PRENTICE COMPUTER CENTRE

NEWSLETTER

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authorization: Director of the Centre

1.0 STUDENT LOW OVERHEAD TIME SHARING SERVICE

The following memorandum has been sent to Heads of
Departments, Deans, and Griffith University. The memorandum is
self explanatory. One point I should make that it is not
intended that execution files of academic supervisors would be
deleted at log-out. The aim is to avoid multiple copies of
execution files on student areas.

"There is a large area of computer use, particularly for
student work, where the full facilities of the central system are
not required. Thus, there is the opportunity to provide a
restricted service at lower cost and hence at a lower price.

Over the last 12 months, we have been progressively moving
users from the KA system to the new KL system so that the former
system would be available to implement such a service. This
strategy of providing a special service for student work is not
novel and has been implemented successfully in other
Universities. It is only now that we have sufficient resources
to introduce it here.

On the recommendation of the Prentice Computer Centre
Management Committee and the support of the Computer Resources
Review Committee, the Vice-Chancellor has approved, as a trial
during second semester, that SLOTS can be introduced on the KA
system. The charge rates would be one-third of current prime
shift rates for CPU, core and file I/O during all shifts. The
charges for other resources will be at existing rates; priority
and time-of-day codes will apply to these. In practice, this
means that given the usual job mix of student work and spread
across shifts, the cost per job will be around half the current
rates. The service applies only to that academic work that would
normally be funded from General Recurrent Funds (i.e.
Maintenance and URG).

The restrictions on this service are aimed at increasing
accessibility by large numbers of students and, of course,
lowering our operator overheads. They will allow continued
operation in unattended mode when our safety standards are
upgraded to allow such a method of operation. The restrictions
have been discussed with the Department of Computer Science and
some other departments and they are not considered to be unduly
restrictive for general student work and smaller research
computing. The system is not meant, of course, to cover all
academic use. The restrictions are:

(i)   No mounts by operators of magnetic tape, disks,
        DECtapes or other media.

(ii)   No archival service allowing files to be moved from
        online to offline and return. Files not accessed
        within a certain period would be deleted rather than

saved in the offline area. It is difficult to say how often this will occur until we gain a better indication of load and co-operation in smoothing peaks.

(iii)   The level of backup for public files will be reduced from daily to weekly.

(iv)   A virtual freeze on new versions of systems software. Systems software will be reviewed annually with departments and new versions implemented only over the Christmas break. Only one version of any piece of software will be available.

(v)   Normally the logged out disk quota will be 100 blocks except by arrangement with supervisors where quotas to a maximum of 400 blocks will be granted for particular assignments of a defined and limited duration.

(vi)   Logged-in disk quota will be 2000 blocks.

(vii)   Core will be 40K at all times (including high segment required for languages).

(viii)   Cost per job will be limited to $3.

(ix)   Terminals will be timed out and jobs automatically logged off after 5 minutes if there if no active processing. The automatic log-out will be K/B which will delete files off the user's area to bring it within quota.

(x)   At log-out, execution files and temporary files will be deleted.

(xi)   The service is available for expenditures only by way of the General Recurrent Fund (i.e. Departmental Maintenance Funds and URG).

We believe that even with these restrictions, a very satisfactory service can be provided for a wide range of academic use but at low overhead cost. There may be variations on the basis of experience during the trial.

Ideally, we would like to have a communications network where any terminal could log-on to any system. Unfortunately, this is not yet possible. We will have a facility for a limited number of KL terminals to log-on to the KA system but we envisage that the KA communications processor could not handle more than approximately 10 terminals from the KL at any one time. Thus, if you want to participate in the SLOTS trial and have greater certainty of access, then you will need to connect one or more of

your terminals to the KA system. Of course, if you do this, then the facilities of the KL will not be available to you from these terminals. However, I believe you will find that you will be able to process a substantial range of your work on the proposed system. There is no charge for transferring terminals from the KL to the KA system.

Our aim is to implement SLOTS on the KA system as from 6 August. Please advise by 2 August:

(a)   Details of terminals you wish to have transferred from the KL to KA system.

(b)   Software you would wish to have available on the KA system for second semester.

(c)   Details to the Operations Group (Carol Walker extension 2188) of charge codes and ppns required. It might be noted as regards charge codes that users may -

(i)   Open a new charge code by completing a new Computer Centre Authority form; or

(ii)   Use an existing charge code. If this is done, any balance of authorized budget amounts will be brought to zero. A new Computer Centre Order Form quoting Maintenance or URG account number will be necessary.

Well, as I mentioned, the system is a trial and I am sure there will be teething problems. Please call John Noad (extension 3017), Di Ball (extension 3471) or myself if you require further information."

Alan W. Coulter
Director
extension 2189

2.0 VG - GENERALIZED DATA BASE SYSTEM

VX menu system

An easy to use program-menu "VX" for controlling VG is now
available on SYS. After typing .R VX <cr> the user is asked the
question functions. If the user types a blank then all available
functions are displayed. To select the required function type in
the name of that function.

> Geoff Vandenberg
> extension 3943

3.0 VG MULTIPLE FIELD SEARCH FUNCTION

Multiple Field Searches

VGLAB, VGREP, VGRPG and VGRPGE have been updated to include
multiple field search options.

The VG multiple search option is invoked by typing a "+"
(plus sign) to the question "Key :   " in the following VG
routines.

VGREP, VGRPG, VGRPGE and VGLAB.

In VGTAB the function is automatically run for the user.

Purpose

The purpose of the function is to allow the user to select
records by the presence of selected values in nominated fields.
Up to four fields may be searched.   Up to ten values may be
searched for in any one field.   By selecting the same field
several times the user may search for more than ten values.

Search Values

Each value the user nominates to be searched for may be up
to ten characters long, and is made up of any alpha-numeric
combination. Hyphenated words are acceptable. In addition the
user may specify a search value as a "wild" type. A value ending
with "*" will match the preceding characters, with following
characters being ignored to make a match. e.g. "EX*" will match
with "EXPERT", "EXCITE", "EXCLAIM", "EX....." etc. By replacing
a nominated character with "?" that single character becomes
"WILD". It is important to note that if there is no character in
the destination at all, then no match will be made. e.g.,

"WORD?" will not match with "WORD", but "WORD*" will match.

Dependency Between Values

Each value that is searched for in a field may be made dependent in the following manner. In a nominated field the values may be made "AND". This means that ALL values nominated in that field MUST be found. e.g. Search for "RED" and "BLUE". "RED" and "BLUE" must exist in the field for a satisfactory search.

The values may be made "OR". This means we will accept ANY of the nominated values as satisfactory. e.g. Search for "WHITE" or "GREEN" or "PINK", where any ONE will satisfy.

Dependency Between Fields

If searching two or more fields then the dependency between each FIELD may be declared as "AND" or "OR". This allows the user to select records which satisfy specific criteria in two or more fields.

G.A. Vandenberg
extension 3943

4.0   NAG - NEW FORTRAN SUBROUTINE LIBRARY

The Centre recently obtained and mounted the NAG library of Fortran callable, mathematical routines. The purchase was funded from a general development grant, and was initiated by Dr. John Holt of the Department of Mathematics.

NAG is essentially a collection of mathematical routines, and as such, should be seen as complementary to our existing subroutine library IMSL, which has a broader base of statistical routines. It is particularly strong in the areas of functional optimization, now linear programming and numerical quadrature. NAG utilizes `state of the art´ algorithms and is well supported by its originators, thus it is both efficient and reliable.

The documentation for NAG consists of a three volume set, copies of which are available for reference at the batch stations. The quality of the manuals is high, with examples of use of the routines and discussion of their suitability preceding each chapter.

The routines are kept in compiled form on an area of the system disk. To access any of the routines, this library must be searched at load time via

```
        .LOAD/F10 myprog, STA:NAG/SEA      or
        .EX/F10 myprog, STA:NAG/SEA
```

If using the card batch system, then on the following control card must be present

```
        $INCLUDE STA:NAG/SEA
```

                                Chris McGovern
                                extension 3944

5.0 BASICP, AN ENHANCED VERSION OF BASIC

Users of BASIC may be interested in an enhanced version known as BASICP, which is available on the system.

Among its features is the ability to produce pre-compiled, directly runnable .SAV files. Use of this feature results in considerable savings in both cost and convenience for programs that are run repeatedly. Depending on the size of the program involved, savings can vary from one third to one tenth of the cost of running the same program under the standard system BASIC. e.g.

```
        .R BASICP
        >READY
        OLD MULTIP          get the source program MULTIP
        MULTIP.BAS
        >READY
        SAVFILNL MULTIP     produce a .SAV file
        >READY
        MONITOR             exit to monitor mode
```

Thereafter, the program can be simply run as

```
        .RUN MULTIP
```

As well, BASICP contains language extensions such as new structured statement types such as UNLESS, WHILE etc., computed goto's, multiple statements on a line etc. Interactive debugging facilities are also available.

BASICP appears compatible with the standard system BASIC so users with existing programs should be able to take advantage of its cost savings.

A document on the system describes BASICP more fully.
Interested users can obtain a copy thus

.PRINT DOC:BASICP.DOC

Chris McGovern
extension 3944

6.0 TERMINAL MAINTENANCE CHARGE RATES

The following charge rates will apply for maintenance of
terminals from 1 January 1980 for the University of Queensland
and Griffith University. This service is not available to groups
external clients.

Charge rates for mini computer systems are currently being
analysed and will be published as soon as possible to enable
accurate budgetting for 1980.

LA36 Decwriter II	$200 p.a.
TTY43	$180 p.a.
ADM3a	$120 p.a.
TI733 ASR or KSR	$240 p.a.
TI745	$280 p.a.
GE Terminet	$280 p.a.
VT55	$300 p.a.
Teleray 1061	$200 p.a.
Diablo 1620	$200 p.a. *

* The Diablo 1620 are micro processor based terminals for which
we do not have spare modules or software listings to enable
certain repairs. The $200 charge will cover all labour for
preventive and remedial maintenance and up to $20 in parts per
service. More expensive parts from, or module `swaps´ with, the
Australian Diablo agents will be billed to the customer at cost.
The cost of an average module swap would be about $250.

Clients requesting new or changed maintenance arrangements
are asked to write to G. Rees, Specialist Systems Engineer at the
Prentice Computer Centre.

G. Rees
extension 3288

7.0 IS YOUR TTY CONNECTED?

Recently quite a number of users have been ringing the
Centre to complain about the message "tty not connected"
appearing on their terminal. This message does not mean that the
terminal is not electrically connected to the system (if the
terminal was not electrically connected to the system, nothing at
all would be typed on the terminal) but rather it means that the
PDP-11 communications computer to which the terminal is
electrically connected hasn't formed a logical connection to a
host computer within the network. I will attempt to explain what
this means with the aid of a diagram representing the current
configuration of the network.

```
|--------|-|-|           |-|--------|-|         |-|--------|
|        |D|P|           |D|        |D|         |D|        |
| UQKA10 |A|D|-------|L| SSLPT  |L|----|H| DN87SB |
|   (6)  |1|P|           |1|        |1|         |1|  (11)  |
|        |0|8|           |1|        |1|         |1|        |
|--------|-|-|           |-|--------|-|         |-|--------|
                                                |DTE-20|
                                                |--------|
                                                |        |
                                                | UQKL10 |
                                                |   (1)  |
                                                |        |
                                                |--------|
                                                |DTE-20|
        |--------|---|              |---|--------|
        |        |D- |              | D-|        |
        | COMERC |M1 |--------| M1| DN87SA |
        |  (30)  |C1 |              | C1|  (10)  |
        |        |---|              |---|        |
        |--------|                       |--------|
                                                |DMC-11|
                                                |------|
                                                   |
                                                   |
                                                |------|
                                                |DMC-11|
                                                |--------|
                                                |        |
                                                | GUAES  |
                                                |  (50)  |
                                                |        |
                                                |--------|
```
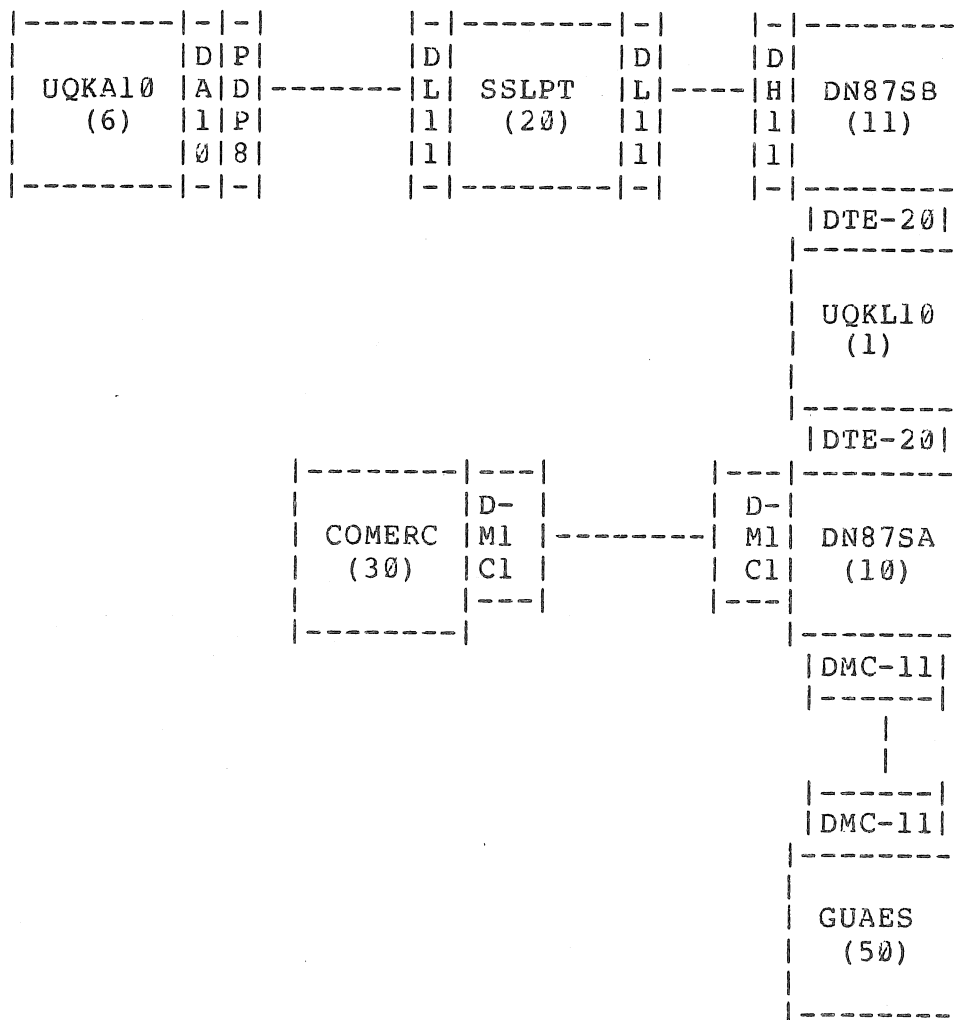
A network is just a collection of computers connected together by some form of data path. Each computer in the network is called a node and each node within the network is known by a unique name and number. On the diagram nodes are represented by the larger boxes while the smaller boxes represent the devices used to control the data paths between the nodes.

Within the network there is a special kind of node called a "host" which is able to accept commands, allow log-ins, run jobs etc. The current university network has two host nodes: UQKL10 (1) (the KL10 system) and UQKA10 (6) (the KA10 system). The other nodes act as helpers to the host nodes by performing tasks such as echoing terminal type-in, generation of fill, control of devices such as plotters, card-readers and line printers.

When a user comes to a terminal which has not previously been used and then types some characters quite a number of things happen:

1. All characters are discarded until the PDP-11 reads one which tells it which of the speeds 110, 150, 300 or 1200 baud the terminal is running at. Carriage-return or control-C are best used for this purpose. The character which eventually tells the PDP-11 the speed of the terminal is also discarded. (This state is known as "auto-baud detect" and may be entered at any time by typing a break character.)

2. If the terminal is not currently connected or linked to a host computer then the PDP-11 will type the message "tty not connected" for each subsequent character typed except if a connection attempt is in progress in which case a <BEL> will be typed. In either case the user's type-in is not passed on to a host. The PDP-11 does not distinguish between hosts so will attempt to connect the terminal to any host. If the host accepts the connection request it responds with a line of text giving the system name and time of day; thereafter, the PDP-11 sends terminal type-in to that host until the user specifies another host (by means of the SET HOST command) or the path to the host is broken. Since each host can accept only a certain maximum number of terminal connects, a connect request may be rejected by a host simply because it doesn't have the capacity to accept the request. This type of rejection also results in the message "tty not connected" being typed on the terminal. Since the PDP-11 tries each host in succession when attempting to connect a terminal to a host the situation may arise in which the PDP-11 attempts to connect a terminal to a host which is unable to accept the connection, then the PDP11 tries to connect another terminal to the next host, then the user types another character so that the PDP11 attempts to connect the terminal to the first host which again fails etc. This situation will arise only when a number of people

begin to use PDP-11 controlled terminals for the first time at the same time. The solution is just type a character every now and again until the PDP-11 is able to successfully connect the terminal to a host. This may be an occasional inconvenience but the only alternative is to build the monitors so that they will be able to connect to as many terminals as there are on the system. As this solution significantly increases the size of the monitors, user core will be reduced and response time increased.

Arthur Hartwig
extension 3021

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