PRENTICE COMPUTER CENTRE

UNIVERSITY OF QUEENSLAND, ST. LUCIA, QUEENSLAND, AUSTRALIA. 4067.

NEWSLETTER

N-299 April 1985

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Authorized by the Director of the Computer Centre

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Terminals, CDN & Equipment Pricing

For prices on microcomputers, terminals, line charges, computer bits and pieces, type HELP PRICES on your terminal. This will provide appropriate menus.

1. Newsletter Summary

- The low student rates on the IBM 3083E apply only to undergraduate course work. The semester charge is spread over four months.
- Some helpful hints are provided to assist users to avoid some common problems in using the VAX 11/780.
- A new switch for the TYPE command on the KL10 converts non-printing commands to their mnemonic form. So you will know about those spaces and tabs in your file.
- IMSL is a well known library of computational sub-routines. It is now installed on the IBM 3083E. A new version of IMSL has also been installed on the KL10.
- The trend is that new computational packages are compatible only with Fortran 7 and users should convert to this version as soon as possible.
- A start has been made on providing plotting packages on the IBM 3083E.
- New versions of KERMIT (from Columbia University Centre for Computing Activities) have been implemented to improve file transfer and terminal simulation for a range of personal computers.
- The use of the Centre's AUSTPAC X.25 gateway will provide considerable cost reductions in accessing international networks. Other advantages are higher transmission speed, ease of use and improved accounting.
- Details are given of short courses provided at no charge to staff and post-graduate students.

Director
extension 2189

2. Central Computing Facilities – Allan Woodland, ext. 2935

2.1 Client Information

2.1.1 IBM Student Rate

There have been a few misunderstandings regarding student rates on the IBM (half internal rate on a semester basis – assumed to be three months for the purpose of calculation). In fact, student virtual machines have typically been set up for four months and departments charged in four instalments of three-eights the monthly internal rate.

This student rate applies to virtual machines associated with the requirements of students enrolled in undergraduate degree or diploma courses. It does not apply to post-graduate research requirements. Course supervisors wishing to have "student rate" virtual machines set up should tender the normal "AUTH-UQVM" form and specify the subject so that we can obtain a file of student names and numbers from Enrolments Section.

Allan Woodland
extension 2935

2.1.2 What Every VAX-VMS User Should Know

Lecturers who only tell their students enough to do some particular task produce students who get very confused when things go wrong! Every user needs to know the basics of the file system and the various stages of running a job.

1. Make sure students know about the different stages of starting up a job:

   (a) Ensuring their terminal is plugged in and turned on (not as silly as it sounds!)

   (b) Getting through the MICOM: select host 3, hit RETURN after "GO", wait 2 seconds, then hit RETURN again to get VMS prompt. (If it shows "BUSY" after selecting host 3, hit RETURN and keep trying patiently. If it seems dead after "GO", or the VMS prompt is rubbish – wrong speed – hit BREAK and start again.)

   (c) Logging in: USERID and PASSWORD needed. Prints out any system messages. System monitor prompt is " $ " – ready for action!

2. If users have a program running and it doesn't seem to be doing anything, they can type control-T to see the state of their job. If the job is in COM, then it is computing. If it is LEF and the CPUtime figure is not going up (except for a minute amount for control-T processing) then the job is probably waiting for terminal input. Though all good programs prompt for input, some don't, and not knowing if a job is waiting for something from the terminal or not is a common cause of confusion.

3. The major problems are with the file system. It is important to understand that though files have version numbers, those version numbers are not normally used! If you are specifying a file name to be created, then you normally leave off the version number, and it creates a new version HIGHER than any existing ones. If you specify an existing file to be used for input, leaving off the version number gives you the highest, most recent version. This means that you should practically never have to specify a version number. You get rid of low versions of files by the PURGE command. The one time you have to specify a version is in the DELETE command which is usually one of:

   ```
   $ DELETE file.typ;        (deletes latest version only)
   $ DELETE file.typ;*       (deletes all versions)
   $ DELETE file.typ;3       (deletes version 3)
   ```

4. Some lecturers, meaning well, try to simplify things by not telling students about file types. However, this causes more confusion in the end because many programs expect specific file types. The Computer Centre recommends that files be created with the correct file type (extension) for the contents, in particular:

   ```
   .FOR    – fortran source
   .COB    – cobol source
   .BAS    – basic source
   .DAT    – data file
   ```
   .COM , of course, is a MUST for command files!

5. Students who have to share information with other users, or with their lecturer, will be less confused by error messages if they understand the VMS file and directory protection scheme:

(a) Each file belongs to a given user (i.e. uic). You can see who owns a file with:

$ DIR/OWN file.typ

(The following abbreviations are used, to keep the DCL commands to one line of 40 columns:

DIR	DIRECTORY
OWN	OWNER
PROT	PROTECTION
W	WORLD
R	READ)

(b) The owner of a file is usually, but not necessarily, the same as the owner of the directory it is in. Files exist independently of any directory. A directory is really just a list associating filenames with file contents. And a directory is just a file. To see the name of the file which is your directory:

$ DIR/OWN/PROT [000000]uic.DIR

(e.g. [000000]012006.DIR – no commas!)

(c) All files, including directory files, are, or can be, protected against unauthorised access by other users. However, there is a delicate and little understood interaction between protections of non-directory files and directory files. To read a file on somebody else's area, you must have READ access to the file. To gain READ access, the file's owner will need to change it's WORLD (or possibly only GROUP) access to READ:

$ SET PROT = W:R file.typ

But this is not really enough! If you have READ access to the file, but not to the directory, then you would be allowed to read the file, but you won't be able to find it! The solution is to have the protection on their directory changed too.

$ SET PROT = W:R [000000]uic.DIR

(d) WORD OF WARNING!!!! If you protect your directory WORLD:WRITE, then other people will be able to put files in your directory. This is not a good idea. Firstly, it uses up YOUR precious disk space (which you are paying for), and secondly, though the files will be in your directory, they will not belong to you! A file can have a different owner from that of the directory in which it resides, and this situation causes many headaches: the owner of the file cannot delete the file unless he has WRITE access to the directory (which may well have been changed since he put the file there), and the owner of the directory cannot delete the file unless he has DELETE access to the file (which has to be set by the owner of the file). So never let other users copy files into your directory. If you do want a copy of someone else's file, get them to set READ access on both their file and directory, and you copy the file across yourself. This ensures that ownership of the new file is yours.

Lyndal Hill
extension 3025

2.2 Systems Software & Extensions — Ian Burgess, ext.4074

2.2.1 New switch for TYPE Command on KL

Have you ever needed to know whether those are spaces, or tabs, in your file? Or perhaps there are strange control characters embedded in there somewhere? Now all you have to do is say:

.type filename.ext/visible

and you'll know for sure.

All non-printing characters are converted to their mnemonic form, e.g. <CR><LF>. A real carriage return and linefeed are inserted after the vertical movement characters (vertical tab, linefeed, and formfeed) to keep it reasonably neat on text files.

Chris Barker
extension 4167

2.2.2 IMSL on the IBM

The IMSL library is a set of computational subroutines written in Fortran and available on a trial basis on the IBM. It is divided into sections called chapters with each chapter devoted to a particular branch of numerical analysis. A list of chapters is as follows:

A Analyis of variance
B Basic statistics; Data Screening, Transgeneration; Elementary Classical Inference
C Categorized Data Analysis
D Differential Equations; Quadrature; Differentiation
E Erginsystem Analysis
F Forecasting; Econometrics; Time Series; Transforms
G Generation & Testing of Random Numbers
I Interpolation; Approximation; Smoothing
L Linear Algebraic Equations
M Mathematical & Statistical Special Functions; Probability Distribution Functions; Special Functions of Mathematical Physics
N Non-parametric Statistics; Analysis of Variance, Binomial or Multinomial Bases; Hyper or Multi-hyper Geometric Bases; Kolmogorov-Smirnoff Tests; Other Bases; Randomization Bases
O Observation Structure; Multivariate Statistics; Cluster Analysis; Discriminant Analysis; Factor Analysis; Principal Components Analysis
R Regression Analysis; Linear Models, Special Non-Linear Models
S Sampling; Survey Sampling
U Utility Functions; Error Detection; Special I/O Routines
V Vector, Matrix Arithmetic
Z Zero and Extrema; Linear Programming.

The version installed on the IBM is 9.2 in double precision (also available on NEW: on the KL in single precision). All subroutines have been compiled and the object code placed in IMSL92DP TXTLIB which is now automatically GLOBAL'ed by default at logon and when the FORTVS EXEC is used to compile FORTRAN programs.

To use the IMSL routines:

1. Include CALLS to the required routines in your program.
2. These routines will normally be loaded automatically for you. If, however, you issue your own GLOBAL TXTLIB commands either from your terminal or from within EXEC files and you wish to use IMSL, you should change any GLOBAL TXTLIB statements to include IMSL92DP.

The command "INFO IMSL" gives a brief description of how to use the IMSL routines available on the IBM. For more information concerning the availability of routines and detailed descriptions of the routines available, consult the IMSL manual (a set of 4 volumes) available for reference only at the Hawken Batch Station. (Note that whenever the manual says "REAL", use "DOUBLE PRECISION", i.e. REAL*8 in your program.)

If you have any queries regarding this package, please initially contact the HELP Desk on extension 3025.

Lee MacDonald
extension 3943

2.2.3 IMSL on the KL

As promised, IMSL Version 9.2 did indeed arrive recently and has been installed on NEW:. A total of 25 routines have been changed of which 18 involve computational changes. A list of the routines changed can be otained by typing the command "HELP IMSL92".

Users should note this version is only compatible with FORTRAN verstion 7 also available on NEW:.

As promised in the previous newsletter, the version of IMSL (9.1) previously available on NEW: is now available on STA: and version 9.0 is now available on OLD:.

Lee MacDonald
extension 3943

2.2.4 NAG on the KL

Another new KL arrival is NAG Mark 11 which is also available on NEW:. Users should once again note that this version is only compatible with FORTRAN version 7 also available on NEW:. A list of additions, revisions and withdrawals is available by typing the command "HELP NAGM11". Several routines are marked for withdrawal at Mark 12 and a list of those routines is included in the NAGM11 help file. Users are advised to withdraw those routines from their programs as soon as possible to avoid unnecessary problems at Mark 12's release.

Lee MacDonald
extension 3943

2.2.5 WARNING for NAG & IMSL Users on the KL

Since the latest releases for the NAG libraries and the IMSL libraries are both only compatible with FORTRAN version 7, users are advised to convert to FORTRAN version 7 as soon as possible since previous Fortran versions are no longer supported.

Lee MacDonald
extension 3943

2.2.5 Plotting on the IBM 3083

We now have some plotting routines available on UQVM. These routines have been converted from the VAX and were part of the original CALCOMP plotting software on the KL10. (For original descriptions of the routines and updates, refer to manual MNT-11: *Plotting on the PDP-10* and *Prentice Computer Centre Newsletter June, 1984*).

Before you get too excited, we had better point out that a lot of your favourite plotting facilities are not yet available (e.g. Tektronix plotting, previews etc.), but we can do plotting on the HP plotters, which is a step in the right direction. Also, since the plotting goes via the VAX, you need access to a VAX account.

Using the Plotting Routines

The only change from how the routines are called on the VAX is that there are no Hollerith constants. Where Hollerith constants were used in calls to SYMBOL, NUMBER and CENTRE, literal strings should now be used, i.e. use 'CONT' instead of 4HCONT.

The library file for the plotting routines is PLOTLIB TXTLIB. To call these routines from your Fortran programs you need to use a command sequence like

```
GLOBAL TXTLIB PLOTLIB
FORTVS program
LOAD program
START
```

after which your program should run and produce an output file to be sent to the plotter. The output file will be called FILE *name* A, where *name* is the name you specify to the PLOTIN routine. (You will recall that PLOTIN is always the first routine called by your program, and that its parameters are *name* and *device*. In view of what we said earlier, you should always specify a HP device, i.e. one of PLT3, PLT4, PLT5, HP, HP7585 or HP7475.)

The final step in getting a plot is

PLOT FILE *filename*

after which you are presented with a screen on which you need to specify the *userid* and *password* of a VAX account which gets charged for the plot. (The plot file is actually sent to a special plotting area on the VAX and plotted under the *userid* you specify.)

WARNING

The VAX userid and password cannot be checked until the file gets to the VAX, so please be very careful typing them in.

For more information type INFO PLOT.

Don't hesitate to call us if you have any problems.

Neil Skinner
extension 3020

3. Distributed Computing – Geoffrey Dengate, ext. 3391

3.1 KERMIT

Four new versions of KERMIT, the public domain micro-computer file transfer and terminal simulation program, are available.

Apple II DOS 3.3 :

Kermit-65 Version 2.1a is the first version to support the Super-serial card, lower case characters in terminal mode (//e only) and several other nice features.

Apple II CP/M :

Kermit-80 Version 3.9a which required a Hayes Micromodem, has been modified to produce two, more useful versions. These support the two more popular serial interfaces, the Apple Communications Card (or C.C.S. card) and the Apple Super-Serial Card. Now you can transfer all those Wosdstar and dBase II files to your IBM PC etc.

IBM PC DOS 2.1 :

Kermit-86 Version 1.20h is available now. Anyone currently using version 1.3, the field test version, should consider upgrading. Included is a program STRIP which removes the non ASCII characters from some word processor documents, allowing them to be sensibly transferred to other computers.

PDP-11 RT-11 :

The first version to work properly! See the article by Bryan Claire in the previous newsletter, page 9.

And Others :

Computer	**Operating system**	**Kermit version**
Apple II	DOS 3.3	2.1a
Apple II	CP/M	3.9a
Osbourne	CP/M	3.9a
Kaypro	CP/M	3.9a
Sirius	MS-DOS	1.18
Rainbow-100	CP/M-86	2.5
Rainbow-100	MS-DOS	LC-TERM 2.31
IBM PC	PC-DOS 2.1	1.20h
NEC APC	CP/M-86	2.7m
PDP-11	RT-11 V4.0	2.22
PDP-11	RSX-11M	2.11

All these Kermits are available free from Distributed Computing software support. We only ask that you supply your own floppy disk and in some cases your own computer to do the copying. To arrange to get your copy ring me on extension 4166.

A Kermit for the Apple Macintosh and a new version for PDP-11's running RSX are also expected some time in the future. Watch the file UQKL10::[5,124] KERMIT.NEW.

General information on Kermit is available in the file MAN:KERMIT.MAN (78 pages) on the KL10. Kermit source files and machine-specific documentation are available on DSKX:[5,124]. First read the file 00READ.TXT for a 'Who's who' guide to the other files on this area.

There are some rumours as to how Kermit got its name. Some say it stands for Kl10 ERror-free Micro Interface for file Transfer. Others say that it's a Gaelic word meaning "You don't have to pay for it!". Any other suggestions?

David Keenan
extension 4166

4. Engineering & Communications Services — Graham Rees, ext. 3288

4.1 Reducing Costs for Access to International Computer Systems

In February the Overseas Telecommunications Commission revised its charges for use of its MIDAS International Packet Switched Data Service. There are three access methods available now and the cost of using the service is dependent upon the particular access method, the call duration and the volume of data transferred. The charge for call duration is dependent upon the particular access method while the data charge is constant for all access methods, at $11.00 per thousand segments.

The three access methods are as follows:

(a) Dial up to MIDAS by placing a call to SYDNEY (02)20991, 20992 or 20993. This method costs $22 per connect hour.

(b) Dial up to AUSTPAC by calling 01921, 01922, 01923. This method costs $10-80 per connect hour.

(c) Using an AUSTPAC X.25 connection. This method costs $7.80 per connect hour.

It is clear that there is significant cost advantage in using an AUSTPAC X.25 connection. Users with access to the University network can make use of the Computer Centre's AUSTPAC gateway to take advantage of the significant cost saving of the AUSTPAC X.25 access method.

There are other advantages to using the Centre's AUSTPAC gateway as well.

(a) The Centre's AUSTPAC connection is over a 4800 bps line thus making available to the user much greater bandwidth than is available from either of the dial-up methods.

(b) Much simpler call establishment procedure. To call most overseas computers using either of the dial-up methods requires the user to enter a number of at least 13 digits. The Computer Centre's AUSTPAC gateway has a name table which allows users to enter short names instead of long numbers, and names can easily be added to this table at user request.

(c) No special accounts are required either with TELECOM or OTC for the use of the Centre's AUSTPAC gateway. All charges for the use of the AUSTPAC gateway are levied against a ppn on the DEC10 system.

(d) The AUSTPAC gateway types out the charged cost of a call when the call is cleared – there is no need to wait for the arrival of the monthly account from OTC to find out the cost of your call.

Comparison of all Establishment Procedures

This example illustrates the difference between calling The Source Telecomputing Corporation, a TELENET host, using the CENTRE's AUSTPAC gateway and using direct dial up to MIDAS.

1. Using the Centre's AUSTPAC gateway (assuming your terminal is connected to the MICOM).
   (a) Establish a connection to port class UQKL10.
   (b) Without logging in to the KL10 give the command
   SET HOST AUSPAC
   to redirect your terminal to the AUSTPAC gateway.
   (c) LOGIN to the AUSTPAC gateway – the login dialogue is exactly the same form as that for logging in to the KL10.
   (d) Give the command CALL SOURCE.
2. Using dial up access to AUSTPAC.
   (a) Dial the AUSTPAC number appropriate for your speed of operation (01921, 01922 or 01923) and wait for the tone.
   (b) Switch modem to data mode.
   (c) (If your modem and terminal operate at 300 baud type upper case H followed by "return").
   (d) When AUSTPAC responds with its greeting prompt type
   ?N<AUSTPAC NUI> – 0311030100047
   (where <AUSTPAC NUI> is the Network User Identifier assigned to you by Telecom).

Users who wish to authorize a PPN for AUSTPAC should bring to the Accounts/Enquiries counter or mail to the Accounts Officer of the Computer Centre a letter from the Financial Delegate (the person who normally signs orders) for the ppn which specifies:

1. Charge code of PPN
2. PPN
3. Whether international access is required.

Arthur Hartwig
extension 4079

5. Applications Development — Tony Bird, ext. 3944

5.1 Information Concerning Courses

The following schedule of courses has tentatively been arranged for the period May — July, 1985:

May

Elementary FORTRAN Programming (GU)	May 13-17 5 full days 9-12 + 1-4 each day

[Please note change of location for this course from UQ to GU]

Introduction to PDP-10	May 20-23 4 half days 9-12 each day
Conversion to IBM	May 20-22 3 half days 1-4 each day
Introduction to IBM	May 27-30 4 half days 9-12 each day
Typesetting	May 27-30 4 half days 1-4 each day

June

Elementary BASIC Programming	June 3-7 5 half days 9-12 each day
SPSS	June 3-7 5 half days 1-4.30 each day
Conversion to IBM	June 11-13 3 half days 9-12 each day
Introduction to IBM	June 18-21 4 half days 9-12 each day
Introduction to PDP-10 (GU)	June 18-21 4 half days 9-12 each day
Conversion to IBM (GU)	June 18-20 3 half days 1-4 each day
SQL	June 24-28 5 half days 9-12 each day
RUNOFF	June 24-28 5 half days 1-4 each day
Introduction to IBM (GU)	June 24-27 4 half days 9-12 each day
SPSS (GU)	June 24-28 5 half days 1-4.30 each day

July

SAS	July 1-5 5 half days 9-12 each day

RUNOFF (GU)	July 1-5 5 half days 1-4 each day
1022	July 8-12 5 half days 9-12 each day
SCRIPT	July 8-12 5 half days 1-4 each day
SQL (GU)	July 8-12 5 half days 1-4 each day
Introduction to IBM	July 16-19 4 half days 9-12 each day

General Notes:

1. Intending users of the PDP-10 system must be familiar with the content of the course *Introduction to PDP-10* (i.e. terminal usage, file-management, editing) before attending other PDP-10 courses.
2. In corresponding fashion, for the IBM system, users should have attended either *Conversion to IBM* (for previous PDP-10 users) or *Introduction to IBM* (for completely new users) before attending other IBM courses.
3. Courses held at St Lucia (with the exception of CAD/CAM courses) are conducted in the Computer Centre's teaching area near the Physics Annexe. Courses designated (GU) are held in Room 1.49, East Wing, SIA Building at Griffith University.
4. Staff and post-graduate students are admitted free to courses; all others pay at the rate of $10.00 per half-day session.
5. Enrolments for all courses may be made by phoning ext. 3018.

Barry Maher
extension 3021

6. Miscellaneous

6.1 Departmental Equipmental for Sale

The Department of Speech and Hearing wishes to sell a 1978 NASHUA PHOTOCOPIER MODEL 1210, good working order.

Anyone interested should ring Lucy Adamek on 377 3078 for further information.