

LIVE for Windows, they find that they can produce even more sophisticated productions with less scripting knowledge.

LINKWAY LIVE has been used to develop a number of cartographic programs including *The NGS Picture Atlas of the World*, *The Seven Man-Made Wonders of the World*, *The Small Blue Planet*, and Florida State University's CD-ROM DOS version of the *Atlas of Florida*. At the start of the *Atlas of Florida* project only one member of the development team had experience with LINKWAY but with excellent technical support and some practice, the staff quickly learned the basic structure and short cuts that make the program a useful authoring tool.

There are a number of multimedia authoring software packages to choose from on both DOS and Mac formats. Authoring programs range in price from a couple hundred dollars to thousands of dollars. The cost of the program is not necessarily indicative of its sophistication or quality.

Before selecting a program it should be decided as to which effects are most needed. Knowing what the potential audience will have access to is also a consideration. For example, LINKWAY LIVE can produce the highest quality and largest window of video available, unfortunately unless equipped with a specific video (DVI) card, the product cannot be viewed. Other capturing cards can be used at a lower price but the resolution and size of the video window decreases dramatically. Based on cost and user compatibility LINKWAY LIVE video does not hold any special advantage over other authoring tools. It does, however, have a special feature called M-Motion that permits video to be played in a window on the computer screen from a videodisc, VCR, or live broadcast while your computer program is on. This is

especially helpful in order to combine sources of information and maintain television resolution on the computer screen.

LINKWAY LIVE can produce quality audio but at the expense of memory space. Audio files are extremely large and should only be used sparingly in a LINKWAY program. Although the technology continues to improve and some programs have cut audio file sizes considerably, if audio is a major part of a project, consideration should be given to other programs capable of handling large files. LINKWAY does handle data very well and has pre-programmed tools for entering data for multimedia projects. Scrolling and custom size WINDOWS and files of many kinds are easily accommodated in LINKWAY LIVE. There is a limited font selection and the first version of LINKWAY LIVE had no special characters (italics or bold). However, the new LINKWAY LIVE for Windows does allow you to use all of the fonts, special characters, and tools available in Windows.

Any authoring system should be tested for color and LINKWAY is no exception. Most standard file formats work just fine, thus saving tedious conversion time. LINKWAY LIVE allows you to put hidden objects, very small or large objects, and as many objects as you want on each page of your folder, making the possibilities seem endless. You can script a basic DOS "print" command and have your text files printed from a button on the screen. Transitions, navigation buttons, and special effect buttons are consistent and easy to use in LINKWAY LIVE. Although they are always the same they can also be easily altered with a code found in the reference manual. The use of auto execution buttons can make a change that will last over the entire project and provide consistency.

Animation can be done in LINKWAY LIVE but like the cartoonist, it is done cell by cell and is quite cumbersome. If multiple animations are what you need, finding another program is advisable.

Although LINKWAY's scripting is very simple to use, it is not easy to find the documentation for it the first time through the manual. In general, the manuals for authoring tools are problematic but LINKWAY LIVE does have an outstanding technical support group who will answer your questions or call you back in a reasonable amount of time.

LINKWAY is a useful program for developing simple projects with some sophisticated features. With time, exploration, and practice a very complex project can be developed with excellent support and at a low cost. LINKWAY LIVE is definitely worth exploring for many DOS or Windows format projects. □

### technical notes

#### MOSAIC AND THE WORLD WIDE WEB

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NCSA's Mosaic is a global hypermedia browser that allows you to discover, retrieve and display information from all over the Internet. Mosaic is a part of the World Wide Web project (AKA the Web or WWW). The Web was created in 1989 by Tim Berners-Lee at the European Laboratory for Particle Physics, CERN, in Geneva, Switzerland as a distributed hypermedia environment for sharing information among



scientists. A global hypermedia environment lets you "travel" down the information superhighway by means of hyperlinks (terms, icons, or images) in documents that point to other related documents on remote servers. The Web's unique ability to handle multimedia documents has grown to be an important means of distributing text, video, and audio information across the Internet. Only Web servers display multimedia documents, but others, like Gopher, can provide images and transfer software and data to your computer.

Mosaic is one of several software interfaces that can tap the multitude of resources of the Web as well as other aspects of the Internet. Mosaic can browse the Internet for text-based material but it also has built-in multimedia "capabilities." Once located, Mosaic can launch viewers for displaying images, movies, or sound files. Mosaic also has the capability to connect to Gopher, WAIS, and FTP servers and launch Telnet sessions. Mosaic is an extremely versatile and user-friendly interface.

**Installing and Getting Started With Mosaic.** Mosaic is capable of running on a Windows PC, Macintosh, or under X-Windows on most UNIX-based workstations (e.g., IBM RS/6000, Sun Sparc, DEC, SGI). The functionality of the software is similar across the three platforms with obvious differences in application configuration and basic layout of the document view window. Installing Mosaic is a fairly easy and straight forward process.

**Installing on a Windows PC.** Mosaic requires a minimum 386SX-based machine with 4MB of RAM running Windows 3.1 in enhanced mode. The recommended configuration is a 33-MHz or faster 80486-based machine with

at least 8MB of RAM. Windows Mosaic requires a WinSock 1.1 - compliant Windows sockets library (WinSock DLL or winsock.dll) installed on your machine to provide TCP/IP networking under Windows. Check with your local network administrator on the availability of a sockets library for your workstation. Shareware versions of this software can be found at FTP servers on the net. You must also have the 32 bit extensions to Windows installed on your machine. Windows 32 bit extension software and the compressed version of Windows Mosaic can be retrieved from NCSA's FTP site (ftp.ncsa.uiuc.edu). Once retrieved and decompressed, the program is basically ready to run except for a few minor changes to the default settings in the mosaic.ini file.

Mosaic will come configured with default settings for menu choices, fonts, homepage pointer, displaying in-line images, etc. These can all be edited by loading the Mosaic initialization file (mosaic.ini) into any text editor and changing the desired settings.

You will need to provide Mosaic with the location of audio players and graphics and video viewer. NCSA has suggested shareware versions of viewers that you can download from their FTP site if you need them. Lview, Winjpeg, and Wingif all work well with Mosaic. Mpeg movies can be viewed with Mpeg32e.

From your Windows File Manager drag and drop the Mosaic executable file onto a program group in Program Manager to create a Mosaic Icon. Double click on the icon and the application and the document view window should appear on your desktop (Figure 1). Once you have finished installing Mosaic you can test your connection by linking to NCSA's "Starting Points" document under the menu of the same name. Refer to the various "readme" files available for Mosaic if you encounter installation problems. In most cases installation problems arise from socket problems or the TCP/IP connection. Your local Internet network administrator can usually solve these problems.

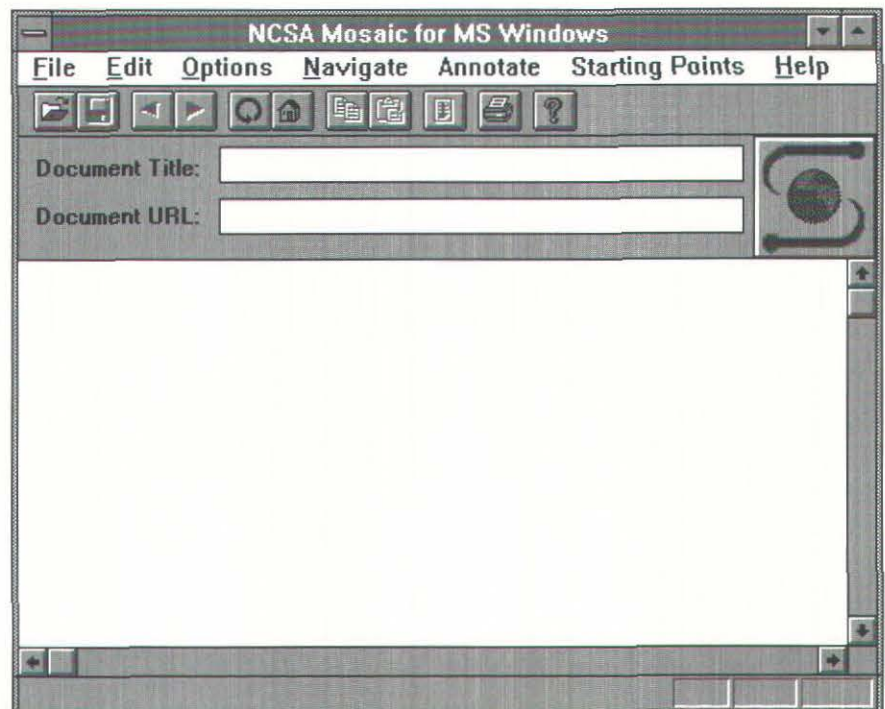


Figure 1. Mosaic for Windows document view window



### Installation on Macintosh.

Mosaic for the Macintosh requires System 7 or later, MacTCP 2.0.2 or later (MacTCP 2.0.4 or later is recommended), 4 MB or more of memory (NCSA Mosaic requires a memory partition of at least 2 MB) and a hard disk. Valuable installation information is found in the various readme and QuickStart files that accompany Mosaic for the Mac and a user would be wise to look at them before attempting installation. It will be necessary to unStuff and unBinHex the Mosaic file with STUFFIT EXPANDER or another data compression program before starting the installation.

Drag the NCSA MOSAIC icon onto the hard disk and double click on the Mosaic icon to launch the application. A window should appear on the screen indicating that you are connected to the Mosaic Home Page (Figure 2). Mosaic for the Mac will display a majority of the files it encounters. However, additional software will be required to view some images, movies, and sounds.

Mosaic comes configured to use JPEGView for GIF and JPEG files, and GIFConverter for TIFF

images. SIMPLEPLAYER and SPARKLE are used to view QUICKTIME movies and MPEG movies respectfully. AU sounds can be decoded and listened to through SOUNDMACHINE. Mosaic is configured to handle BinHexed files with STUFFIT EXPANDER.

**How Mosaic works.** World Wide Web documents are written in Hypertext Markup Language (HTML) that is a simple language that encodes text and incorporates the ability to include a graphics file as a part of the document (Berners-Lee and Connolly 1993). Clients and servers use a standard transfer protocol known as HyperText Transfer Protocol (HTTP) to send and retrieve information across the Internet (Berners-Lee 1993a).

The Web utilizes a Universal Resource Locator (URL) to identify individual pieces of information residing on computers anywhere across the network (Berners-Lee 1993b). A URL specifies the type of server application you are linking to and the physical location of the information. A URL can be attached to a word, line of text, or

a graphic in a hypertext document. In MOSAIC these text hyperlinks are highlighted in blue and underlined. A typical URL is composed of three parts: the code for the type of file being accessed (HHTTP protocol code), the server's address, and the pathname of the file containing the document to be retrieved. The format used is:

```
resource://host.domain[:port]/
path/filename
```

where the resource is either an:

- http - a file on a World Wide Web server
- file - a file on your local system or a file on an anonymous FTP server
- gopher - a file on a Gopher server
- WAIS - a file on a WAIS server

The resource can also be Telnet or news. The following URL links to NCSA's Web server to display the PC Windows Mosaic Home Page:

```
http://www.ncsa.uiuc.edu/
SDG/Software/WinMosaic/
WinMosaicHome.html
```

The first portion of the URL tells Mosaic what kind of protocol to use, in this case it is a HyperText Transfer Protocol because it is linking to a Web server. The address of the server follows (www.ncsa.uiuc.edu). The path, /SDG/Software/WinMosaic/, points to where the home page document (WinMosaicHome.html) is located. Mosaic and HTML shield users from URLs most of the time because the URL is embedded in the HTML document source code that generates the hyperlink between documents across the Web.

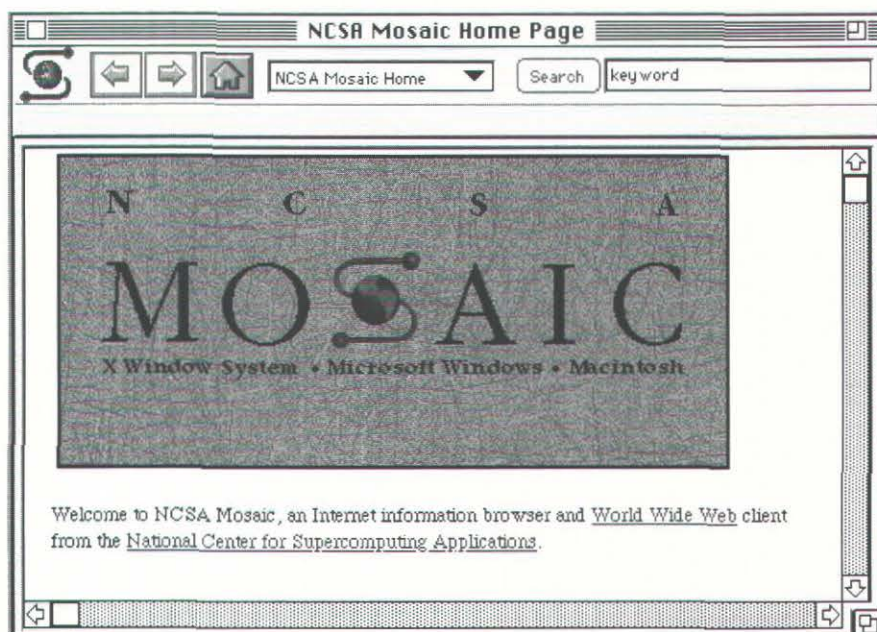


Figure 2. Mosaic for Macintosh document view window



Hyperlinks are highlighted with color or underlined in Mosaic. Hyperlinks may lead the reader forward or backward in the HTML document, to a particular portion of a document, or to any other document on the Web. To connect directly to a document, use the drop down File menu and choose "Open URL," fill in the text box, and click "OK." Mosaic also allows you to tag documents and place them in a hot list, similar to a bookmark list for those familiar with gopher software. This is an efficient way of collecting your favorite URLs.

Among Mosaic's many features is its ease of downloading files from remote servers. This is done by choosing the "Load To Disk" pick from the "Options" menu and then clicking on the item you wish to transfer to your workstation. After clicking on the item to be downloaded you will be prompted for a path and file name. Any type of file can be transferred in this way.

Serving as an interface to the multimedia world of the Web is Mosaic's real strength. Text or icon hyperlinks can quickly transfer sound images, animation, or movies to your workstation where they are viewed by an external player or viewer. Web documents often contain embedded images or graphics that also serve as hyperlinks to other images or documents on the Web. Transfer of documents with inline images on less powerful machines can be very slow, especially when network traffic is heavy. You can improve your performance by setting the "Display Inline Graphics" in the "Options" menu to off.

Mosaic is fast becoming a popular browser of the World Wide Web and Internet. A new electronic mail discussion group has been started devoted to users of Mosaic. To subscribe to the list send e-mail to:

MOSAIC-L on  
LISTSERV@UICVM.BITNET  
(Bitnet)  
or  
LISTSERV@UICVM.UIC.EDU  
(Internet)

In the first line of the message (not in the subject) enter the following:

SUBSCRIBE MOSAIC-L Your  
Name

Mosaic possesses a number of other features that make navigating the World Wide Web and the rest of the Internet easy. These features are best investigated by personally obtaining the software and trying it out. Once Mosaic is up and running on your workstation you can point it to NCSA's home page to access their on-line guides to Mosaic. NCSA's "What's New Page" keeps you abreast of new servers and services. Numerous Web servers are coming on-line each month with enormous amounts of information being uploaded daily for viewing and retrieving.

#### References

- Berners-Lee, Tim. 1993a. Hypertext transfer protocol. <ftp://info.cern.ch/pub/www/doc/http-spec.ps>.
- Berners-Lee, Tim. 1993b. Uniform resource locators <ftp://info.cern.ch/pub/www/doc/ur16.ps>.
- Berners-Lee, Tim and Connolly, Daniel. 1993. Hypertext markup language. <ftp://info.cern.ch/pub/www/doc/html-spec.ps>.

*Note.* The Mosaic software and NCSA's home pages offer information about the world of hypermedia and more detailed instructions on the use and customization of Mosaic for your workstation. You should also refer to the "readme" files that accompany Mosaic for detailed installation information. □

### cartographic events

1995

February 12 - 15: *International Symposium in Epidemiology and Environmental Health*. Tampa, Florida. Symposium coordination: World Computer Graphics Foundation, University of South Florida - SOC 107, Tampa, FL 33620-8100, (813) 974-2386, fax (813) 974-4808.

September 3 - 9. *International Cartographic Association Conference* - Barcelona, Spain. Organizing Committee: Jaume Miranda i Canals, Chairman, Institut Cartografic de Catalunya, Balmes, 209-211 - E-08006 Barcelona, Catalunya, Spain, (343) 218 87 58, fax (343) 218 89 59.



**NACIS XV**

**October 25 - 29  
1995**

**Wilmington,  
North Carolina**

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