -->
<!------->
<!--$id: NotesCMadoption_03.html$ -->
<head>
<!------->
<!-- PUT SLIDE TITLE BELOW. -->
<!------->
<!-- Replace: SLIDE TITLE -->
<!-- Example: CM Solution Notes -->
<!------->
<TITLE>SLIDE TITLE</TITLE>
<LINK REV = "MADE" HREF="mailto:webmaster@sei.cmu.edu">
</HEAD>

<BODY>
<!------->
<!-- PUT SLIDE TITLE BELOW. -->
<!------->
<!-- Replace: SLIDE TITLE -->
<!-- Example: CM Solution Notes -->
<!------->
<h1><IMG SRC=/icons/SEI_Icon.GIF ALT="[SEI Logo]"></A> Notes:
SLIDE TITLE</h1>

<!------->
<!-- PUT THE TEXT OF YOUR SLIDE IN HTML FORMAT BELOW. -->
<!------->

PUT YOUR HTML TEXT HERE!

<!------->
<P>
<!------->
<!--THIS SETS UP THE RETURN TO ORIGINAL SLIDE BUTTON. -->
<!------->
<!-- Replace: /SEI_WWW_PATH/SLIDE_NN.html -->
<!-- Example: /SEI/topics/cm/slides/CMAdoption_03.html -->
<!------->
<A HREF="/SEI_WWW_PATH/SLIDE_NN.html">
<IMG SRC=/icons/ButtonReturn.GIF ALT="[button]"> return</A>

<HR>
<!--*****-->

<ADDRESS>Last Update: MON/DAY/YEAR -
<A HREF="/SEI/people/USERID/author_USERID.html">USER NAME
</A> USERID@sei.cmu.edu </ADDRESS>

</BODY>
</HTML>
```

C.5 Author template: author_userId.html

```
<!------->
<!-- Template created by C. Huff -->
<!-- Software Engineering Institute -->
<!-- 19 May 1994 Version 1.0 -->
<!-- cch@sei.cmu.edu -->
<!------->
<HTML>
<!------->
<!--PUT NAME OF THIS HTML FILE BELOW. -->
<!------->
<!-- Replace: author_USERID.html -->
<!-- Example: author_cch.html -->
<!------->
<!--$id: author_USERID.html$-->
<HEAD>
<!------->
<!-- PUT SLIDE TITLE BELOW. -->
<!------->
<!-- Replace: AUTHOR TITLE -->
<!-- Example: Clifford C.Huff -->
<!------->
<TITLE>AUTHOR TITLE</TITLE>
<LINK REV = "MADE" HREF="mailto:webmaster@sei.cmu.edu">
</HEAD>
<BODY>
<!------->
<!-- PUT SLIDE TITLE BELOW. -->
<!------->
<!-- Replace: AUTHOR TITLE -->
<!-- Example: Clifford C.Huff -->
<!------->
<H1>AUTHOR TITLE</H1>
<H2>
<!------->
<!-- THIS SETS UP THE SEI LOGO & USER NAME & PHOTO GIF -->
<!-- (IF AVAILABLE) -->
<!------->
<!-- Replace: USER_NAME -->
<!-- Example: Clifford C.Huff -->
<!------->
<!-- Replace: LASTNAME_USERID.GIF -->
<!-- Example: Huff_cch.GIF -->
<!------->
<IMG SRC="/icons/SEI_Icon.GIF" ALT="[SEI Logo]" ALIGN=bottom> USER_NAME
<IMG SRC="/faces/LASTNAME_USERID.GIF" ALT="[Photo]" ALIGN=middle>
</H2>
<P><HR><P>
<!------->
<!-- PUT AUTHOR INFORMATION BELOW -->
<!------->
<!-- Replace: YOUR PROJECT NAME -->
<!-- Example: CASE Environments Project -->
<!------->
<!-- Replace: ROOM# -->
<!-- Example: 5420 -->
<!------->
<!-- Replace: ##### -->
<!-- Example: 7605 -->
<!------->
<!-- Replace: USERID@sei.cmu.edu -->
<!-- Example: cch@sei.cmu.edu -->
<!------->
```

<DL>
<DT>Project:
<DD> YOUR PROJECT NAME
<DT>Title:
<DD> Member of the Technical Staff
<DT>Office:
<DD> Software Engineering Institute
<DD> Room SEI-ROOM#
<DD> Carnegie Mellon University
<DD> 5000 Forbes Ave.
<DD> Pittsburgh, PA 15213-3890 USA
<DT>Telephone:
<DD> (412) 268-#### (voice)
<DD> (412) 268-5758 (fax)
<DT>Electronic mail:
<DD> USERID@sei.cmu.edu
</DL>

<P>
<HR>

<H1 NAME=web_questions>Questions About these Documents
</H1>

For questions relating to the contents of the documents please contact:

<P>
<ADDRESS>Customer Relations</ADDRESS>
<ADDRESS>Software Engineering Institute</ADDRESS>
<ADDRESS>Carnegie Mellon University</ADDRESS>
<ADDRESS>Pittsburgh, PA 15213-3890</ADDRESS>

<ADDRESS>Voice: +1-412-268-5800</ADDRESS>
<ADDRESS>Fax: +1-412-268-5758</ADDRESS>

<ADDRESS>Internet: customer-relations@sei.cmu.edu</ADDRESS>

<P><HR>

<!------->
<!--PUT LAST UPDATE DATE & AUTHOR INFORMATION -->
<!------->
<!-- Replace: MON/DAY/YEAR -->
<!-- Example: 5/19/94 -->
<!------->
<!-- Replace: /SEI/people/USERID/author_USERID.html -->
<!-- Example: /SEI/people/cch/author_cch.html -->
<!------->
<!-- Replace: USERID@sei.cmu.edu/(412) 268-XXXX -->
<!-- Example: cch@sei.cmu.edu/(412) 268-7605 -->
<!------->

<ADDRESS>Last Update: MON/DAY/YEAR -
USER NAME
 USERID@sei.cmu.edu </ADDRESS>

</body>
</HTML>

Appendix D Notes on Using CGI Search on the SEI Web Server

While these notes have specific comments for SEI Web authors, many of the ideas and suggestions can be applied by other Web authors at other sites using this Common Gateway Interface (CGI) search script.

The CGI search code we used and on which these notes are based upon is available from this URL:

ftp://ftp.acns.nwu.edu/pub/gn/srch.shar

This CGI perl search script package was developed by:

John Franks
jjohn@math.nwu.edu
Dept. of Mathematics
Northwestern University

Function Overview

This CGI script looks through a search file that contains a Title-URL pair of all the HTML documents that this script should examine. When the CGI script is invoked with a search term, it will examine either the title or full text of each of the HTML documents listed in the search file.

Upon completion of the search, the CGI script produces an HTML document containing a list of the hypertext references to the HTML documents whose title or text within matches the query submitted.

How to Get Set Up

In order to use this CGI script, you must build a search file of the Title-URL pairs of interest. This can be done either by hand or through the use of a script called **mklist**.

To just search the titles on the HTML documents, the search file must contain a list of the Title-URL pairs (one for each document to be searched). Each Title-URL entry in the file should have this format:

```
Title<tab>URL\n
```

To successfully create the Title-URL pairs, your source HTML documents must have the HTML <title> or <TITLE> markup within the first 5 lines of HTML document. The beginning and ending title markup tags should be on the same line.

To perform full text (grep) searches on the HTML documents, the file must contain a list of the Title-URL-Path2File triplet (one for each document to be searched). Each Title-URL-Path2File entry in the file should have this format:

```
Title<tab>URL<tab>path2file\n
```

Next, you must have two HTML documents, one for a search cover sheet and the other for a search response. These cover sheets are intended to be customized for your particular use. To examine a sample search file, search cover sheet, or search response, see one of the following files. For internal SEI Web authors use:

Search File: /u/fw/b/www/htdocs/SEI/topics/cm/search

Search Cover sheet: /u/fw/b/www/htdocs/SEI/topics/cm/search.cover

Search Response: /u/fw/b/www/htdocs/SEI/topics/cm/search.response

For external Web authors use:

Search File: <http://www.sei.cmu.edu/SEI/topics/cm/search>

Search Coversheet: <http://www.sei.cmu.edu/SEI/topics/cm/search.cover>

Search Response: <http://www.sei.cmu.edu/SEI/topics/cm/search.response>

To create the search file, we have found if your search list is small, it is not difficult to manually create a search file, especially if you have some form of a database of the documents you wish to search. To automatically create a search file using **mklist**, you will need to consult the WebMaster (at the SEI - Bill Hefley) to have the script run. Because of this, SEI Web authors can ignore the steps listed below.

Steps in Using mklist

1. Edit the mklist script entering your hostname and data root directory.
2. Run mklist in "home" directory where you want mklist to build its search list document from. There are two flag options for mklist:

-r option will cause mklist to recursively examine all the subdirectories of the "home" directory

-g option will cause mklist to create the three field file which causes the CGI Search script to do a complete grep search instead of just search of the titles.

if **no "home"** directory argument is used, mklist will use the root as the "home" directory.

3. Change third column from /u/... to /htdocs/ (*for SEI CGI-based searches*)

Examples mklist invocations:

```
mklist > mylist (list for all files in root dir)
```

```
mklist -r > mylist (list for all files in root and its subdirs)
```

```
mklist -r /dir/dir2 > mylist (list for all files in root/dir/dir2 and its subdirectories)
```

4. Copy or move the search list file created by mklist to the directory where your other HTML documents are. In this same directory, you need to have a version of the cover and response HTML files. These files must have the *.cover* and *.response* extensions. In addition, the root name of the search list file, cover and response files must be the same. For example, the **search list file** is named *foo*, the **cover** and **response** files must also be named *foo.cover* and *foo.response* and must be in the same directory as the **search list file**.

Using CGI Search Script

The CGI Search Script needs to be install in your HTTP server's cgi-bin directory.
(For SEI Web authors, note this has been done!)

Within some HTML document where you want the option to call the CGI Search, place the following anchored hypertext reference URL:

http://host/cgi-bin/srch.cgi/path2/search_list_file

where “/path2/search_list_file” is whatever your server will translate to the correct path to the search list file.

Here is a complete example:

[<AHREF="http://www.sei.cmu.edu/cgi-bin/srch.cgi/SEI/topics/cm/cm_search">](http://www.sei.cmu.edu/cgi-bin/srch.cgi/SEI/topics/cm/cm_search)

*Search SEI Configuration Management Abstracts & Table of Contents *

As a reminder in this case, there needs to be a *cm_search.cover* and *cm_search.response* file both located in */SEI/topics/cm/* directory for the CGI Search Script to work properly.

Appendix E Notes on Using Image Maps on the SEI Web Server

While these notes have specific comments for SEI Web authors, many of the ideas and suggestions can be applied by other Web authors at other sites using image maps.

The cgi image map code we used and on which these notes are based upon is available from this URL:

gopher://biome.bio.ns.ca/h0/ftp/net/www/httpd_1.1/docs/setup/admin/Imagemap

To use an image map, two configuration files must be created or edited. First is the **Central Configuration File**. This is where the image map script looks first to find the location and name of the image map configuration file. This file is where all image map configuration files must be registered.

The second file, the **image map configuration file**, defines how to react to mouse clicks on a graphic that has been setup as clickable image map.

The Central Configuration File

The image map script expects to find its configuration file as:

/conf/imagemap.conf.

In this file, lines beginning with a '#' are comments. Every other non-blank line consists of:

name: path

The name is the name of the particular mapping. You use it when you reference the image.

The path is the full path to the map configuration file for this mapping.

example entry:

spectrum: /conf/spectrum.map

The Map Configuration File

This file maps regions to URLs for the given image.

Lines beginning with '#' are comments. Every other non-blank line consists of the following:

method URL coord1 coord2... coordn

The coord are the coordinates in a x, y format. The number of coordinates depends on method.

A method is one of the following:

- **circle** For a circle. Coordinates: center, edgepoint
- **poly** For a polygon of at most 100 vertices. Each coordinate is a vertex.
- **rect** For a rectangle. Coordinates: upper-left-corner, lower-right-corner

URL is one of the following:

- a virtual pathname to a file on your server (i.e., a URL to your server without the http://hostname part)
- a URL

Note: Each method is evaluated in the order it is placed in the configuration file. If you have overlapping areas, such as a circle inside of a rectangle, you should place whichever one you want evaluated first before the other in the map file. In this case, we would put the circle before the rectangle.

Example configuration file entry for spectrum.map:

```
default /SEI/topics/cm/none.html

# Context Management Node
rect /SEI/topics/cm/context_mgt.html 121,1 231,47

# PowerFrame Product
rect /SEI/topics/cm/PowerFrame.html 183,52 258,62
```

Referencing Your New Map

To reference your new map, use an URL entry pointing to name-of-image map in whatever HTML document requires an image map.

```
<A HREF="/cgi-bin/imagemap/name_of_imagemap">
<IMG SRC="/path_to_image/image_name.GIF" ISMAP></A>
```

Example reference used to access the spectrum image map:

```
<A HREF="/cgi-bin/imagemap/spectrum">
<IMG SRC="/SEI/topics/cm/spectrum.GIF" ISMAP></A>
```

Summary of Steps to Create an Image Map

1. Create graphic in GIF format that you wish to use.
2. Use a graphics mapping application to define the boundary points (based upon a rectangle, circle, or polygon) in the graphics files.

On a Macintosh use **WebMap** (For an internal SEI user, this can be found on the Public Domain Server located in the basement AppleTalk Zone: *Public Domain:/Internet Exploration../Mosaic/HTML Dev. Goodie Box../ImageMap Util../WebMap..* For an external user, refer to this URL:

ftp://ftp.hawaii.edu:mirrors/info-mac/TextProcessing/web-map-107d.hqx

Under X-windows use **MapEdit**. (For an internal SEI user, a copy of MapEdit binary can be found at `~cch/bin/mapedit`. For an external user, refer to this URL:

`gopher://gopher.utexas.edu:3003/h0/source/www/mapedit1.0.1/mapedit`

3. Determine where you will ultimately place the `imagemap.map` file. It could be in `/conf` or elsewhere.
4. Have the WebMaster create the data for the entry to update the `/conf/imagemap.conf` file.

This basically provides a pointer to the image map script indicating where to find the image map file which defines this image and defines which `.html` document to point when an appropriate item is selected.

5. Take the data gathered in Step 2 and place it in an image map `.map` configuration file.

This file has the boundary reference points and indicates which `.html` file to go to when selected.

6. Create normal `.html` documents, remembering to reference a figure using an image map.

```
<A HREF="/cgi-bin/imagemap/name_of_imagemap">  
<IMG SRC="/path_to_image/image_name.GIF" ISMAP></A>
```

Make sure that you create a `none.html` file to take care of those cases where someone points outside of a defined object.

7. As usual, make sure the files you create are world readable (e.g., set privileges `chmod a+r *`).

Appendix F Web-HTML Development Tool Notes

In general, this appendix deals with WWW-HTML Development Tools that are available for Macintosh-based systems for creating, editing, and managing HTML files.

While these notes have specific comments for SEI Web authors, many of the ideas and suggestions can be applied by other Web authors. Where possible, URLs to these development tools or templates have been included for external Web authors, so they may retrieve these tools or templates as they desire.

For SEI Web authors, these tools and templates can be found in the *HTML Development Goodies* folder on the Macintosh Public Domain Server located in the basement AppleTalk zone. To log on to the server, log on as a **Guest**. The Web/HTML Tools are located here:

Public Domain:/Internet Exploration../Mosaic/HTML Dev. Goodie Box..

The need and functions of these tools are briefly summarized in the following table.

Item	Size of	Comment
HTML Dev. Goodie Box..		This area is intended to act as a central area to find HTML creation & management aids.
<i>Artwork..</i>		
GIF's.. Blank 3D Buttons	20K 15K	This is a .pict file that has a template for the 3-D type buttons used on the SEI WWW Server. Use a color bit-map editor (e.g., Color It or Photoshop) to create new buttons. <i>ftp://ftp.sei.cmu.edu/pub/cch/web/artwork/artwork.sea.hqx</i>
<i>Database HTML Gen Example..</i>		
Home Page HTML DB	220K	Use a database like FileMaker Pro to help generate similar .html files. This is one example of how to do it. <i>ftp://ftp.sei.cmu.edu/pub/cch/web/htmldb.sea.hqx</i>
<i>File Conversion Utils..</i>		
Hotlist2HTML 0.61..	0.1M	This tool converts Mosaic Hotlist to an editable text file. <i>ftp://ftp.hawaii.edu:mirrors/info-mac/Communication/tcp/hotlist-to-html-061.hqx</i>
MIF to RTF Export Utility	0.1M	This tool converts FrameMaker .mif files to rtf . For Mosaic-based documents conversion, I recommend not converting Frame's autonumbered strings. <i>ftp://ftp.frame.com:outgoing/mac/rtf3.hqx</i>
RTF to HTML 2.7.1..	0.3M	This tools converts rtf to .html documents. I have modified the translation tables to incorporate standard SEI Report FrameMaker-based paragraph styles. In lieu of WebMaker, this is the way to go for converting Frame to HTML documents. (<i>Before running this tool, run the MIF to RTF converter on Frame documents.</i>) <i>ftp://ftp.cray.com/src/WWWstuff/RTF/rtftohtml_overview.html</i>

<i>File Typers..</i>		
FrameBookTyper	7K	When you download a FrameBook File from a Unix system in binary form, use this tool to set the Frame Book type (this permits the Finder to launch a FrameMaker Book File when you double click on this downloaded book file). <i>ftp://ftp.sei.cmu.edu/pub/cch/web/typer.sea.hqx</i>
FrameTyper	7K	When you download Frame documents from a Unix system in binary form, you can use this tool to set the Frame document type (this permits the Finder to launch FrameMaker when you double click on this downloaded Frame document). <i>ftp://ftp.sei.cmu.edu/pub/cch/web/typer.sea.hqx</i>
Type Resolve 2.0.1	26K	This is a general purpose file-typer with my favorite extensions preprogrammed. This tool looks at the extension of the file and types it accordingly (e.g., change .gif files to GIFconverter files). <i>ftp://ftp.hawaii.edu/mirrors/info-mac/Utility/type-resolve-201.hqx</i>
<i>GIF Utils..</i>		
GIFConverter 2.3.7	708K	Use to translate Mac Graphics to GIF format for HTML document Image Graphics. <i>ftp://ftp.hawaii.edu/mirrors/info-mac/Graphic/Utility/gif-converter-237.hqx</i>
Transparency 1.0b1..	70K	Used to create transparent GIF's . This makes some GIF files look much better by eliminating unwanted white areas from the GIF graphic. Just drag and drop the GIF graphic file on Transparency, then select the color you want to be transparent. (<i>Hint: click on the color in the graphic and a color table will appear.</i>) <i>http://www.med.cornell.edu/~giles/projects.html</i>

<i>HTML Editors..</i>		
BEdit..	1.0M	<p>If you are editing on a Mac, this is the best HTML editor to use.</p> <p>The best alternative to this is to use a MS Word-based template provided by RTF to HTML 2.7.1 tool to create your text in a WYSIWYG format and then use RTF to HTML 2.7.1 to change the text into HTML markup.</p> <p><i>ftp://ftp.hawaii.edu/mirrors/info-mac/TextProcessing/bbedit-lite-232.hqx</i></p>
BBEdit 2.2 Manuals.sit	232K	<i>ftp://ftp.wustl.edu/systems/mac/info-mac/Old/app/bbedit-22-man.hqx</i>
BBEdit w/HTML extensions..	0.6M	This is BEdit version 2.3.2 with appropriate HTML extensions already included.
HTML BEdit ext. only..	80K	<p>This is the BEdit extensions only, if you just want to add the extensions to current copy of BEdit.</p> <p><i>ftp://ftp.hawaii.edu/mirrors/info-mac/TextProcessing/bbedit-html-ext-b4.hqx</i></p>
HTML Editor 1.0b2.sit	1.0M	<p>Almost WYSIWYG and based on Prograph, some say it is the Mac-equivalent to HotMetal. Looks like it has some good .html-based documentation.</p> <p><i>http://dragon.acadiau.ca:1667/~giles/home.html</i></p>
HTML.edit.112.sea	557K	<p>A HyperCard-based Editor. Almost WYSIWYG, limited to .html files of 32KB or less.</p> <p><i>ftp://ftp.hawaii.edu/mirrors/info-mac/TextProcessing/html-edit-112.hqx</i></p>

X-based HotMetal Info..		
SoftQuad HotMetal Documentation	108K	<p>HotMetal is an X-Windows based WYSIWYG HTML Editor by SoftQuad. Potentially very useful, but with somewhat of a learning curve. Definitely need to have the manual. Print out hotmetal.ps manual file.</p> <p>For SEI users: add the following to your .cshrc file # HotMetal Variables setenv SQDIR /u/src/a/SEI/Gnu/hotmetal set path = (/usr/src/SEI/Gnu/hotmetal/bin \$path)</p> <p>invocation of HotMetal is: sqhm (short for SoftQuad HotMetal)</p> <p><i>For complete HotMetal applications for X URL is: ftp://ftp.ncsa.uiuc.edu:/Mosaic/contrib/SoftQuad/hotmetal</i></p>
HTML Templates..		
HTML Slide Templates..	100K	<p>Set of 4 .html templates useful in generating slides for viewing by Mosaic.</p> <p><i>ftp://ftp.sei.cmu.edu/pub/cch/web/templates.sea.hqx</i></p>
HTML Wrappers	1K	<p>This is a text file with the SEI standard wrapper for HTML files.</p> <p><i>ftp://ftp.sei.cmu.edu/pub/cch/web/templates.sea.hqx</i></p>
ImageMap Util..	0.2M	
WebMap..	0.2M	<p>This utility aids the building of the map file to support hot button inside GIF graphics. Launch the application and paste in the graphic you want to map or open a pict version of the graphic. See Appendix D for more information about mapping.</p> <p><i>ftp.hawaii.edu:/mirrors/info-mac/TextProcessing/web-map-107d.hqx</i></p>

<i>Mosaic Quicktime..</i>		
MoviePlay 2.0	0.2M	This Quicktime tool permits ' <i>flattening</i> ' of a Quicktime movie and placing the data of the movie into a ' <i>single fork</i> ', necessary for creating Quicktime movies that can be used on the Web. <i>ftp://ftp.sei.cmu.edu/pub/cch/web/artmovieplay.sea.hqx</i>
<i>Multi-File Search Replace..</i>		
Torquemada the Inquisitor	0.3M	Torquemada can have up to 640 search and replace strings on up to 128 files in a drag and drop batch, and the searches can employ up to 29 wildcards of various types. <i>ftp://ftp.hawaii.edu:mirrors/info-mac/TextProcessing/torquemada-110.hqx</i>
BEdit		<i>See BEdit Manual for details on searching</i>
<i>Substitute Local Home Page..</i>		
LocalHome.html	23K	NCSA recommends that you create a local home HTML page to load when you use a WWW browser like Mosaic. This is starter home page that you can modify as you wish. <i>ftp://ftp.sei.cmu.edu/pub/cch/web/LocalHome.html.sea.hqx</i>

Mosaic Browsers..		
<i>Mosaic - Basic - NCSA 1.0.3</i>	0.8M	This is the original Mac Mosaic Browser. Its primary drawback is that it does not support forms . <i>ftp://ftp.hawaii.edu/mirrors/info-mac/Communication/MacTCP/ncsa-mosaic-103.hqx</i>
<i>Mosaic - Beta - NCSA 2.0 A6</i>	1.4M	The latest Beta version of NCSA Mac Mosaic that supports forms . Since, it is a beta-release be careful when using it with other applications. <i>http://www.ncsa.uiuc.edu/SDG/Software/MacMosaic/Alpha.html</i>
<i>Mosaic - Beta - MacWeb 1.0 A2</i>	0.4M	Latest Beta version of MacWeb (an alternative Web Browser to NCSA Mosaic) that supports forms . <i>http://galaxy.einet.net/EINet/MacWeb/MacWebHome.html</i>
<i>Mosaic - Beta - Netscape™ 0.9b</i>	1.2M	Frist version of Netscape (an alternative Web Browser to NCSA Mosaic) that supports forms . <i>ftp://ftp.mcom.com/netscape/</i>
<i>Helper Applications..</i>		The Web browser makes extensive use of helper applications to display pictures, animations, and sounds. These are the best and latest helper applications for the Macintosh.
<i>JPEG Viewer..</i>	0.5M	
JPEGview33.sit	568K	A general purpose GIF, TIFF, PICT, and JPG (a.k.a. JPEG) picture viewer that is stable and fast! <i>ftp://ftp.hawaii.edu/mirrors/info-mac/Graphic/util/jpeg-view-33.hqx</i>
<i>MPEG Viewer..</i>	0.2M	
Sparkle.sit	225K	MPEG (a.k.a. MPG) viewer and can convert MPEGs to Quicktime. <i>ftp://ftp.hawaii.edu/mirrors/info-mac/Graphic/util/sparkle-215.hqx</i>
Thread Manager	31K	Place on System Folder, because it helps Sparkle run more efficiently. <i>ftp://ftp.apple.com:dts/mac/sys.soft/extensions/thread-manager-2-0-1.hqx</i>

<i>Quicktime Viewer..</i>		
MoviePlay 2.0	176K	Quicktime Movie Player. <i>ftp://ftp.sei.cmu.edu/pub/cch/web/artmovieplay.sea.hqx</i>
<i>Sound Player..</i>		
SoundMachine21.cpt	54K	Plays most Mac/Sun/Unix-based sounds (e.g., -law, AIFF, ALAW). <i>ftp://ftp.hawaii.edu/mirrors/info-mac/Sound/util/sound-machine-21.hqx</i>
Mosaic Server..		
MacHTTP1.3.sit	684K	Permits you to use your Mac as HTTP server. Useful for testing your HTML files when you don't have access to the SEI HTTP server. <i>ftp://oac.hsc.uth.tmc.edu:public/mac/MacHTTP/machttp.sit.hqx</i>

