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L B L COMPUTING NEWSLETTER

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"Budget: A Mathematical Confirmation of your Suspicions."
(. . . A. A. Latimer)

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COMPUTING DIVISION
Head: Leroy Kerth (LTKerth) 7474   50B - 2232

OFFICE OF COMPUTING RESOURCES
Head: Ken Wiley (KGWiley) 7083   50B - 2262A

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DEVELCON IDENTS

COMPUTER	DEVELCON DIRECTORY NAME
VAX 11/ 780 (UNIX4)	UX4
VAX 11/ 750 (UNIX5)	UX5
VAX 11/ 750 (UNIX6)	UX6
VAX 11/ 780 (UNIX7)	UX7
[VAX 8600's (GENERIC)......................	CSA]
VAX 8600 (VMS)	CSA1
VAX 8600 (VMS)	CSA2
VAX 8600 (VMS)	CSA3
VAX 8600 (VMS)	CSA4
VAX 8600 (VMS)	CSA5
VAX 11/ 780 (VMS)	NMC
VAX 11/ 780 (VMS)	IGM
IBM 3081 (UCB)	CCDB

DIAL-UP ACCESS NUMBERS

   All Machines - 300 BPS 486-4959
  o All machines - 1200 BPS 486-4979
  o VA-3400 & 212A are equivalent

LOCAL TYMNET ACCESS NUMBERS

Oakland	430-2900	Vallejo	707-557-0333
Walnut Creek	938-9550	Concord	682-3851
Pleasanton	462-8900	Fremont	490-7366
San Francisco	974-1300	Antioch	778-3420

Operating Hours
   All machines are available 24 hours daily.
   With these exceptions.

UX4 - VAX 11/ 780 ....Wed 10/ 16 ..... 12:30 to 8:00 AM*
UX5 - VAX 11/ 750 ....Tue 10/ 22 ...... 12:30 to 8:00 AM*
UX6 - VAX 11/ 750 ....Tue 10/ 29 ...... 12:30 to 8:00 AM*
UX7 - VAX 11/ 750 ....Tue 10/ 29 ...... 12:30 to 8:00AM*
CSA1 -VAX 8600.............................
CSA2 -VAX 8600.............................
CSA3 -VAX 8600.............................
CSA4 -VAX 8600.............................
CSA5 -VAX 8600.............................
NMC - VAX 11/ 780 ....Tue 11/ 18 ...... 12:30 to 8 AM*
DICOMED

* Subject to Additional Maintenance Periods

The DIAL Directory

William Jaquith

The Develcon dataswitch has an auto-dialer facility. The auto-dialer directory is called "dial." Currently there are seven destinations supported. The only terminal ports that support this service are the ones that you must enter a <CR> before getting the Request: prompt (that is to say, only auto-bauding ports will work with this service). The current destinations are:

1	8-666-7910	BNL300
2	181-24404	MFE1200
3	8-843-1665	LANL1200
4	9-836-4911	TELENET
5	9-642-6870	UCB1200
6	173-854-7640	SPI1200
7	8-233-2325	DOE1200

Note that the first destination, BNL300, is a 300 bps circuit, the rest are 1200 bps.

The following is an example using the "dial" directory to connect to MFE. Remember to reset your terminal speed to 1200 bps. Then get the green light on your TSB (Terminal Support Box). This DIAL example uses **bold** print to mark user input and *italic* print to mark computer responses.

Request: **dial** <CR> At the Develcon prompt "Request:" enter "dial" <CR>.

<CR> <CR> Then enter two carriage-returns.

Ven-Tel 212-PLUS-II Vers2.21B

1200 Baud

User: **dial** <CR> At the prompt User: enter dial <CR>. Note that dial is not echoed on the terminal.

$ h You will now see the Dial system prompt, which is a "$." At this point the single letter "h" will list the commands.

$ d d <CR> Use "d d <CR>" to display the possible destinations. Note that "d d" is rewritten as "Display Destinations."

$ 2 <CR> The number of a destination will automatically dial that number. Entering the number 2 at the $ prompt will start the dialing process for MFE1200.

Dialing MFE1200: .@@@@...
Carrier Detected
Online! 22

A successful connection to the remote site is noted by the response "Online!." At this point follow normal logon procedures for the remote site. There are several possible errors, including Busy Linking, No Answer Linking, Unable to Handshake, etc. After two or three failed attempts to connect to remote sites, it is best to disconnect and try later.

The DIAL connections accumulate charges per unit of time even when there is no terminal activity. For this reason the time-out for no terminal activity has been set to a value of 10 minutes. This is meant as a safety feature from large phone bills being inadvertently accumulated.

The phone numbers can be changed to suit the requests and requirements of the user community. Requests for changes in these phone numbers should be directed to me. I receive electronic mail as WDJaquith@lbl.arpa.

LOTUS 1-2-3 Update

Dan Van Zile

- A new release of Lotus 1-2-3 should be available about mid October. The pricing information for registered owners of 1-2-3 is not available at this time. The PC store at LLNL will be handling upgrades for 1-2-3 in the same manner that they handled Symphony upgrades. For further information contact the LLNL PC store (x181-7300).

The new release will support the extended graphics adapter card. For users who can't wait for the upgrade, there is a program that supports the ega card with the existing releases of 1-2-3. To obtain a copy of the software contact Workstation Group Member, Dan Van Zile (×5981).

FOCUS on the Cluster

Bert Albrecht

A Beta test site version of VMS FOCUS has been installed on CSA1 and is currently running and being evaluated. This early release version includes the following FOCUS facilities.

Reporting and ad-hoc query (the TABLE command)

Financial Modelling Language

MODIFY transaction processor

Dialogue Manager

FIDEL full-screen data entry language

SCAN database editor (line mode currently)

REBUILD utility for reorganizing and post-indexing FOCUS files

JOIN command for relation files

TABLETALK and FILETALK windowing technology

AUTOMOD automatic application generator

Features not yet available on the demonstration release of VMS FOCUS are:

Hot Screen report output manager

Graphics

Statistics (the ANALYSE command)

FUSELIB and external subroutines, FIND, and LOOKUP

PC and Mainframe communications and file transfer

DBA security

TED Editor

Host Language Interface

Simultaneous (SU) FOCUS database updating

Complied MODIFY

COMBINE for multiple file updating

DEFINES, TITLES, etc in MASTER file descriptions

New Date Format (an older one is supported)

MISSING data support

RMS multi-keyed or variable length record support

Optional DBMS interfaces

File Naming Conventions for FOCUS

File descriptions for FOCUS and other files are created with a file extension of ".MAS." FOCUS databases have a file extension of ".FOC." FOCUS procedures (FOCEXECs) have a file extension of ".FEX."

Specifying Files and Defining Logical Names

No explicit command is necessary for defining a logical name or 'ddname' to a FOCUS file, although the defaults may be overridden by means of the FOCUS USE command. The USE command may reference a node, device, and directory as well as the filename and file extension.

No explicit definition is required for external sequential (RMS) files if the file extension is .DAT, and it resides in the current default directory. The FILEDEF command is used to override this default, and it too may reference a node, device, and directory as well as the filename and extension.

Both the USE and FILEDEF commands are restricted to filenames of 8 characters or less in length, and 3 character file extensions.

Using Several Directories Together

A logical "path" may be established for applications that span up to 5 directories (including the current default directory). This can be useful, for example, in testing new procedures for an existing "production" application. FOCUS will search for files in the current default directory first, then in directories assigned to logical names FOC$DIR1 through FOC$DIR4, and finally in the directory assigned to IB1$FOCUS. Logical name tables are search in standard VMS sequence.

Executing VMS Commands from Within FOCUS

Any VMS command may be executed from within FOCUS by prefixing it with 'VMS,' for example: VMS PRINT TEST.FEX.

Using the System Editor

The VMS system editor EDT, or any other editor available to VMS users, may be invoked by typing: VMS EDIT filename.ext.

MASTER definitions and FOCEXECs must be in upper case.

Care should also be taken to delete any accidental tabs from MASTERs and FOCEXECs. The tab key in EDT inserts a control character that is not allowed in FOCUS file descriptions or procedures.

Interrupting FOCUS Execution

The VMS standard interrupt and cancel sequences (Ctrl-Y and Ctrl-C respectively) work in FOCUS.

To get started, obtain the FOCUS handbook from the Computing Services Library and contact me, Bert Albrecht x6280.

Computing Services Software Directory

Elon Close

The first section of the Computing Services Software Directory will be released through the Computing Services Library on October 1, 1985. This section covers Graphics Software.

The Computing Services Software Directory is meant to serve as a guide to what software is available, where to find documentation on how to use the software, where to find the software, and where to find help in using the software.

For more information, contact me (erclib@csa1, X6166).

UNIX Processes and CPU Time

Dave Cleveland

A UNIX process may continue to use CPU time after a user's login session is terminated if:

- a command, that the user executed, did not terminate normally.

- the physical connection to the user's terminal was broken.

If such an orphaned process continued to use CPU time, an overcharge to the user's account might occur. To prevent this, a default CPU time limit of 3,600 seconds was established on September 9, 1985. This limit was implemented by the insertion of the statement

limit cputime 3600s   ,

into each user's .login file, where the character "s" indicates seconds. The limit is applied to every user's command, job or process. To check the value of the CPU time limit, enter the command:

% limit cputime <RETURN>

Users can change this limit in their .login files, or reset it during their login sessions. To see some examples of the limit command read the "Default CPU Time Limit for UNIX Users" article on page 8 of the September issue of the Newsletter. For more information on the **limit** command see its description on page 12 of the manual entry for CSH(1) in the UNIX Programmer's Manual. Questions and comments may be forwarded to me (davec@lbl-ux4, x5336).

Using Bitnet

William Jaquith

The Bitnet is a network that links together seven hundred computers in the United States and Europe. In the U.S., the members of Bitnet are institutions of higher learning and non-profit research facilities. In Europe, the Bitnet is known as EARNet or European Academic Research Network.

The largest group of computers in the Bitnet are IBM mainframes connected via IBM's RSCS (Remote Spooling Communications Subsystem). The second largest group of computers are Digital Equipment Corporation VAX/VMS computers running software that makes the VAX/VMS systems appear as if they are nodes in the RSCS network. At Lawrence Berkeley Laboratory we have purchased vendor software from Joiner Associates of Madison, Wisconsin. This software is called "jnet." The "jnet" product allows the VAX/VMS computers to communicate with computers in the Bitnet.

Lawrence Berkeley Laboratory's connection into the Bitnet is via modems and leased lines from the Computing Services 8600 computer known as CSA2 to the IBM 3081 located on the U.C. Berkeley campus. The IBM on the campus is known as UCBCMSA in the Bitnet. The UCBCMSA computer serves as a West coast hub for the Bitnet. More than ten West coast sites link to UCBCMSA and share the cost of a leased 9600 baud line from UCBMSA to CUNYVM. The Bitnet site at CUNYVM is an East coast hub for Bitnet.

The Bitnet provides for three principal functions:
1) file transfer
2) electronic mail
3) real time messages

The real time message facility may be used to exchange single line messages among logged on users, to start remote batch jobs, and to inquire about the status of remote systems. One facility that is not provided for is the remote terminal facility. DECnet users will be familiar with remote terminal from the "set host node" command and Milnet/ARPA users will be familiar with the "telnet site" command.

Lawrence Berkeley Laboratory has registered the 8600 computer CSA2 as our link to the Bitnet. LBL's name in the Bitnet will be **LBL**. Users will be able to receive files sent to the Bitnet address LBL on the Computing Services 8600 CSA2 machine. In order to receive Bitnet files, users will have to logon to the CSA2 computer. Once Bitnet files have been received, it will be possible to edit, print, and otherwise manipulate these files from any CSA computer because of the 8600 cluster capabilities.

Bitnet files are stored in a scratch file area until they are received by the user. Due to storage limitations, Bitnet files will be allowed to exist as long as ten days in this scratch space before they will be deleted. If you know that you will not be here for more than ten days and expect to receive some Bitnet files, send mail to "**system**" on CSA2 and we will specifically save your Bitnet files for you.

The local commands for the Bitnet are "**bsend**" and "**breceive.**" These are Bitnet send and Bitnet receive. (These commands are renamed from send and receive due to a conflict with an already existing software tools command send.) Help is available on each of these commands by typing "**help bsend**" or "**help breceive.**" It is also possible to get help on each command after you have entered the bsend or breceive subsystem, by typing "**help.**" It is possible to find out if a node is contained in the Bitnet database by typing:

Csa2 > bitnetlist sitename

It is also possible to read the file **lbl110:[jan0.sys]lbl.links** to see the known Bitnet nodes. Following are several examples showing common uses of the Bitnet.

RECEIVING FILES at CSA2 :

When logging in on CSA2, you will see the message *"type BRECEIVE to process new network files."* Typing "**breceive**" will bring you into the Bitnet (**jnet**) subsystem. The prompt is "BRECEIVE>". Help is also available in breceive by typing "help." The command "**receive ***" issued in breceive will copy all of the files into your current directory.

```
$Csa2  breceive
BRECEIVE>  help
BRECEIVE>  receive *
```

SENDING FILES from CSA2 :

The command "bsend/file" is used to send files from CSA2 to Bitnet sites. Help is available at the DCL level by typing "help bsend." The following is an example of sending the file practice.lis from CSA2 to userid at the Bitnet site PSUVM.

$Csa2 bsend/file practice.lis userid@psuvm

PRINTING FILES from UCBCMSA :

Use the print command in conjunction with the Bitnet to print files on Computing Service's laser printers from Bitnet sites such as UCBCMSA. It is possible to use the following IBM interactive session commands to create print files.

```
CP SPOOL PRINT NET
CP TAG DEV PRT LBL PRT
```

The command to print the file called "information list," then is

print information list

This file will print on the laser printers in the Computing Services I/O area. The title (cover) page will include BITNET, filename, and filetype. The output will be put into the output bins marked BITNET. You will have to claim your output by file name.

It is also possible to create an exec using these CP commands so that you do not have to enter these commands each session that you want to print. The "lpr" command is an example of an exec that contains these commands.

SENDING REAL-TIME MESSAGES:

The command "bsend/command" is used to make inquiries of a remote Bitnet system. The following example shows how to query the UCBCMSA system for the status of the queues coming to the LBL Bitnet node (the CSA2 8600).

```
$Csa2 bsend/command ucbcmsa q lbl q
(UCBCMSA) - LINK LBL  S=0  R=0  Q=1
P=0
```

Mail can be sent using two paths. VMS mail sent into the Bitnet will use this address pattern:

```
$Csa2 mail
MAIL> send
To: jnet%"userid@bitnetsite"
Subj: Bitnet mail test
Enter your message below...
```

It is still possible to use the software tools mail with the gateway at Wisconsin to send mail into the Bitnet. The address pattern using software tools mail is :

```
$ Csa2 sndmsg
To: userid%bitnetsite.bitnet@wiscvm.arpa
To: ...
```

There is help available for VMS mail at the DCL level. Help is also available within each mail utility. Additional help is available in an article published in the July issue of the **Computing Services Newsletter**.

Please address questions and comments to me using electronic mail. My electronic mail address is WDJaquith@LBL.ARPA.

SPSS-X Release 2.1 For VAX/VMS

Elon Close

The SPSS-X Information Analysis System is now installed on the Computing Services VAX 8600 cluster. It is envoked by logging onto CSA and typing

$ SPSSX <cr>.

SPSS-X is proprietary and is licensed for the Computing Services VAX 8600 cluster.

On-line information pertaining to this product can be accessed by typing

$ HELP SPSSX <cr>

when logged onto CSA. Information that is specific to using SPSSX at LBL is contained in the subtopic LBLINFO. All new users should read this information before attempting to run SPSS-X.

The SPSS-X User's Guide states that:

"The SPSS-X Information Analysis System is a comprehensive tool for managing, analyzing, and displaying information. It can take data from almost any type of file (or combine several files) and turn them into meaningful information: tabulated reports, plots of distribution and trends, and results from a wide variety of statistical procedures. SPSS-X brings together data management, report writing, and statistical analysis in one comprehensive system with a single language."

For more information, contact me (erclib@csa1, X6166).

The High Energy Physics DECnet

William Jaquith

Lawrence Berkeley Laboratory belongs to a moderately large DECnet (Digital Equipment Corporation network) which will undergo some changes during October. These changes will be in network system management and will not affect users. This article is meant as information for those who have an interest in the network management.

Lawrence Berkeley Laboratory is a member of a nation-wide High Energy Physics community DECnet. The most common computers are VAXes. Locally there are 30 to 50 computers on the LBL section of the DECnet. Other groups at LBL besides the High Energy Physics group are members of the local LBL DECnet.

The need for collaboration among the High Energy Physics community has led to the linking of many local DECnets including SLAC, Cal Tech, and Fermi Laboratory. One of our prime connections is a 56k baud microwave link to Stanford Linear Accelerator. The PHYS computer at LBL links to a microwave which links to the TPCS computer at SLAC. This linking of sites by the High Energy Physics community has created a DECnet of some 120 to 150 nodes.

DECnet nodes may be non-routing or routing. Non-routing nodes go to routing nodes for information about paths to other DECnet nodes. There is some overhead associated with keeping routing database for the DECnet. This is because each time that a node goes down or comes up on the DECnet, all of the routing nodes change their databases to reflect that change. The amount of this overhead starts to become significant as the network grows beyond 100 nodes. VAX/VMS Version 4.1 and DECnet Phase IV provide for some tools to deal with this problem.

DECnet Phase IV allows for areas. It is now possible to split our large DECnet into smaller areas. In these smaller areas, the computers that maintain routing information do so only for the local area computers. In each area there are one or two computers that are Level 2 routers. These Level 2 routers maintain information about the different areas. When a routing computer receives a packet that is addressed out of the local area, the packet is forwarded to a Level 2 router which sends the packet to the designated area.

The High Energy Physics community has elected to take advantage of the area routing capabilities of DECnet Phase IV by splitting the United States into three large areas. LBL/SLAC will anchor the Western region and be designated as area 41. Fermi Laboratory will be the primary location for the Central region and will be area 42. The Eastern region will be centered on Brookhaven National Laboratory and will be area 43. The scheduled date for this conversion is October 14.

There should be no impact for users when these changes take place. Normally users are designating nodes by node name (alias). The node name represents the node's DECnet numeric address. For example, the node name CSA5 represents DECnet node "1.200." The number 1 represents area 1 (the default area) and 200 represents the assignment made in the database. Under the new area routing that will go into effect in October, a user can still use the node name CSA5. However, when DECnet translates that node name, the translation will reflect the new database information "41.200." A user does not now have to know that CSA5 is actually node number "200." In the future, under area routing, a user will not have to know that node CSA5 is now "41.200." All of the area routing will be done automatically and transparently for users by the DECnet Phase IV software and protocols.

As a last example, users can now "set host fnal." It is not necessary for the user to know that the node FNAL is DECnet node number "155." When we are using area routing, users at LBL will still be able to "set host fnal." It is not necessary for users at LBL (area 41) to know that the FNAL will now be DECnet node number "42.155" and that FNAL will be in the central HEPnet region (area 42). All of the area routing will be handled automatically and transparently for users.

For complete information about DECnet refer to **"Guide to Networking on VAX/VMS"** published by Digital Equipment Corporation. The order number is: AA-Y512A-TE. Address question and comments to me using electronic mail (lbl::WDJaquith).

VAX/UNIX Line Printers

Bob Rendler

Since last month changes have taken place in Vax/Unix line printing. The following is an update to the September newsletter article.

Note that there are three user-serviced Talaris laser printers at the Central Facility. The laser printers will initially support landscape character line printing only.

As the hardware supports the primitive functions of dot addressability over the entire 8 1/2 " × 14" image area at 300 dots per inch, raster/pixel graphics and vector graphics, it is probable that we will support a much wider range of applications at a later date.

Initially, we are providing both an impact printer and a Versatec Model V80 for line printing purposes in Building 90. These are user-serviced devices. Usage patterns will determine their future.

Currently you are limited to printing a maximum of twenty files in one command execution on both the line printers and the Versatec. It is expected that this maximum will increase in the future.

See the online "help print" article for information on examining and removing jobs from the various line printer queues.

COMMAND	DEVICE	LOCATION	DESCRIPTION
lpr -Plp < filename >	Talaris 2400 (3 each)	50B/1215	24 ppm, 300 dpi laser printer
lpr -Plp27 < filename >	DEC LP-27	50B/1215	1200 lpm impact printer
lpr -Plp90 < filename >	Data Products B300	90/3136	300 lpm impact printer
lpr -Pv90 < filename >	Versatec V80	90/3136	1000 lpm, 200 dpi Non-impact printer

Protecting Tapes in the VAX/VMS Environment

Edna Williams

Because privileges are not required when initializing a blank tape or a tape not protected in a previous initialization, it is possible to inadvertently destroy data already on the tape. This can lead to a user mistakenly destroying another users data if, for instance, the wrong tape is hung on the tape drive; however, if proper protections were set when the tape was initialized and the data was written, it cannot be overwritten by a non-privileged user. Note that a user other than the owner of a tape cannot mount that tape foreign and proceed to write on it provided protections were set by the owner. (Mounting a tape foreign indicates to the VAX/VMS operating system that the volume is not in the standard format.)

When initializing a tape, the /PROTECTION qualifier must be specified to provide protection; using the /OWNER_UIC qualifier on the INITIALIZE command will have no effect unless the /PROTECTION qualifier is also specified. Further, using the /OWNER_UIC and /PROTECTION qualifiers on the BACKUP command will be effective on magnetic tape save sets only if the /REWIND or /IMAGE/INITIALIZE qualifier is also included. This is because protection on a magnetic tape is encoded in the volume label and BACKUP appends to the end of the tape and does not touch the volume labels unless one of the above two qualifiers is specified.

As with disk volumes, protection can be set on a magnetic tape such that the world can read it but only the owner or a privileged user can write to it. Following are some examples of setting protections and writing to tapes. In these examples I used hsc015$mua9 as the device name but one might use the logical name, say UTAPE2, instead.

Example 1. Using COPY to write a file, MYFILE.DAT, to tape and allowing no access to group or world; the tape is labelled MYLABL. Since no owner_uic is specified, the current UIC is assigned ownership of the volume. This is a case where a non-privileged user cannot mount the tape foreign and thereby thwart protections.

```
$ allocate hsc015$mua9:
$ initialize/density=6250/protection= -
(s:rwe,o:rwed,g,w) -
hsc015$mua9: mylabl
$ mount hsc015$mua9: mylabl
$ copy myfile.dat hsc015$mua9:*.*
$ dismount hsc015$mua9:
$ deallocate hsc015$mua9:
```

Example 2. This is the same as Example 1 except world read access is permitted.

```
$ allocate hsc015$mua9:
$ initialize/density=6250/protection = -
(s:rwe,o:rwed,g,w:r) -
hsc015$mua9: mylabl
$ mount hsc015$mua9: mylabl
$ copy myfile.dat hsc015$mua9:*.*
$ dismount hsc015$mua9:
$ deallocate hsc015$mua9:
```

Example 3. Using BACKUP to save NEWFILE.DAT in saveset NEWFILE.BCK. The /LOG qualifier lists the file copied, /VERIFY causes BACKUP to read back the file and compare it with the original and /LABEL specifies the volume label as NULABL. Note, however, that in this case NULABL has no effect since the /REWIND was not used on the BACKUP command. NEWFILE.DAT is appended to the tape after MYFILE.DAT which was written in Example 1.

```
$ allocate hsc015$mua9:
$ mount/foreign hsc015$mua9:
$ backup/verify/log newfile.dat -
hsc015$mua9:newfile.bck/label=nulabl
$ dismount hsc015$mua9:
$ deallocate hsc015$mua9:
```

Example 4. Using BACKUP to save the directory, [MYLOGIN.MYDIR], on the default disk. In this case the tape will be rewound and labelled NULABL and the save set is NEWSAVE.BCK; however, there will be no UIC protection. Note that /label is an optional qualifier of the BACKUP command.

```
$ allocate hsc015$mua9:
$ mount/foreign hsc015$mua9:
$ backup/verify/log/rewind [mylogin.mydir] -
hsc015$mua9:newsave.bck/label=nulabl
$ dismount hsc015$mua9:
$ deallocate hsc015$mua9:
```

Example 5. This is similar to Example 4 except in this case the /OWNER_UIC qualifier assigns an owner UIC of [3,3] to the save set. The /PROTECTION qualifier assigns the owner of the save set volume READ, WRITE, EXECUTE, and DELETE access. System users are assigned READ, WRITE, and EXECUTE access; world users are assigned READ access.

```
$ allocate hsc015$mua9:
$ mount/foreign hsc015$mua9:
$ backup/verify/log/rewind [mylogin.mydir] -
hsc015$mua9:newsave.bck/owner_uic=[3,3]-
/protection=(s:rwe,o:rwed,g,w:r)/label=nulabl
$ dismount hsc015$mua9:
$ deallocate hsc015$mua9:
```

The above example is another case where the tape cannot be mounted with the /FOREIGN qualifier and written to by a non-privileged user; however, since world has READ access a user other than the owner of the tape can COPY the save set from the tape and then use BACKUP to restore the files. The necessary commands are as follows:

```
$ allocate hsc015$mua9:
$ mount/density=6250/override=id hsc015$mua9:
$ copy/log hsc015$mua9:[]newsave.bck [mylogin.backup]*.*
$ dismount hsc015$mua9:
$ deallocate hsc015$mua9:
$ backup [mylogin.backup]newsave.bck/save_set [mylogin.backup]*.*
```

Computer Courses for 1985

Jerry Borges

Below is a schedule of the remaining computer courses for 1985. These courses, offered through the Computing Division, are held in the Center's Training Room (Building 50B, Room 1229); attendance in all courses is limited to 15.

If you are interested in taking one of these classes, contact your supervisor, who has complete information regarding enrollment procedures.

The Training Room is a multi-purpose terminal room with first priority as a facility for hands-on computer training and seminars. In those periods when classes are not in session, users will have access to the terminals.

If you have any additional questions about what's being offered, or suggestions for other curriculum-oriented topics, contact Jerry Borges (x5568.) Facilitator is Lisa Long, (x5947.)

See the December newsletter for a list of courses to be offered through June 1986.

How to Mail us your Newsletter Articles

William Jaquith

It is possible to use the software tools mail (msg or sndmsg) to easily send your articles for the monthly newsletter to the appropriate person. I have created 2 aliases; one called **news** and a second called **newsletter**. At the address field simply say either **news** or **newsletter** and your article will be delivered to the correct place for the newsletter.

Refer to the July Computing Services Newsletter for an article on how to use software tools mail.

VMS -- Disk Change

Cammie Howard

Over the next two months, the disk cluster size, on the Computing Service cluster, will be changed from 3 to 1. This should, on the average, lower the number of blocks allocated for a file. This will result in more available disk space, and this will not impact users.

A very few users may see a reduced efficiency for programs manipulating large data files. This can be corrected by specifying the initial file allocation and file extent size to fit your application. Both of these issues are discussed in VAX/VMS: Guide to VAX/VMS File Applications Manual. This manual is available from the Computing Services Library.

For more information, please contact Cammie Howard X4748.

	Date	Time	Title
Tues & Thur	Oct. 15, 17, 22, & 24	9:30 to noon	Introductory "C" Programming
Tues & Thur	Oct. 15, 17, 22, & 24	1 to 4 PM	Introductory VAX/UNIX Course
Tues & Thur	Nov. 12, 14, 19, & 21	9 AM to noon	Introductory VAX/VMS Course

Computer Recharges For FY86

Eric Beals

The FY 86 recharge rates by LBL Computing Services for various services starting October 1, 1985 are given in tables I and II (see pages 13 and 14).

To obtain the discounted rate, a user (or group of users) must commit funds to the computing center that will be charged in equal installments each month without regard to actual computer use. Computer use will be charged against the commitment at the discount rate.

Users whose computing needs vary throughout the year may specify an "Expected Use Profile" (EUP) as a dollar amount each month of the year. The total of a group's EUP must equal the total committed value.

UNDERRUN of the monthly EUP by a group will be carried forward for their use until such a time as the total underrun by all users exceeds the capacity of the computer systems ability to meet the demand should all of the underrun be requested. After such time users current accumulation of underrun will be adjusted to reduce the total underrun of all users below the limit of the system.

OVERRUN of the monthly EUP by a group may be carried forward against future monthly EUP until the total accumulated overrun exceeds the monthly EUP for the given month. Additional overrun will be charged at the full recharge rate and added to the committed monthly charge.

Information and worksheets have been sent to members of CSAC and the Division Offices.

Forward commends and questions to Eric Beals (erbeals@lbl).

TABLE I

VMS (8600 CLUSTER)

CPU CHARGES

	Regular Rates		Discounted Rates Charged Against Commitment	
	Prime	NonPrime	Prime	NonPrime
Connect Time	$ 1/hr.	Free	$ 1/hr.	Free
CPU Time				
Interactive	$160/hr.	$ 80/hr.	$100/hr.	$ 50/hr.
Batch				
Equal[1]	$160/hr.	$ 80/hr.	$100/hr.	$ 50/hr.
Normal[2]		$80/hr.		$50/hr.
Economy[3]		$40/hr.		$25/hr.
Stand-By[4]		$40/hr.		$ 5/hr.

DISK STORAGE

Class	Backup Frequency	Avg.Use[5] During The Month	Peak Quota[6] Allocated In Month	Avg.Use[5] During The Month	Peak Quota[6] Allocated In Month
"A"	Daily	$16	$12	$12	$10
"B"	Weekly	$ 8	$ 6	$ 6	$ 5
"C"	Never	$ 4	$ 3	$ 3	$ 2

$/MegaByte/Month

---

[1]   Priority set so the job runs like an interactive job.

[2]   Priority set so the job will usually run during prime time.

[3]   Priority set so the job will usually run during nonprime time.

[4]   Priority set so the job runs using idle CPU time.

[5,6] The user may select disk space charged on the basis of either average
       use over the month, or on the peak quota allocated during the month.
       The various categories must be on different physical drives so the
       user who wishes to use more than one of the 6 available categories
       will necessarily need to be more knowledgeable about the VMS system.

TABLE II

UNIX

CPU CHARGES

	Regular Rates	Discounted Rates Charged Against Commitment
Connect Time		
Prime Time	$ 1/hr.	$ 1/hr.
NonPrime Time	Free	Free
CPU		
VAX 11/780 (UNIX 4 & 7)		
Prime Time	$100/hr.	$ 60/hr.
NonPrime Time	$ 50/hr.	$ 30/hr.
VAX 11/750 (UNIX 5 & 6)		
Prime Time	$ 60/hr.	$ 35/hr.
NonPrime Time	$ 30/hr.	$ 18/hr.

DISK STORAGE

Charged on average use Backed up daily	$ 16	$ 12
	$/MegaByte/Month	

MISCELLANEOUS

Tape Library $5/Month/Tape

Printing $.05/Page

THE WORKSTATION SCENE

WORKSTATION NEWS

[22.10.1]...

- **NEW MICROS AT LBL**

The Workstation Group has been busy in September helping many new PC users put together purchase orders for PC's. Our special thanks to Mark Vega and Eric Sargeson in Purchasing. They are the ones that really made it all happen.

We want to welcome our new PC users by including reprints of several articles that have appeared in past issues of the LBL Computing Newsletter. We ask that our readers pass on their copy to new PC users that are not yet on our mailing list.

[22.10.2]...

- **CDC DISK DRIVES UPDATE**

GOOD NEWS for all our patient PC /AT users. CDC finally delivered all the disk units that were on backorder. As of September 15 only ten or so units have been installed. RTSG's technicians report no problems with any of the units. By this time next month we should have a larger installed base; as approximately four dozen units have been purchased.

Most of the units have ten or less "bad blocks" (spots on the disk surface where data can not be stored). For each "bad block," DOS removes 10 Kilobytes of storage space on the disk. This is not much of a price to pay; you have 30 Megabytes to start with. You want to avoid storing irretrievable data.

[22.10.3]...

- **ORACLE DATABASE MANAGEMENT SYSTEM**

The Workstation Group has an evaluation copy of ORACLE, a relational database management system for the IBM PC. ORACLE is reported to be a truly portable system which runs identically on a vast array of computer systems including IBM mainframes, DEC 8600s, DEC 11/780s and the IBM PC.

To arrange for a loan of the software, contact Workstation Group Member Dan Van Zile (×5589).

[22.10.4]...

- **CAMPUS IBM PC USER GROUP MEETING**

The University campus IBM PC User Group meets regularly on the second and fourth Wednesdays of the month at 5:30 PM at 10 Evans Hall. The speaker is announced a few days before the meeting. Call Bill Wells (642-9801) for more details.

[22.10.5]...

- **SECURITY DEVICES FOR PCs**

Just a reminder! Personal Computers and related devices should be secured to work tables or desks to prevent theft. The Workstation Group has blanket order contracts with vendors to provide suitable devices for various computers and peripherals. In most cases, ordering a security device is as simple as making a phone call to Dan Van Zile (×5589).

[22.10.6]...

- **HP LASERJET UPGRADE**

On September 1, HP announced the availability of a 512 Kbyte memory expansion option for the HP LaserJet printer. The memory expansion will support downloadable fonts and will also allow up to one-third of a page of graphics at full resolution. Cost when ordering a new system: $667. Cost for a field upgrade on an existing system: $1000.

A few new units have been ordered and should be arriving at the lab in September. In addition, the Workstation Group should receive an evaluation unit from HP about October 1. We also have a list of some of the third-party software packages available for HP LaserJet applications. For further information, contact Workstation Group members Buck Koonce (×5739) or R. LaPierre (×4692).

[22.10.7]...

- **PUBLIC DOMAIN SOFTWARE FOR IBM PCs**

Due to the high level of interest and the ever-increasing amount of public domain (free) software, we have placed the contents of individual diskettes (volumes) on the VMS cluster's disks. The public domain can be accessed by logging onto any cluster 8600 and entering the command:

SET DEFAULT IBMPCSOFTWARE

The sub-directory, lbl109:[util.micro.ibm.software], contains the indexes and table of contents for all disks issued by the local user groups. There will be a sub-directory with the name VOLxx where xx is the volume (diskette) number for all disks that we have. Additionally, we will add other interesting software such as Kermit and locally-developed utilities.

We selected the VMS Cluster as the mechanism for distribution of the PUBLIC DOMAIN SOFTWARE. (We do not intend to put this software on any Unix system). For further information, contact Dan Van Zile (×5589).

[22.10.8]...

● FLOPPY DISKETTES FOR IBM PC-ATs

Special high-density diskettes capable of being written at 96 tpi and quad density must be used if maximum capacity is desired on the AT's floppy disk drive (the "A" drive). Suitable disks are available from LLNL PC stores (part number 6040-68408). Or call the INMAC store (sometimes price and delivery are better). Note that these disks CAN NOT be used on standard disk drives in regular PC's, XT's or other compatibles. When purchasing high-density diskettes for your AT, ask for units with 1.2 Megabytes storage capacity.

[22.10.9]...

● LOTUS 1-2-3 UPDATE

A new release of **Lotus 1-2-3** should be available about mid October. The pricing information for registered owners of 1-2-3 is not available at this time. The PC store at LLNL will be handling upgrades for 1-2-3 in the same manner that they handled Symphony upgrades (send in your diskette). For further information contact the LLNL PC store (×181-3-7300).

The new software will support the extended graphics adapter (EGA) card. For users who can't wait for the upgrade, there is a program that supports the EGA card with the existing releases of 1-2-3. To obtain a copy of the software contact Workstation Group Member Dan Van Zile (×5589).

[22.10.10]...

● HOW TO TRANSFER WORD PROCESSING TEXT FILES

With the proliferation of office automation hardware and software at the Laboratory, the need to transfer files between word processing systems has grown. As those of you who have transferred text files between various systems know, this can sometimes be very frustrating.

File transfer between many LBL systems has been accomplished by various people. These word processing files will lose all their format characteristics (bold, underline, etc.) but you will get all the characters to the new system. Systems between which file transfers are possible are: Wang, Xerox Stars, IBM PC's, Macintoshes, and the VMS and Unix machines in the Central Computing Facility.

A transfer is accomplished either by telecommunications or by transporting compatible diskettes from one machine to another. For information on your specific need, contact Buck Koonce, ×5739 or Ann Fitzgerald, ×4808.

[22.10.11]...

● KERMIT INSTRUCTIONS AVAILABLE TO PC USERS

The Computing Division library has a short handout on "How to transfer files using Kermit" available to PC users. Kermit is a file transfer and terminal emulation package in the public domain (free), installed on the Computing Division's machines and supported by the Workstation Group.

The program is useful for transferring files to and from PC's and the VAX machines or other PC's. Contact the Computing Division library to obtain the handout (×5529).

[22.10.12]...

● PC NEWSLETTERS FROM LIVERMORE

LLNL publishes two newsletters that we recommend to our PC readers. **Personal Computer News** is produced by the Systems Development Engineering Group of the EE Department (181-2-1232). **TENTACLE** is a product of the Computation Department (181-2-0592).

The **Personal Computer News** is all about personal computer hardware and software, whereas **TENTACLE** has news about Central Computing at LLNL in addition to their excellent "PC Corner."

[22.10.13]...

● OOOPS -- ANOTHER DOS BUG

A couple of months ago we reprinted an article suggesting that all PC users with hard disk systems convert to version 3.1 of the DOS operating system. Since then, PC developers at Control Data Corporation have discovered a serious bug in DOS ver. 3.1 on the IBM PC/XT. (This bug does not exist on the IBM PC/AT.)

PC/XT users should switch back to version 2.1 of the DOS operating system until a bug fix is announced for DOS version 3.1.

PC/AT users should upgrade to DOS version 3.1 as soon as possible because of problems with the initial release of DOS version 3.0.

[22.10.14]...

● MACINTOSH USER GROUP

A local Mac User's Group meets on the UCB Campus every Thursday at 5:30 in PSL (Physical Science Lab). This group is called the Berkeley Macintosh User's Group. Their address is Suite 153 - 1442A Walnut Street - Berkeley, CA 94709, (849-9114).

[22.10.15]...

● FREE PC TRAINING

LBL has negotiated with CDEX for a U. C. System-wide site license for computer-aided instruction for the IBM PC. The license allows unlimited copies to be made of both the program diskettes and the printed documentation for each program. The Workstation Group will be distributing this material from the HELP DESK in the Computer Center. Call Dan Van Zile (×5589 or ×5981) to arrange for a loan of the material so that you can make copies. Loans will be for 24 hours only. If you would like to order the materials directly from the vendor, send a purchase requisition to LBL Purchasing. The requisition should reference the UC agreement number 900/BE/047/00 with:

Cdex Corporation
1885 Lundy Avenue
San Jose, Ca. 95131
Attn: Ruth Whitted (408) 263-0430

The following programs are covered in the agreement and are available through either mechanism (costs are for direct ordering only):

How to use your IBM PC ....$ 7.50
Training for PC DOS $19.00
Teach yourself **Lotus 1-2-3** ....$ 7.50
Advanced Training for **Lotus** 1-2-3 ......$ 7.50
How to use the IBM PC/AT ....$ 5.50
Training for **dBaseII** ....$ 7.50

[22.10.16]...

● IBM PC/AT OWNERS ALERT

IBM has announced a possible fault in the AT's that were shipped from the end of '84 through June '85. They estimated 10% of the lot has a fault in the clock circuit used in the transfer of data between the hard disk and memory.

If your AT has a serial number in the range of (5019001 to 5141250) or (0054001 to 0146900) you may have one of the suspect machines.

The Workstation Group has a special diagnostic floppy disk from IBM that tests the suspected units. IBM will exchange the units that fail this test. Contact RTSG's Technical Support Group (×6411) if you want your system checked out. If you want to do your own testing, you may obtain a copy of the IBM diagnostic from Workstation Group Member Dan Van Zile (×5589).

[22.10.17]...

○ INMAC STORE MAKES ORDERING EASY

LLNL has a vendor operated store for microcomputer peripheral equipment that LBL may use. The INMAC store is operated by Matt Davis, (443-6054). The store carries all sorts of cables, glare screens, paper, ribbons for printers, and many other non-stock items that workstation users might need. **To order, you simply call the store with your request and give them your employee number and account number.** To get a catalog of the available items, just call Matt.

****

THE FOLLOWING ARTICLES ARE BEING REPRINTED FOR USERS WHO ARE NEW TO WORKSTATION NEWS.

****

[22.10.18]...

● TIMELY TIP

Timely Tip: . . . to new **PC/AT** Owners. IBM does not have a master key for your keylock. Therefore, be SURE to record the **SERIAL NUMBER** of your key and -- better still -- put the duplicate key in a safe place.

[22.10.19]...

○ TIMELY TIP

Timely Tip: . . . to new **PC** owners. Be sure to keep your receiving document for warranty repairs. Label your system (in a highly visible place) with the warranty expiration date.

[22.10.20]...

○ NEW EDITION OF KERMIT USER GUIDE

KERMIT users take note: we've just acquired the new Sixth Edition of the **KERMIT USER GUIDE.**

To get your copy of the latest edition for systems in use at the Laboratory, stop by the Computer Center Library (50B/1245A).

[22.10.21]..

- VT100 TERMINAL EMULATOR FOR THE
  IBM PC

The Workstation Group has a copy of **PC-VT**, a user-supported software package that emulates **DEC VT100** and **VT102** video terminals.

This package has received good reviews as a full emulation of the **VT100** terminals. In addition **PC-VT** also provides a Hayes-compatible dialing directory, **XMODEM** file transfer protocol, and the capability to run **DOS** functions or other programs without terminating **PC-VT** or disconnecting from the host. **PC-VT** can echo all displayed characters to a printer thereby producing a hard copy record of your terminal session. The program comes with a very polished documentation package (about 100 pages long).

For a copy of this program disk, contact Workstation Group member Dan Van Zile (✕ **5589**).

The Workstation Group will continue to support **VTERM II**, a **VT100** emulator. (It's available from **LLNL PC** Stores for about $80.)

We like the concept of "**freeware**" (non-licensed software supplied by the developer) that permits you to try out the package, sending in a "suggested donation" if you find it useful.

[22.10.22]...

- SCIENTIFIC WORD PROCESSORS FOR THE
  IBM PC

We have several Scientific Word Processor program available to Laboratory employees for testing and evaluation. Included in that number are:

- Volkswriter Scientific
- TechFont with Proofwriter
- Spellbinder Scientific
- VuWriter
- T^3 from TCI Software Research

To arrange for a loan (and evaluation, contact Richard LaPierre, (✕ **4692**), or Dan Van Zile, (✕ **5589**).

[22.10.23]..

- C-KERMIT (V 4 C) IS UP ON UNIX

"C-KERMIT," Version 4 C, a pre-release **UNIX KERMIT** program from Columbia University is, now available on the Computing Division's Unix Machines. This new program, written in "C" initially for 4.2 BSD (Berkeley System Distribution) is intended to be a basis for any systems that have "C" compilers.

The features of this pre-release test **KERMIT** include:

☐ Full implementation of **KERMIT** protocol, except for Attribute packets:

- Acts as a server
- Talks to a server
- All packet encoding and error checking options are provided
- File transfer interruption
- Filename collision avoidance
- Binary and text file transfer

☐ Modular construction for easy portability to other systems

- An interactive command parser as well as UNIX-style command line arguments
- Command and initialization files
- Piped operation
- Improved terminal connect, with optional logging
- Logs for debugging, packets, and transactions
- Communication with **IBM** mainframes

See the on-line manual entry "KERMIT" for complete details. Preliminary hardcopy documentation for Version 4 C on **UNIX KERMIT** is available from the Computing Services Library (50B/1245A, ✕ **5529** or ✕ **6094**).

Columbia reports that V 4 C seems to be perfectly usable on 4.2 BSD systems, and is an improvement over the previous **UNIX KERMIT** version. To access it, type

     kermit <cr>

The previous **KERMIT** version has been renamed **OLDKERMIT**.

Users with accounts on **VAX UNIX** machines are encouraged to read the documentation, to try running the new program, and to send comments and bug reports to Bob Rendler (**ren@ux4**).

[22.10.24]...

- **NEW ACCESS TO MICRO INFORMATION DIRECTORIES**

We've modified access calls to the Micro Information Directories to conserve time. Users can now access the directories on any of the Computing Division's **VAX/VMS** computers.

•• Info-Kermit Digest••

old command	new command
INFO_KERMIT	SET DEFAULT KERMITNEWS

•• IBM PC Public Domain Software••

old command	new command
IBM_PC SOFTWARE	SET DEFAULT IBMPCSOFTWARE

The method of accessing the Micro information directories on the Unix ux4 computer has not changed. As before:

COMMAND	INFORMATION
cd /usr/micro/info-kermit	Info-Kermit Digest

[22.10.25]...

- **TIPS ON DISKETTE STORAGE**

(Extracted from the MIAMI UNIVERSITY IBM PC USER GROUP NEWSLETTER).

The following good advice is worth taking:

- Do NOT close the drive doors after removing a diskette. This can cause the plastic on the read heads to chip, resulting in diskettes being scratched and destroyed. When leaving the PC, leave the disk drive doors open. If the PC is being moved, insert an old diskette or the cardboard insert shipped with the PC to reduce the chance of damage.

- Be careful about inserting the diskette into the drive. Be sure you have it fully inserted before closing the drive door. If the diskette is not fully inserted, you can mash the disk and lose your data. Hub rings help guard against this.

- Beware of disk-head alignment problems. If you can read your data on "Drive A," but encounter problems reading it on "Drive B" (i.e,. some other drive), you're in trouble. You may get garbled data or a DOS error message like "**DISK READ ERROR, ABORT, RETRY, IGNORE.**"

For further technical assistance, contact LBL's RTSG support (×**6411**).

QBUS CORNER

Randy Michelson

New Engineering Change (ECO) to MICRO-PDP11 disk controller RQDX1:

DEC has corrected several problems with the RQDX1 disk controller (M8639 board) for the MICRO-PDP11 and MICRO-PDP11/73.

We have obtained a new ECO, which requires PROM's 172E5 and 173E5 at E106 and E105. If you DON'T have PROM's 172E5 and 173E5, please contact Joe Love or Oliver Jones at ×6411, and ask for the M8639-R0004 ECO.

YES I would like to receive the Computing Newsletter

NAME...

FIRM..

CITY
STATE...
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COMMENTS...

....

....

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Return to: ....Newsletter - MS 50B, Rm 1245
Lawrence Berkeley Laboratory - University of California
Berkeley, CA 94720

Attention: **NL MAILING LIST**

LAWRENCE BERKELEY LABORATORY IS LOCATED IN THE HILLS ABOVE THE U.C. BERKELEY CAMPUS.
THE (CHOCOLATE-COLORED) BUILDING 50 COMPLEX IS LOCATED ACROSS FROM THE (RED & WHITE SHUTTLE) BUS STOP.
YOU CAN GET A FREE RIDE TO THE LAB ON THE SHUTTLE BUS : PICKUP POINT
IS AT SHATTUCK & CENTER IN DOWNTOWN BERKELEY.

The Computing Newsletter, published monthly, provides much useful current
information to our users and is mailed to them free, upon request.

VOGUE LA GALERE