Getting Started with NCSA Mosaic

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1 Introduction

NCSA MOSAIC is a distributed hypermedia system designed for information discovery and retrieval over the global Internet. MOSAIC provides a unified interface to the various protocols, data formats, and information archives used on the Internet and enables powerful new methods for discovering, using, and sharing information.[1]

This document is a brief overview of the MOSAIC environment. For more information on any subject covered in this document, please feel free to send an electronic mail message to:

`mosaic@ncsa.uiuc.edu`

Alternately, feel free to contact the author directly.

2 The Pieces

NCSA MOSAIC uses a client/server model for information distribution – a *server* sits on a machine at an Internet site fulfilling queries sent by MOSAIC *clients*, which may be located anywhere on the Internet.

Units of information sent from servers to clients are simply termed *documents*. Documents may contain plain text, formatted text, inlined graphics, sound, and other multimedia data, and *hyperlinks* to other documents that may be in turn located anywhere on the Internet.

The NCSA MOSAIC for the X Window System client looks like Figure 1: each underlined word or phrase is a *hyperlink*; clicking on it with a mouse button causes the client to connect to the appropriate server anywhere on the Internet and to retrieve and display the referenced document.

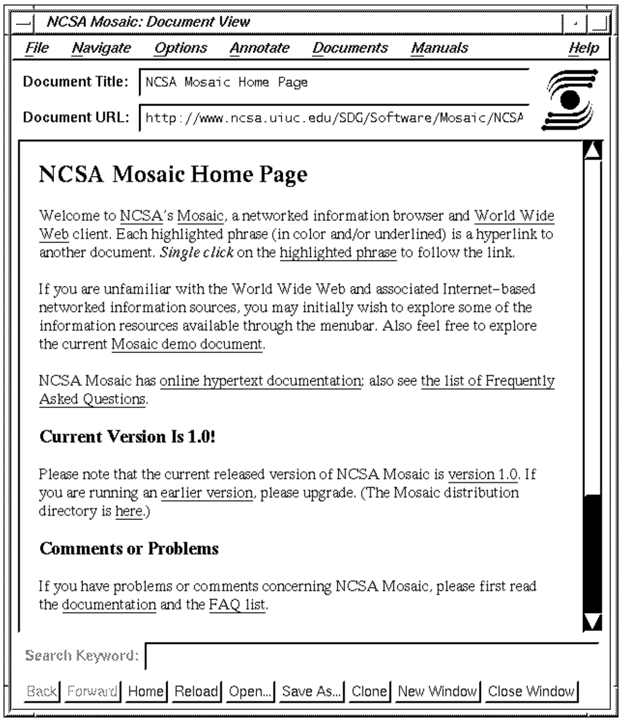

Figure 1: NCSA MOSAIC for X — Home Page

When the MOSAIC environment is used to serve and access a document containing formatted text and inlined graphics on the Internet, the result may look something like Figure 2.

[1] MOSAIC is based on the World Wide Web technology from CERN in Switzerland and uses the World Wide Web common client library for much of its low-level communications layer.

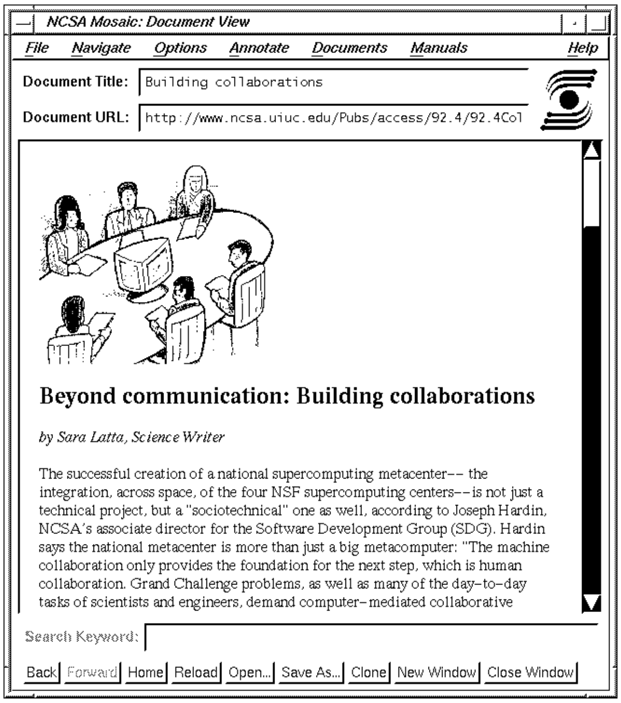

Figure 2: NCSA Mosaic for X — Inlined Image

3 Setting Up The Client

Currently, NCSA has developed and released version 1.0 of the X Window System Mosaic client, which can be used on almost any modern Unix-based graphics workstation (e.g., Sun Sparc, IBM RS/6000, DEC 5000 or Alpha, Silicon Graphics IRIS). The Macintosh client is under development and slated for 1.0 release in summer '93, and work on the Microsoft Windows client will begin in early summer '93. *The remainder of this document currently assumes use of the X client.*

The NCSA Mosaic anonymous FTP site is:

`ftp.ncsa.uiuc.edu`

Binary executables of the X Window System client for several common Unix platforms are in this directory:

`/Mosaic/xmosaic-binaries`

Source code for the X Window System client is in this directory:

`/Mosaic/xmosaic-source`

The NCSA Mosaic Technical Summary, which details Mosaic's current capabilities and our plans for further development in 1993, is in this directory:

`/Mosaic/mosaic-papers`

3.1 Basic Client Setup

Pulling down, installing, and running a Mosaic binary is straightforward: there are no configuration files or environment variables that need to be set for the program to work.

Note: If you are running on a Sun workstation under OpenWindows, you may experience a large number of spurious warnings when you first execute the program; these are not serious and will not impair the proper functioning of the program, and the online Frequently Asked Questions list explains how to make them go away.

Note: When Mosaic is executed, the first thing it does is pull the Mosaic "home page" (startup document) over the Internet from an NCSA server. If you get an error message instead of this home page, your connection to the Internet is less than complete. Please either run Mosaic on a system fully connected to the Internet or contact the author for more information.

3.2 Complete Client Setup

To allow interaction with a wide variety of data formats for images, audio, video, and typeset documents currently popular on the Internet, Mosaic relies on a number of *external viewers*: programs separate from Mosaic that are invoked when necessary to display certain types of data.

Here is a list of recommended external viewers for use with Mosaic:

- *xv*: A popular image display utility for X Window System platforms, *xv* can display images encoded in GIF, JPEG, TIFF, and several other formats. *xv* can be obtained via anonymous FTP to:

  `export.lcs.mit.edu`

  The filename of *xv* on that server is currently:

  `/contrib/xv-3.00.tar.Z`

- *showaudio*: A shell script capable of transparently playing several formats of audio on several platforms, *showaudio* is available as part of the *metamail* multimedia mail toolkit available at the following FTP cite:

  `thumper.bellcore.com`

  The current filename for the *metamail* distribution is:

  `/pub/nsb/mm2.4.tar.Z`

The *metamail* program itself is used by MOSAIC to process multimedia documents that use the MIME format. MIME is not yet widely used as a document format, but it is becoming increasingly popular and is likely to become a *de facto* Internet multimedia document standard in the near future.

- *mpeg_play*: A display utility for MPEG-format animation sequences and video clips, *mpeg_play* is available from the following FTP site:

  `postgres.berkeley.edu`

  The current filename is:

  `/pub/multimedia/mpeg/mpeg_play-2.0.tar.Z`

External viewers useful for viewing typeset documents in TeX's DVI format and in PostScript are harder to compile and install, but here's what we recommend:

- *ghostview*: A user interface to a PostScript viewer called *ghostscript*, *ghostview* offers the best freely available online PostScript viewing technology currently available. The FTP server is:

  `uxc.cso.uiuc.edu`

  You will need the following files:

  ```
  /gnu/ghostscript-2.5.2.tar.Z
  /gnu/ghostscript-fonts-2.5.2.tar.Z
  /gnu/ghostview-1.4.1.tar.Z
  ```

- *xdvi*: An online viewer for documents in TeX's DVI format, *xdvi* can be found at:

  `export.lcs.mit.edu`

  The filename is:

  `/contrib/xdvi.tar.Z`

These are the basic external viewers that MOSAIC will assume are present when it encounters multimedia data of the appropriate types. There are other such viewers; more information is available in the online documentation.

4 Setting Up The Server

You can serve documents to NCSA MOSAIC sessions running anywhere on the Internet from an ordinary anonymous FTP server. However, for performance reasons, we recommend setting up a *HyperText Transfer Protocol* (HTTP) server[2].

[2]HTTP is a stateless, lightweight, and extremely fast alternative to FTP for network file transfers in the World Wide Web environment.

NCSA has developed a freely available HTTP server. It is currently in late beta and is available at:

`ftp.ncsa.uiuc.edu`

The directory is:

`/Mosaic/ncsa_httpd`

Full configuration instructions are provided with each of the binary and source distributions available there. Feel free to contact the author if you have any questions or problems.

5 Where To Go From Here

Assuming you have successfully installed the MOSAIC client on your system, you should spend some time to become familiar with the interface it presents to the universe of information already available on the Internet. The MOSAIC "demo document", available via a hyperlink in the MOSAIC home page, is a self-contained overview of MOSAIC's capabilities with hyperlinks to a wide variety of interesting information sources.

5.1 Serving Information

If you wish to serve information to the Internet, you should first learn about *HyperText Markup Language* (HTML), the SGML-based markup language used for formatted hypermedia documents in MOSAIC.

You should also learn about the *Uniform Resource Locator* (URL[3]) scheme for consistently naming documents accessible on the Internet.

At the very end of the MOSAIC demo document (mentioned above), there are hyperlinks to primers on HTML and URL's. Those primers in turn point to more advanced information sources.

6 Acknowledgements

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[3]The "U" in URL previously stood for Universal.