
Stanton, Deidre E., and Todd Hooper. "The LIBS Internet Access Software: An Overview and Evaluation." The Public-Access Computer Systems Review 3, no. 4 (1992): 4-14. To retrieve this article, send the following e-mail message to LISTSERV@UHUPVM1 or LISTSERV@UHUPVM1.UH.EDU: GET STANTON PRV3N4 F=MAIL.

1.0 Introduction

Navigating the Internet to locate and utilize OPACs and other information systems is a considerable challenge for network users. Users need to: (1) identify what telnet-accessible systems are available on the network, (2) determine the telnet addresses for these systems, (3) find out what information resources are available on each system, (4) use the telnet command to access desired systems, (5) login to these systems, (6) search them, and (7) exit and return home to their local systems.

Just over fourteen months ago, the only tools available to network users to help them connect to telnet-accessible OPACs and other library-oriented systems were two large directory files, which were often referred to as the Art St. George directory and the Billy Barron directory. Both directories provided telnet site addresses and access instructions. These documents could be obtained via anonymous FTP and stored on a local system.

Several telnet-based network access tools have evolved from these two directories. These tools help users identify appropriate information resources on remote systems, and they automatically initiate telnet connections to systems that the user selects. However, the user is still required to login to remote systems, and the user must cope with searching a variety of systems that may differ markedly from his or her local library system.

The best known of these telnet-based network access tools are LIBS from Sonoma State University, California; HYTELNET from the University of Saskatchewan, Canada; LIBTEL from the University of North Carolina; and CATALIST from the University of Delaware. It is the first of these network access tools, the LIBS Internet Access Software, that is the subject of this paper.

2.0 Brief History

The LIBS Internet Access Software, or the Sonoma software as it is often called, is the work of Mark Resmer, Director, Computing, Media, and Telecommunications at Sonoma State University in California. The LIBS software first became available as the program LIBS.COM in June 1991. On June 17, 1991, Art St. George posted a message to the PACS-L list to thank Mark Resmer for converting the document Internet-Accessible Library Catalogs and Databases into a searchable database with the facility for automatic telnet connection. Mark Resmer announced the first "production quality" version (1.0) on July 30, 1991 along with a message about a related list (inet-opacs@sonoma.edu) that he set up to allow sites to receive announcements about the availability of new versions of the software. On February 17, 1992, Mark

Resmer announced to the inet-opacs list that a version for BSD 4.3 UNIX (Berkeley UNIX) systems, LIBS.SH, had been "derived by running it (the VMS version) through a series of mechanical translation processes."

Since then the LIBS software has been further developed to include not only telnet connections to the over 300 OPACs available on the Internet, but also to numerous miscellaneous databases, information services, and campus-wide information systems. LIBS also provides for telnet connections to the other currently available wide-area information access tools: Archie, Gopher, Netfind, WAIS (Wide Area Information Servers), and World-Wide Web (W3).

3.0 Current Version

The LIBS software is, like other access tools for networked information resources, an ever-changing phenomenon. Currently available are the VMS version, LIBS.COM 1.5A, and the UNIX version, LIBS.SH 1.3U.

It is unfortunate for UNIX sites that the VMS and UNIX versions are now out of synchronization, and we all await the promised revision that will bring the two versions into line.

As with other software developments for access tools to networked information resources, feedback on bugs and suggested improvements is welcomed by the developer. These can be e-mailed to Mark Resmer (resmer@sonoma.edu).

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4.0 Obtaining LIBS

The LIBS software is available for anonymous FTP. The VMS file is 345,267 bytes, and the UNIX file is 189,158 bytes. The latest updates are May 15, 1992 for the VMS file and February 17, 1992 for the UNIX file.

Follow these directions to FTP the software from the Sonoma archive:

- (1) At your system prompt, type: ftp sonoma.edu.
- (2) At the user prompt, type: anonymous.
- (3) At the password prompt, type: your e-mail address in the form user@host.domain (e.g., stanton@portia.csu.murdoch.edu.au.).
- (4) At the command prompt, type: cd pub.
- (5) At the next command prompt, type: get libs.com (or get libs.sh).
- (6) At the next command prompt, type: quit.

You do not need to use binary mode to transfer these files.

5.0 System Requirements

LIBS runs under VMS 5.0 (or later) or BSD 4.3 UNIX. The standard terminal for both LIBS versions is a VT100 (or VT100 emulation).

Apart from a connection to the Internet, or regional TCP/IP network, VMS systems must also have appropriate TCP/IP software.

For example, a product such as TGV Multinet or Wollongong is ideal. Users of Digital's UCX or the public domain CMU-TEK software will find that the implementation of telnet in these packages is not sufficient for all purposes required by the LIBS software (i.e., sites that require TN3270 cannot be accessed).

UNIX users do not need any additional TCP/IP software, since TCP/IP functionality is standard on nearly all UNIX systems. However, TN3270 software is required and can be found at many FTP sites.

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6.0 Installation

For most sites, it is probably ideal if the software is installed centrally and updated regularly by a system administrator. This is preferable to users having their own copies of the script in their own account.

The LIBS software is easy to install, and updates, although irregular, have been frequent.

VMS administrators can simply copy the DCL command file into a common area, grant world read access, and install an appropriate abbreviation in the system login.com to ensure that users can easily run the software.

UNIX administrators can take a similar approach, copying the shell script into a common area such as usr/local/bin and setting the correct access permissions.

7.0 Maintenance

The only maintenance requirement is to obtain a replacement for the software when a new version is announced on the mailing list, remove the older version, and install the replacement version.

8.0 Local Customization

Some sites may choose to edit the software to reduce the number of telnet sites that their campus network users can access via the LIBS software. Other sites may choose to emphasize access to local resources and, rather than run the LIBS software as is, append it to local software. This can easily be done. At Murdoch University, the LIBS software is appended to a local software application (NetLib). In this way, campus network users have an initial menu with options for access to local OPACs in their state, to OPACs in other states and territories of Australia, and to international OPACs. Like the LIBS software, the NetLib software is made available for both VMS and UNIX systems.

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9.0 Evaluation of LIBS

The features of the LIBS software can be examined in four areas: (1) software, (2) the user interface, (3) coverage of network resources, and (4) connections to other wide-area information access tools.

9.1 Software

Overall, the LIBS software works very well. The only observation

that most sites would make, and that Mark Resmer mentions in his announcements, is the time it can take to load the large script file.

9.2 User Interface

The initial screen offers a menu item for first-time users of LIBS (see Figure 1, item 6). [1] By choosing this menu item, users can view basic information about utilizing remote systems with LIBS, which includes an explanation of how to exit from these systems.

Figure 1. LIBS Initial Screen

LIBS - Internet Access Software v1.5a
Mark Resmer, Sonoma State University, May 1992

Based on data collected by
Art St. George - University of New Mexico
and other sources

On-line services available through the Internet

1. United States Library Catalogs
2. Library Catalogs in other countries
3. Campus-wide Information Systems
4. Databases and Information Services
5. Wide-area Information Access Tools
6. Information for first-time users of this program

Enter the appropriate number followed by RETURN

Press <return> to exit

Enter the number of your choice:

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When a user selects a particular information resource, the following screen will display a description of that resource (see Figure 2 for an example). Most importantly, the description is provided prior to the telnet connection and ensures that the user is informed of login instructions and terminal type information. The user is always given the options to connect (or not connect) to the resource and to exit from the LIBS program.

Figure 2. EDIN Screen

EDIN

The Pennsylvania State Data Center maintains this database of population and economic statistical data which includes, among other things, the Commerce Business Daily. EDIN is accessible through the EBB service of Penn State.

Note the following instructions carefully

Once you are connected:

Type: info <return> at the first prompt

Type: EDIN <return> at the next prompt

Press Control-C Q <return> to exit at any time

Do you want to connect now? (Y or N):

There is a consistent user interface; however, the numbered menu options are not always in alphabetical order. This is particularly true of the screen for "Scientific Databases/Information Systems."

The screen messages at all times assist the user to navigate the system.

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9.3 Coverage of Network Resources

LIBS provides access to OPACs, CWIS systems, and other resources.

9.3.1 OPACs

The LIBS software provides users with access to over 300 OPACs. The initial screen allows the user to select between United States OPACs and OPACs in other countries. The United States menu presents a numbered display of states in alphabetical order. The other menu presents a numbered display in alphabetical order by country. Fourteen countries are included: Australia, Canada, Finland, Germany, Hong Kong, Ireland, Israel, Mexico, Netherlands, New Zealand, Spain, Sweden, Switzerland, and the United Kingdom.

Once selected, some of these options include OPAC coverage and collection strength information. This information is provided for sites that have given these details to Art St. George. This type of information is not comprehensive throughout LIBS (and also potentially not up-to-date) since it depends on the contributions made by individual sites to the compiler of the directory.

9.3.2 Campus-Wide Information Systems

The initial screen also provides access to campus-wide information systems that are currently available via telnet. These systems are available in Canada, Germany, Switzerland, the United Kingdom, and the United States. Again, this is a numbered alphabetical listing; however, the states of the United States are interspersed with entries for other countries.

9.3.3 Other Databases and Information Services

Numerous databases and information services that cover a wide range of topics are included. In earlier versions of the LIBS software, these resources were presented as a straight alphabetical listing. The current version provides for subject-based access in five broad areas (see Figure 3).

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Figure 3. Information Service/Database Screen

Information service/databases in the following areas are accessible

1. Agricultural
2. Arts/Humanities
3. Business
4. Education
5. Science
6. Weather/Time/Earthquake Information
7. Other

Press RETURN alone to see previous menu

Press Control-C Q <return> to exit at any time

Enter the number of your choice:

Here is an explanation of these choices:

- o Agricultural: Two options are available in the current version of LIBS. These options are CSU Fresno Agricultural Information and PENpages.
- o Arts/Humanities: The three options are the American Philosophical Association, the Catalogue of Projects in Electronic Text, and the Dartmouth Dante Databases.
- o Business: The option here is for EDIN, a database accessible through Pennsylvania State University.
- o Education: Included here are two options. The first is for the International Centre for Distance Learning (Open University) and the second is for the National Education BBS.

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- o Science: This subject area is well served with a total of sixteen options that include databases and bulletin board services. They are:

- American Mathematical Society BBS (e-MATH)
- Brookhaven National Laboratory
- Environmental Protection Agency
- Online Library System
- GenBank--Gene Sequence Information
- Lunar and Planetary Institute (LPI)
- MEDINFO (University of Pennsylvania Medical School)
- NASA Extragalactic Database
- NASA News
- NASA Spacelink
- National Nuclear Data Center
- National Science Foundation Information Service

National Space Science Data Center
Southwest Research Institute Data
Analysis/Display System
Supernet International
U.S. Naval Observatory Automated Data Service
World Ocean Circulation Experiment

- o Weather/Time/Earthquake Information: The three options here are for Earthquake Information from the USGS and the University of Washington, the National Bureau of Standards Time Service, and Weather Information from the University of Michigan.
- o Other: This option is a miscellany of 10 types of services, including the Chess Server, DRA Library of Congress catalog, FEDIX/MOLIS, and the Geographic Name Server.

9.4 Connections to Other Wide-Area Information Access Tools

This front-menu option is a welcome revision to the earlier versions of LIBS. The user can now carry out telnet sessions with five network access tools. Each of these options includes a description and, as elsewhere in LIBS, the option to connect.

The tools listed are Archie, Gopher, Netfind, WAIS, and World-Wide Web. The Gopher Server available here is the University of Minnesota's Gopher. The WAIS option is for a connection to the Thinking Machines Server site. The World-Wide Web option connects the user to the site in Cern, Switzerland.

Helpful descriptions of these wide-area information access tools are provided in LIBS.

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10.0 Comparison With HYTELNET

The LIBS software may be compared with another network access tool that provides automatic telnet connections: HYTELNET, the work of Peter Scott (University of Saskatchewan). HYTELNET uses a hypertext interface for accessing networked information resources. Like the LIBS software, in addition to automatic telnet connections to information resources, it provides the user with telnet connections to other access tools such as Archie, Gopher, WAIS, and World-Wide Web.

HYTELNET evolved from a memory-resident, DOS-based online directory to telnet-accessible sites to an access tool for both VMS and UNIX systems. Initially based on Billy Barron's directory (UNT's Accessing On-Line Bibliographic Databases), it now has a much wider scope. Its coverage is very similar to the LIBS software, but it is currently much more extensive. What it does not have is the subject-based approach to accessing information resources.

While the current version of LIBS.COM gives users access to one site with a Gopher Server, one site with a WAIS Server, and one site with a World-Wide Web, this is not the case with HYTELNET. The latest version of HYTELNET (version 6.2) offers more than one site for users to explore these additional access tools.

The disparity in coverage now apparent between the LIBS software and HYTELNET may have implications for the longevity of the LIBS software. It also raises the question of how sites

choose which type of software to implement for their local setting. Another question that is now becoming an issue on some campuses is the best way to accommodate access to telnet resources while implementing a Gopher Server. There are varying solutions in place around the networks.

11.0 Conclusion

The LIBS Internet Access Software provides a simple and easy-to-use menu system that assists both new and experienced network users in accessing the wealth of information resources on the Internet. The software is available free of charge and its installation is simple. The developer announces new versions and welcomes information about new sites and software bugs. The LIBS software is highly recommended for any and all Internet sites with a need to provide users with easy access to networked information resources.

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Notes

1. The screen displays used as illustrations in this paper have been modified slightly to accommodate the ASCII distribution format of the journal.

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The Public-Access Computer Systems Review is an electronic journal that is distributed on BITNET, Internet, and other computer networks. There is no subscription fee.

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