Information Technology

N e w s l e t t e r

Principal Investigators Ask and Technology Delivers

Better Data and New Reports
Business Services, Finance and Operations
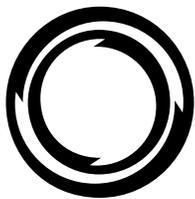
Last year the National Institutes of Health (NIH) notified the University of Minnesota that it needed to improve management of NIH Grants. A top priority for doing so was to provide the principal investigators on grants with meaningful financial information. Two components were needed to deliver results for Grants Management: better data and new reports.

Better Data

Enhancements to the CUFS Financial Reporting Database (CUFSRDB) increase the amount and timeliness of available data. These enhance-ments provide financial data for the University going back to the implementation of CUFS. The data warehouse is updated more often than in the past, sometimes daily. This data can be used for custom-ized reporting and analysis.

New Reports

A Grants Management Project Team designed financial reports with assistance from a principal investigator panel.

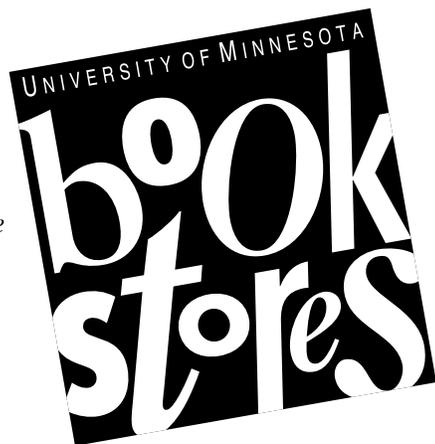These new reports have been available since July 1 through the World Wide Web at <`http://financial.reports.umn.edu`>. Examples of these reports are:

- Grant Period Journal: lists all financial transactions for a grant, similar to a personal checkbook (updated nightly)

- Principal Investigator Active Projects: summarizes all active projects for a primary principal investigator

- Flexible Period Expense Summary: displays sponsored project expenditures for the period specified by the requester (for example, two months or fourteen months)

These reports can be printed, e-mailed, faxed or downloaded using a Web browser such as Netscape or Mosaic.

http://financial.reports.umn.edu

July 1996 ▼ Contents

UNIVERSITY OF MINNESOTA

book stores

Some funds are provided by the Minnesota Bookstores.

▼ Help   Monday–Friday

BASIS (AIS), 7am–4:30pm 624-0555
Central Systems, EPX, NVE, UZ, VX, VZ 6-8366
   9am–4pm, requires username and password
   Web page: `http://www.umn.edu/ccs`
E-mail & Internet, 9am–4pm, UM accounts......... 6-7676
      by e-mail for U of M: `help.tc.umn.edu`
Microcomputers, Distributed Systems
   9am–4pm, 152 Shepherd Labs 6-4276
   1-4pm, 93 Blegen and 58 BioSci Center
   Web page: `http://www.micro.umn.edu`
NTS, Telecom. 24-hour Repair Desk 5-0006
   Web pages: `http://www.unet.umn.edu/`
   `www.umn.edu/telecomm/telcom.html`
Training Library, ADCS Short Courses 5-1300
Password: Forgot it? Call the Micro helpline........ 6-4276
   Or go, in person, to any Microcomputer helpline.

▼ General   Phone

Academic & Distributed Computing Serv. 5-1300
Computer Store, Williamson Hall......................... 5-3854
CUFS 4-1617
Digital Media Center 5-5055
Disability & Computing Services voice/tty 6-0365
Engineering Services 5-1595
Data Custodians, Data Warehouse Databases
   Facilities Mgmt, Kris Boike • SPAM 6-7896
   Financial Sys Support, Lisa Carlson • CUFSRDB 4-1506
   Grad School, Genny Rosing • GSRDB 5-9839
   Human Res Info Ser, Gary Ogren • APSO 7-4341
   Ofc of the Bursar, Sandy Pearson • STARS 6-8698
   Ofc of Human Res, Nancy Highsmith • SDRDB 4-8374
   Ofc of Planning & Analysis, John Kellogg 5-3387
   • AARDB/MARDB • CLRDB • FARDB • RETDB • RRDB
   Ofc Scholarships&FinAid, Phil Morgan • SCHOL 4-6586
   Payroll, Ann Beattie • HERDB............................ 4-3869
Interactive Voice Response Grade Inquiries 4-5200
NTS, Telecommunications Helpline 6-7800
NTS, University Networking Services.................. 5-8888
Statistical Support, SAS 4-3330
      SPSS, BMDP, Minitab (VX/EPX)...................... 6-8366
Workstation Support Group 4-7486

▼ Dial-in Computer Access

SLIP: 2,400–14,400 (V.32) 626-1920
SLIP: 14,400–28,800 (V.34) 627-4250
SLIP: ADI and ITE (with MKO)............................ 3-0291
BASIS SecurID Access
   2400-N81 (no parity/8 data bits/1 stop bit) ... 6-7770
   High Speed (V.32) 19200-N81 6-1061

▼ Internet Addresses

LUMINA (Library): `admin.ais.umn.edu`
BASIS Mainframe Systems: `admin.ais.umn.edu`
Gopher (public can log in as `gopher`):
   `consultant.micro.umn.edu`
News Server: `newsstand.tc.umn.edu`
U of M Web page: `http://www.tc.umn.edu`
OIT Web page: `http://www.umn.edu/oit`
Information Technology Newsletter Web page
   `http://www.umn.edu/oit/newsletter`

Last updated July 1996

Trend Setting Accomplishment

The delivery of financial reports through the World Wide Web is a trend setting accomplishment for the University of Minnesota. Responses from principal investigators and others have been enthusiastic.

Financial reports on the Web will be expanded this fall to non-sponsored financial reports. ▬

Editor's Note

The Web site `<http://financial.reports.umn.edu>` is designed to be viewed using Netscape 2's Frames features. A frameless version is also available `<http://financial.reports.umn.edu/online4.htm>` for those who use older versions of Netscape or other non-frame compliant browsers.

Software Updates

To upgrade to Netscape 2.x you can visit the Academic and Distributed Computing Services' software updates Web page `<http://sw-updates.micro.umn.edu/>`. There you'll find updates for Windows 3.x, Windows 95, Macintosh, and DOS software. To use Netscape 2.x with Windows or a Macintosh, we recommended that you have at least 8MB of RAM (memory). Neither version fits on one floppy disk. The Windows version is 2.4MB and requires a 386sx or newer microprocessor. The Mac version is 2.5MB and requires a 68020 or newer microprocessor.

IVR: Interactive Voice Response

IVR Telephone "Grade" Inquiry System in Production
Cheryl Vollhaber, Integrated Systems Solutions, Student Systems

Check Grades Over the Phone!

It's official! The first phase of the Interactive Voice Response (IVR) system went into production during the week of June 10. By June 20 almost 17,000 telephone inquiries to the system had been received.

This is an important phase because it allows students to check their final grades for courses over the phone, using touch-tone responses to voice inquiries. The system is based on the existing Student Access System, which students use to register, check financial aid status, etc.

Students can "log in" through the telephone using their Student Access ID number and password to check grades over the phone. An IVR team headed by Jim Doten (Student and Office Systems Support), with help from Kris Boley and Greg Strutz (Integrated Systems Solutions), along with Valerie Meyer DeJong and Chuck Dahl (Office of the Registrar) spent the last year working on the project. The initial grade application program was completed by the vendor, Periphonics, Inc.

Call 624-5200

The phone number for students to call for IVR access to the grade inquiries is 624-5200. The system is available Monday through Friday from 7 a.m. to 10 p.m. and on Saturday from 8 a.m. to 6 p.m.

If you have questions about the grade reporting application, you can contact Chuck Dahl at 625-1064. Additional phases for financial aid inquiries, registration eligibility, student accounts, and employment verification are underway.

Additional Services

For information on how the Interactive Voice Response telephone system can be programmed for your departmental needs, call Sandy Carroll at 624-4810 or Greg Strutz at 626-8368 (Integrated Systems Solutions). ▬

Now students don't need a personal computer to access their grades. They can use their phone.

SuperSession Tip

Joann Conradson, Business and Student Information Services, Customer Assistance Center

SuperSession, the BASIS mainframe session manager, allows up to five mainframe sessions to be active at a time. Movement between sessions is done using SuperSession "triggers." This SuperSession tip focuses on commands for starting sessions and moving from session to session.

To Start One Session

At the SuperSession Main Menu:
1. Make sure the cursor is at the Command prompt.
2. Type S, a space, the session ID of the application you want, and press ENTER. The first screen for the session you start is displayed.

To Start Many Sessions at Once

You can start and use up to five sessions at once from the Super-session Main Menu:
1. Type S in the Selection field next to each session you want started.
2. Press ENTER. The application screen for the last session you selected is displayed. The other sessions are also active. See "To Move from Session to Session" for the steps to take to move to those sessions.

To Return to the Main Menu

- Type \m and press ENTER in any entry field that is not a numeric field or press the ATTN key.

To Move from Session to Session

- To move to an already active session: Type \n in any entry field that is not a numeric field and press ENTER. The application screen for the next active session is displayed.
- To start a session and move to it while in another session: Type \g, a space, and the session ID of the session you want to work in and press ENTER.

Questions?

Questions or problems? Call the BASIS Customer Assistance Center at 612/624-0555. ▪

Telephone FAQs

Answers to Frequently asked Questions from Networking and Telecommunications Services
Contact the NTS Helpline at 6-7800 for additional information about these features.

Q. If a telephone is disconnected but is published in a number of directories, can I have an intercept message put on the line?

A. Yes. NTS will put one of two intercept messages on a discon-nected line. The two options are:
- "This number is disconnected and no other information is available."
- "This number is disconnected and calls are being taken by x-xxxx."

To request an intercept message, complete a Telecommunications Services Department Change Request Form and clearly indicate which intercept message is pre-ferred. The standard timeframe that NTS will leave an intercept message on a line is approximately nine months. After that time, the number will be reassigned to a new location on campus.

Should a user not specify an intercept message, a default mes-sage is assigned to the line. This generic message refers callers to 5-5000, the main telephone num-ber for campus operator services.

Q. Why do I disconnect calls when I push the button on my phone to pick up a ringing call?

A. All multi-line integrated telephones have "line preselect type" choices. This means that every time you pick up the handset it will go to the line that has been preselected on the software. The line preselect choices are: Prime, Ringing, Prime and Ring, or Idle.

Prime means that every time you pick up your handset to make a call, or to answer an incoming call, it will always pick your prime number line. (Prime is defined as the main number identified with your telephone.)

Ringing will select any ringing line on the set.

Prime and ring means it will select prime when your phone is not active for outcalling, and it will pick up the ringing line when you pick up the phone to answer a call. It is in this situation that, if you press that line, you will disconnect the call.

Idle means you select a button each time you use the phone.

▪ by Vivian Skordahl

New Windows 95 and Windows 3.1 Internet Software Kits

For Students, Faculty and Staff. They just keep getting better.
Brought to you by Academic and Distributed Computing Services

We're pleased to announce the recent release of new Internet kits for Microsoft Windows. Version 2.0 of the Windows Internet Kit is available in separate kits for Windows 95 and Windows 3.1 users. Ready-made kits are available in any Microcomputer Help Line. To obtain a kit from a consultant, present your University ID and six, *unlabeled,* high-density (HD), 3.5-inch disks or $6 cash.

The installers have an improved, user-friendly interface and include the latest, released versions of Netscape, POPmail, Winsock Gopher, Winsock FTP, Telnet and tn3270, mIRC (an Internet Relay Chat client), Free Agent (a news reader) and Adobe Acrobat.

When available, 32-bit programs are included in the Windows 95 version of the kit. The Windows 95 version also has an "uninstall" feature, allowing you to easily remove the kit from your computer if necessary.

Individuals using older versions of the kits do not need to upgrade. If you wish to obtain the latest versions of software packages included in the Internet kit, please visit our software update server at `<http://sw-updates.micro.umn.edu/>`.

Easier Custom Installation

Component-wise installations are now possible, allowing you to install subsets of software that is included in the kits. For example, if you are already running Internet software on your computer, you can use the new kit to install only the latest version of Netscape.

Necessary Network Software

The kits also automatically install and configure the necessary network software. Under Windows 95, Microsoft's built-in, 32-bit dial-up networking and TCP/IP subsystems are supported. The Windows 3.1 kit uses the latest version of Trumpet Winsock.

It Checks for Trouble

Both installers now scan your hard drive for multiple occurrences of the "winsock.dll" file. In the past, some users have reported problems due to multiple copies of the Winsock libraries installed by other network applications. If multiple copies are found, the extra files are automatically renamed.

Software Changes

Due to popular demand, the "mIRC" Internet Relay Chat client is now included rather than "WSIRC," the client we formerly distributed. mIRC is the de-facto standard Windows IRC client and has a large user community. For more information, visit `<http://www.geocities.com/Colosseum/1822/index.html>`. ▪ by Ted Hadjek

Binary Files and E-mail

Generally speaking, the files you create on your personal computer are binary files, not plain text files. For example, Excel spreadsheets and Microsoft Word documents are binary files. Binary files contain computer code whereas plain text (ASCII) files do not. Since most e-mail systems are designed to handle text files, a binary file must be encoded in a special text format before it can be sent through e-mail. When the binary file is received, it must then be decoded from this special format in order to reconstitute the original file. BinHex and MIME are examples to popular encoding schemes. ▪

POPmail II 2.3b5, an Update for Macs

POPmail II now supports multiple users or multiple settings on one machine.
Brought to you by Academic and Distributed Computing Services

Do you share a Macintosh with someone else? Or just want an easier way to manage more than one e-mail account? The latest version of POPmail lets you set up one copy of POPmail to Fetch mail from more than one account and lets you save different signatures for each account. The latest version of POPmail is included with the Internet kits that our Help Lines distribute.

POPmail is also available as a native PowerPC version. Those who want that version or who have older versions of POPmail can get the latest version from two on-line sources. They can visit the Macintosh Information Server in the MicroCenter AppleTalk zone; guest access is available from campus locations that have a direct Internet connection. (The server is available as a Chooser/AppleShare option.) Look for the software in the *Internet Applications* folder. The Upgrade is also available from the software updates section of the Academic & Distributed Computing Services Web page <http://sw-updates .micro.umn.edu/>. If you're upgrading from a version older than POPmail II 2.3, be sure to get the *Mail Converter* program and read the directions on how to convert messages.

Setting up Multiple Accounts

To set up POPmail for a different e-mail account, follow these steps.
1. Create a new mailbox. (Mailboxes are displayed as folders or buildings on the left side of the Browser window.)
2. Open that mailbox by double clicking on its name.
3. From the **Mailbox** menu select *Configure Mailbox*. From the configure menu select, *Mailbox Username and Server*.
4. Type in your password and other standard account information.

The *Configure Mailbox* menu also lets you set up a signature for that account.

Other Notable Features

The Setup menu's *Options* section lets you set PEM (Privacy-Enhanced Mail) preferences and add a PEM signature when you post mail. A PEM digital signature is used for secure e-mail within the University of Minnesota. Unless you are specifically directed to use these features, ignore the PEM options. If you send a PEM signature to someone who does not have the PEM plug in, the signature is clipped out and the recipient only sees "Start of PEM" and '"End of PEM" notations in the message.

POPmail is MIME (Multipurpose Internet Mail Extension) compatible. This is useful to many people who want to send enclosures along with their e-mail messages. If your recipients use POPmail or another MIME-capable program that converts BinHex (binary hexadecimal), they will receive the original file. (POPmail automatically converts enclosures to BinHex and sends the document with a MIME wrapper.) If the recipients aren't using a program that is MIME-capable and decodes BinHex, your enclosed file may end up as an unreadable part of the e-mail message.

WS-POPmail and Groupwise support MIME and BinHex, making it easier for POPmail II users to exchange enclosures with people who use that software. Minuet/POPmail and versions of POPmail prior to version II 2.3 support BinHex but not MIME.

The Manual

POPmail 2.3's documentation on the multiple settings files has not caught up with POPmail's features – yet. The 35-page manual includes lots of detailed and illustrated instructions on other topics, starting with basic information, such as how set up your mailbox for the first time, and ending with advanced features, such as customizing the mail folder and previewing messages. The manual also covers • setting up signatures and groups • creating a new mailbox • moving messages to another mailbox • sorting and renaming messages • replying and forwarding messages • sending and saving enclosures • appending a file to an e-mail messages • using the find utility • and much more.

Future Releases

Upcoming releases of POPmail will have improved handling of large messages and large groups. ◼
by Mary Kelleher

PowerBuilder Client/Server Prototypes Started in June

Alice de la Cova, Integrated Systems Solutions

In our May 1996 newsletter we announced our purchase of the PowerBuilder applications development tool for rapid application development of client/server systems. We also mentioned our plans to develop some fast prototypes of applications as part of our training phase. We are excited about the possibilities for the PowerBuilder tool and want to update you about the progress of the prototypes.

After the first wave of Integrated Systems Solutions PowerBuilder developers were trained in May, they eagerly organized to launch four prototypes of client/server applications. In the prototypes, the teams are developing their skills with graphical user interface design (GUI), event-based processing, and an object-oriented approach to re-usability of software components.

Grad School Prototype

Bill Decker, Sandy Carroll, and Rodney Garayt are working on prototype entry screens as part of a potential replacement of the Graduate School's NOMAD-based student/faculty information system. Under the direction of Judy Howe, the Graduate School had previously defined their NOMAD data to the IDEA Data Warehouse. Because of that earlier effort, the prototype team was able to easily connect PowerBuilder to the IDEA database right away. This made the data and table structures immediately available for testing on a local database. With that quickly accomplished, the team moved forward to designing the GUI for the new screens.

Financial Reporting Prototype

John Fuller, Bryant Avey, and Thom Callaghan are working on a prototype of a potential financial reporting framework for the Office of Information Technology and its units. The team is gathering the system requirements and planning the overall application framework within PowerBuilder.

Customer File Prototype

Dee Ann Thiede, Robert Dinh, Laurel Erlandson, and Greg Strutz are working on prototype screens for an application for BASIS/ISS to maintain customer information to support business operations and billing. The team used Visible Analyst, among other tools, to model the data and processes, and PowerBuilder to develop preliminary screen designs and GUI navigation for the application. They received a positive and enthusiastic customer response at the first design review!

Time Entry Prototype

Jann Owen, Alice de la Cova, and Cheryl Vollhaber are working on prototype screens for a BASIS/ISS time reporting application. The team used Visible Analyst for data modeling and process modeling prior to building the GUI design in PowerBuilder.

PowerBuilder, a development tool for rapid application development of client/server systems.

After the completion of the prototypes, these developers will be ready for more projects!

If you are interested in discussing a need for a client/server application, please call Shanthi Kannan, Account Manager, at 624-8236.

IDEA Data Warehouse Updates

Ruth Volk, Data Warehouse and Departmental/Small Business Applications

Data Warehouse Integrated Systems Solutions staff have been busily improving our data and services. Below are brief descriptions of the most recent changes.

IDEA-L Listserv

Subscribing to IDEA-L is an excellent way to keep up-to-date on IDEA (Institutional Data Easy Access) databases. The IDEA-L listserv was created in the Fall of 1995 as an electronic forum for information sharing about IDEA, the data, the migration from AS/DB2, query and reporting tools, tips, tricks, etc. Over 200 customers are currently members of this listserv, which now has a new host. To become a member:

1. send e-mail to `LISTSERV@tc.umn.edu`
2. leave the subject line blank
3. place the following text on the 1st line:

    `SUBSCRIBE IDEA-L` *your full name*
    example: `SUBSCRIBE IDEA-L John Doe`

Once you are a member, you may send mail to the listserv using the address:

`IDEA-L@tc.umn.edu`

If you've already subscribed to IDEA-L you've gotten the information listed below.

Student Information & Money Issues

• Graduate Reporting Data Enhancements
Three new tables will soon be available in the Graduate Reporting Database (GRAD) in IDEA, adding information on committee members and their assignments as well as graduate faculty and appointments. The database will be refreshed on a weekly basis. The Graduate School's AS/DB2 database, known as GSRDB, is to be phased out as these enhancements come on line.

• Student Data Availability
In our April 1996 issue we announced the availability of Student databases on IDEA. Users of the AS/DB2 student data should have received individual notification by mail. If you access Student reporting databases and do not yet have your IDEA ID, please contact the Customer Assistance Center at `<x-help@cafe.tc.umn.edu>` or (612) 624-0555.

• Data Warehouse Chargeback
Data Warehouse costs will be covered by Office of Information Technology funds for FY97, so that end users will not be charged for usage or training. Decisions for FY98 funding have not yet been made.

New or Enhanced Services

• Equipment Inventory Reporting Database
The new Capital Equipment Inventory Reporting Database (INVEN) is now accessible on IDEA. The source of the data is the Property Accounting Management (PAMS) operational system. The kinds of information available for all capital equipment will be the current status of specific pieces of equipment (active and inactive), all historical information, and depreciation information. The Data Custodian for this database is Luke Madsen, Inventory Services, (612) 626-8222 or 626-8217.

• CUFSRDB
Many changes have been implemented to the CUFS Reporting Database (CUFSRDB). The AS/DB2 version of CUFSRDB will be eliminated when those users have migrated to IDEA. See the detailed description in the June *Information Technology Newsletter*.

• Web Reports
Several Financial Reports are now available on the Web, a product deliverable of the Grants Management Project. Access to the reports requires an IDEA ID and CUFSRDB access. More Web reports will be developed throughout the coming year, using Financial as well as other reporting data. Stay tuned for more information in future newsletters. You can visit the IDEA Web page at `<http://notes.ais.umn.edu/>`.

• Data Warehouse Training
Data Warehouse IDEA Training has been in place for 7 months. The classes have been modified and improved based on customer feedback. Current evaluations from attendees rate the classes high in all aspects – content, usefulness, pace, etc. Information on IDEA training is available on the IDEA Gopher `<GOPHER://gopher.ais.umn.edu:70/11p:/idea>` or via e-mail `<dw-training@cafe.tc.umn.edu>`.

For more information or to request access to IDEA reporting databases, please contact the Customer Assistance Center at (612) 624-0555 or `<x-help@cafe.tc.umn.edu>`. ▪

Basic Sciences and Biomedical Engineering Building

This New Building Accommodates the Latest in Networking and Telecommunications Technology.
Shahnaz Coyer, Networking and Telecommunications Services

Finishing touches are being put on the construction project located at the intersection of Washington Avenue and Church Street. The new Basic Sciences and Biomedical Engineering building, 312 Church Street SE, will officially open this fall. The building was designed to accommodate the latest in networking and telecommunications technology. The Basic Sciences building has seven floors and is divided into two primary sections. Section A houses laboratory facilities while Section B, which overlooks Washington Avenue, was designed for office and conference room functions.

Since this structure contains the latest technology, there are a number of communications closets located throughout the building. A main distribution closet on the first floor feeds all wire through two sets of risers, one for each section. Consequently, there are seven communication closets located in both Section A and Section B. All building wire is fed from the nearby Phillips Wangenstein Building on Washington Avenue. Of interest to some people are the statistics regarding the amount of wire and fiber optics cable utilized in this new facility.

- 3,000 feet of 400 pair twisted wire
- 5,000 feet of fiber optics, including 48 strands multi-mode; 24 strands single mode
- 12,600 feet of fiber feed, a total of 14 communications closets
- fiber cabinets, total 33@144 strands; 2@72 strands
- 4,200 linear feet of cable trays
- 950,000 feet of level 5 wire
- 7,200 jacks
- 812 media outlets, each with a single fiber termination, and 4 copper RJ45 jacks
- 3 flex IMs provide dial tone for telephone service

All wiring will be tested and certified for attenuation and dB loss. A separate and independent wiring system will support security and alarm systems throughout the new building.

The Basic Sciences and Biomedical Engineering Building has 271,046 gross square feet. The building is comprised of 126 laboratories, 119 offices, 5 open office areas with 7 workstations, and 1 large seminar room with video connectivity.

This project is the result of cooperative planning and installation on behalf of the Facilities Management Department and Networking and Telecommunications Services personnel. ▬

Data Center Consolidation Project

Business and Student Information Services

As part of the Office of Information Technology reengineering efforts to provide data center and operations services more efficiently, the computer systems at the Lauderdale Computing Facility are being moved to the BASIS Data Center in the West Bank Office Building in stages over this summer.

The computer systems which suppport e-mail and Internet-related services were successfully moved Sunday, June 16, with minimal service interruptions.

The computer systems which support other services will be moved the weekend of August 10th. The following systems and related services will be unavailable during the move: EPX, NVE, NOS, VX, VZ and UZ, backup, lpd, Kodak printing, and sprawl.micro.

For more information on the data center consolidation project, see these Web pages `<http://www.umn.edu/oit/basis/reengineer/timeline.html>` and `<http://www.umn.edu/oit/basis/reengineer/charter.html>`. ▬
by C. L. Plaisance

PsycINFO, an On-line Pioneer

The American Psychological Association's PsycINFO Database Marks an Important Milestone
Nancy K. Herther, Manager, Integrated Information Center, University Libraries

One Million Abstracts

The American Psychological Association's PsycINFO online database has just added its one millionth abstract. Today there is a lot of discussion about how academe can get back into the publishing arena to save the research community, and especially libraries, from the economic "clutches" of for-profit publishers who charge hundreds or thousands of dollars for their journals. The development of PsycINFO is an interesting case of how an associate was able to make a commitment to innovative information services; holding to its mandate while moving the field forward into the next century.

PSYCINFO Database

The psychological literature is core to many fields of study, and this index is a critical research tool for anyone who is studying the human effects of some thing or event, effects on populations or individuals of something as well as for getting clues on how people think, respond and learn. Because of this, you will find access to this database in many formats throughout the Libraries.

PsycINFO contains over one million citations, with abstracts, to the worldwide literature dealing with psychology and the behavioral sciences. It covers both human and animal aspects in most of these fields: animal psychology; applied psychology; communications and language, cultural influences and social issues; development psychology; education; neurology and physiology, perception and motor performance; personality; physical and psychological disorders; psychometrics and statistics; treatment and prevention; and personnel and professional issues. It even covers the psychology and behavior of groups and organizations in addition to that of individuals.

The index goes back thirty years and is available in three formats here on campus: (1) through LUMINA, our on-line catalog, PsycINFO covers 1968 to the present; (2) a CD-ROM version, called PsycLIT, is available in two reference locations here on campus: St. Paul Campus Reference and in the Education/Psychology Reference Department in Walter; the discs cover 1974 to the present; (3) the paper edition, *Psychological Abstracts*, goes back to 1927 and is also available here in BioMedical, St. Paul Campus Reference and Education/Psychology.

A Brief History

In 1966, APA (American Psychological Association) implemented a process for preparing issues of the printed journal *Psychological Abstracts* that produced references in computer-readable form. Thus, it was seen originally as a 'byproduct' of the journal. The index was first mounted as a database for public use in 1971 by DIALOG. The tradename PsycINFO was granted in 1975.

In 1986 APA was also one of the first major database publishers to distribute a scientific database in the then-fledgling CD-ROM format, just one year after CD-ROM was introduced. For more information on the development of the database, check APA's Web page <`http://www.apa.org`>.

A Quick Tour

Just in case you haven't used this database recently, here are a few examples of some of the far-ranging subjects covered in PsycINFO. First, get into LUMINA. Select INDEXES and then select either the "all databases" or "social sciences" databases. Finally, type this: `PSYC`.

Help screens are available if you need help or want to explore searching options.

First I tried to see what the database might have on the emerging computer technology of virtual reality. By typing in `su:virtual reality` I retrieved 33 records (see Figure 1). From here I can page through the index of 33 records or call up any of the records by typing in the number of the article I want to see.

I found 28 articles on multimedia design (Figure 2) and 23 articles on 'games' and 'marketing' (Figure 3). What about peoples attitudes about higher education? This is clearly a popular topic for research, since I found over 1000 citations (Figure 4). A sample record is presented in Figure 5 to give you an idea of the depth of indexing and abstracting that is available for searching.

See for Yourself

PsycINFO covers the international literature in psychology and related disciplines and dissertations as well as journal articles from over 1300 periodicals. Since the 1980s, book chapters and books have also been included. From 1967 to 1979, the database corresponds to *Psychological Abstracts*. On average, about 4200 new records are added each month.

For more information on the database, call APA at (800) 374-2722; connect with their Web site at `<http://www.apa.org>` or stop in one of the librar-ies on campus that have the index and give it a spin yourself. Their e-mail address is `<psycinfo@apa.org>`.

Nancy K. Herther is Manager of the Integrated Information Center of the University Libraries. She can be reached at Room 7 Walter Library, East Bank; 624-2020; her Internet e-mail address is `<nherther@iic.lib.umn.edu>`.
■

Figure 1: Articles on Virtual Reality

```
SEARCH: su:virtual reality  FOUND 33 Records
NO. ARTICLE TITLE                                                YEAR

  1   Virtual reality graded exposure in the treatment of acrophob.. 1995
  2   Au-dela du principe de realite: le virtuel. (Beyond the real.. 1995
  3   Le reel, le percu et l'hallucine. (The real, the perceived a.. 1995
  4   Anosognosia in parietal lobe syndrome.                         1995
  5   Virtual reality as a communication environment: Consensual h.. 1995
  6   Parallel use of hand gestures and force-input device for int.. 1994
  7   Effectiveness of computer-generated (virtual reality) graded.. 1995
  8   Interactive media as environments: A phenomenological invest.. 1993
```

Figure 2: Articles on Multimedia and Design

```
SEARCH: su:multimedia and su:design  FOUND 28 Records
NO. ARTICLE TITLE                                                YEAR

  1   Cognitive apprenticeship and its application to the teaching.. 1995
  2   Lernen mit Multimedia. / Learning with multimedia.             1995
  3   A behavioral systems approach to adaptive computerized instr.. 1995
  4   Authoring for simulation-based learning.                       1995
  5   AI meets authoring: User models for intelligent multimedia.    1994
  6   Comparing telephone-computer interface designs: Are software.. 1995
  7   Multimedia constructions of children: An exploratory study.    1994
  8   Multiple worlds: An approach to multimedia resource manageme.. 1994
```

Figure 3: Marketing and Games in PsycINFO

```
SEARCH: su:marketing and games  FOUND 23 Records
NO. ARTICLE TITLE                                                YEAR

  1   Market entry: An experimental investigation.                   1995
  2   LIFE CHOICES: The program and its users. Theme Issue: Electr.. 1994
  3   Four models of competition and their implications for market.. 1994
  4   A business gaming odyssey.                                      1994
  5   A probabilistic approach to pricing a bundle of products or .. 1993
  6   Designing effective promotional games: Opportunities and pro.. 1991
  7   Public opinions toward state lotteries: A comparison of non-.. 1989
  8   A study of the relationship between student final exam perfo.. 1989
```

Figure 4: Higher Education and Attitudes

```
SEARCH: su:higher education and su:attitudes  FOUND 1089 Records
NO. ARTICLE TITLE                                           YEAR

1    Student IT capability within a school-based primary ITT cour   1995
2    Of blue collars and ivory towers: Women from blue-collar bac.. 1995
3    Do   Tarasoff   principles apply in AIDS-related psychothera.. 1995
4    What do nurses know and believe about patients with pain? Re.. 1995
5    "Thus we live, forever taking leave": The launching stage in.. 1995
6    Employee reactions to temporary jobs.                          1995
7    Instructional strategy change and the attitude and achieveme.. 1995
8    Individual differences in overt and covert measures of sexis   1995
```

Figure 5: A Sample Record

```
   RECORD NO: 83-15692
      AUTHOR: Miller, Darlene G.; Kastberg, Signe M.
CORP. SOURCE: Vermont Technical Coll, US
       TITLE: Of blue collars and ivory towers: Women from blue-collar
              backgrounds in higher education. Special Issue: Adult
              women's talent development.
      SOURCE: Roeper Review
        DATE: 1995 Sep Vol 18(1) 27-33
        YEAR: 1995
   ISSN/ISBN: 0278-3193
    LANGUAGE: English
   DOC. TYPE: Journal Article
   AGE GROUP: Adult
    ABSTRACT: Explores how a working class background and values affect
              gifted women's career development in higher education and
              highlights conversations with 6 gifted women about
              experiences influenced by the distinct values and mores of
              their working class backgrounds. Although highly prized,
              most received little encouragement toward higher
              education, possibly attributable to finances, sex-role
              stereotyping, and the lack of familiarity with higher
              education. Because most were 1st-generation professionals
              there are few role models within the family, or female
              role models within academia. Class conflict was often a
              cause of a sense of not belonging, as well as a loss of
              connection with family and friends. The "imposter
              phenomenon" in which high achieving women believe
              themselves to be intellectual frauds, unable to attribute
              their achievements to unique talents and hard work, is
              discussed. (PsycINFO Database Copyright 1996 American
              Psychological Assn, all rights reserved)
  MAJOR DESC: GIFTED; HUMAN FEMALES; HIGHER EDUCATION;
              CAREER DEVELOPMENT; LOWER CLASS
  MINOR DESC: LOWER CLASS ATTITUDES; VALUES; ADULTHOOD; EDUCATIONAL
              PERSONNEL; FAMILY BACKGROUND
  DESC. CODE: 21060 23450 22960 07672 28850 28860 55220 01150 16150
              19170
  KEY PHRASE: experiences & values, career development in higher
              education, gifted females from working class backgrounds
 CLASS. CODE: 3510; 2900
```

ISDN Service Offering Update

Carol Troyer, Networking and Telecommunications Services

Remember reading about the ISDN feasibility study in the April 1996 Newsletter? After much equipment evaluation, discussion, and review of outside vendor service offerings, Networking and Telecommunications Services (NTS) is confidently starting our *beta* trial this summer.

In review, ISDN (Integrated Services Digital Network) is a high speed digital service (64 to 128 kbps carrier bandwidth) designed to bring simultaneous voice, data, and video (a possible future offering) to your home office using one U S West-provided ISDN line. Terminal equipment in the user's home connects the ISDN line with the home computer, telephone, printer, and fax machine.

Here is what's happening...

1. Equipment Selection: After testing and reviewing several boxes, the team chose the Ascend Pipeline 75 as the terminal equipment to be installed in the end-user's home. Ascend commands 40 percent of the market (the next closest vendor has 6 percent) and is recognized for reliability, and ease of remote troubleshooting and ease of set-up. The Ascend 400 server was selected for our end.

2. Documentation: The ISDN team is now creating several documents: service description and ordering, training, troubleshooting, equipment set-up, etc. They will eventually be available in hardcopy and on the Web.

3. Beta Trial: Six University of Minnesota faculty and staff members will participate in a two month beta trial during the months of August and September, 1996. NTS ordered ISDN BRI (Basic Rate Interface) lines from U S West, who will coordinate and complete the installations over six consecutive work days. Once the participants have their new ISDN telephone number, an NTS engineer will configure and secure their "loaner" Pipeline 75, and provide both IP (Internet Protocol) addresses and connection instructions. The participants will sign a letter of expectation agreeing to critically review and test not only the equipment, but also NTS helpline and repair support, maintenance, documentation, responsiveness, and pricing.

Questions?

Please contact Vivian Skordahl, ISDN project coordinator at 625-3535 or <skordahl@nts.umn.edu>. ▮

Who Owns the IP Address Space at the University?

Lawrence Liddiard and Tim Peiffer, Networking and Telecommunications Services

Always ask questions with an easy answer. Nobody at the University owns IPs. They are on loan from the InterNIC (Internet Network Information Center). Networking and Telecommunication Services (NTS) is the University's official InterNIC IP allocator.

Now a tougher question. If you are assigned a specific IP (Internet Protocol) address at the University, when do you have to change to another? Current practice by NTS has been to require change only when moving to a different location or when too many systems on a subnet require separation into two or more smaller subnets.

Table 1: Network Number Statistics (May 1992)

Class	First Group Value	Total	Allocated	Allocated Percent
A	1-126	126	49	38
B	128-191	16,383	7,354	45
C	192-221	2,097,151	44,014	2

But, the winds of IP change are headed toward us, as InterNIC is requiring all members of the Internet to return lightly used (less than 50 percent assigned) Class Bs. Their current practice is to not award new IP address spaces to entities with less than 50 percent allocation; instead such entity must get a partial allocation from another owner. Planning for this IP address transition will be very important at the University. Let us look at the IP address background, where to get additional information and current University practice.

Background

An IP address is expressed as four 8-bit groups (yes, a 32-bit binary word) separated by periods. For example, 128.101.4.5 is Liddiard's address. By 8-bit we mean each group can have decimal values from 0 to 255. Originally InterNIC assigned IP groups as Class A, B or C — depending on the first 8-bit group, first two group's 16-bits or first three group's 24-bits being given a fixed value. This leads to Table 1 from Request for Comments (RFC) 1466. It shows 126 Class As, 16,383 Class Bs, and 2,097,151 Class Cs in the original design.

But poor utilization of allocated IP addresses has caused a run on the Class A and Class B address spaces. The Internet community put forth a mecha-nism to relieve that problem by creating Classless Inter-Domain Routing (CIDR) blocks of IP addresses from the Class C space.

Below is a quote from 'Guidelines for Management of IP Address Space,' RFC 1466. (Note: IR means Internet Registry.)

> Previously, organizations were recommended to use a subnetted Class B network number rather than multiple Class C network num-bers. Due to the scarcity of Class B network numbers and the under-utilization of the Class B number space by most organizations, the recommendation is now to use multiple Class Cs where practical.

> The IR or the registry to whom the IR has delegated the registration function will deter-mine the number of Class C network numbers to assign to a network subscriber based on the subscriber's 24 month projection of required end system addresses according to the follow-ing criteria:

Table 2 shows those criteria.

'Address Allocation for Private Internets' (RFC 1597) allowed private (unique only within an organization) internet IP addresses as an additional means of reduc-ing demand for global IP addresses.

Table 2: Criteria from RFC 1446

Organization	Assignment
1) requires fewer than 256 addresses	1 class C network
2) requires fewer than 512 addresses	2 contiguous class C networks
3) requires fewer than 1024 addresses	4 contiguous class C networks
4) requires fewer than 2048 addresses	8 contiguous class C networks
5) requires fewer than 4096 addresses	16 contiguous class C networks
6) requires fewer than 8192 addresses	32 contiguous class C networks
7) requires fewer than 16384 addresses	64 contiguous class C networks

Here is another quote:

> The Internet Assigned Numbers Authority (IANA) has reserved the following three blocks of the IP address space for private networks:
>
> ```
>    10.0.0.0 - 10.255.255.255
>  172.16.0.0 - 172.31.255.255
> 192.168.0.0 - 192.168.255.255
> ```

Where To Get More Information About the Internet

This article has made numerous references to RFCs. You can obtain these by FTP (File Transfer Protocol) or gopher or a Web browser from several locations. At the University, NTS keeps a set at `<gopher://mail.unet.umn.edu:70/1/home/ftp/rfc>`. Currently our RFC index is dated 6/10/1996 and includes those up to rfc1962.

Current University Practice

The University has been assigned five Class Bs and many Class Cs, including several CIDR blocks. We have also begun to use private Internet IPs for internal University use. These total about 360,000 IP address, of which we have assigned 32,000 or about 10 percent usage.

Five Class Bs

> 128.101.0.0 Twin City campuses
> 134.84.0.0 Twin City campuses
> 160.94.0.0 Twin City campuses
> 131.212.0.0 used at Duluth
> 146.57.0.0 used at Morris

CIDR Blocks

> 198.174.65.0-96.0
> 199.17.128.0 -175.0
> 207.58.0.0-63.0

In discussing IPs, we will use [f/s/d] to describe the bits of an IP address allocated to:

> f, the fixed InterNIC portion
> s, the optional subnet part
> d, the device

Thus Class Bs are [16/s/d] and Class Cs without subnetting are [24/0/8]. At the University our Class Bs have been [16/8/8] except for 160.94.0.0 which is [16/9/7]. CIDR blocks vary between [18/s/d] for 64 contiguous 'Cs' to [23/s/d] with 2 contiguous. In practice the device values of 0 and all binary ones are not used. An all binary ones value is used as the broadcast (sent to every device) address for the subnet (or total net if no subnet portion). For the University Class Bs this has the device value of .255 except the 160.94.0.0 net has .127 in addition.

Finally to have uniform gateway router addressing (helpful in completing MacTCP and other Ethernet forms), the University has been assigning the address .254 (also .126 for 160.94.0.0 nets) to the router port at the head of the particular subnet.

Where is the Problem?

So where is the problem? In the shared Ethernet world of several years ago, subnet users did not mind sharing the 10 million bits/second Ethernet with 250 other users. But computer speeds and the amount of information transferred go ever upward, so subnet users would rather share with only 60 others (our EtherJack standard) or 30 or 15 or have it by themselves (Switched Ethernet).

Thus fewer users on a subnet with 8-bit device allocation has meant wasted IP addresses. To increase allocation percentages to 50 percent, we need to change our Class B IPs to at least [16/10/6] ,which quadruples the number of subnets/Class B and allows only 62 devices per subnet.

This will allow us to return Class Bs to InterNIC when they request them in the near future. As you can imagine, this will mean massive disruption unless automatic measures are used.

Another problem is when the University routers require separate subnet links to leaf routers for every different Class IP address on the leaf router. Each of these subnet links use only 2 of the 253 addresses on the subnet. The cure is a different routing protocol on the University routers.

Future Articles

Look for article about these topics in upcoming issues of our newsletter.

> "Dynamic Host Configuration Protocol (DHCP) versus Bootstrap Protocol (BOOTP) [dynamic versus static] network addressing" which describes the necessary mechanisms for automatically assigning and changing large numbers of the University's IP addresses.

> "For new features, University requires modern 'Link State' routing protocol" which describes upgrading the University's routers for more efficient use of IP addresses.

Please be legible. Help us keep our costs down by using a campus mailing address whenever possible. Thanks.

Information Technology Newsletter