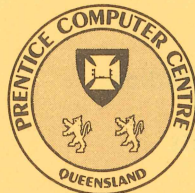# PRENTICE COMPUTER CENTRE

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

NEWSLETTER

N-313   May 1987

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Authorised by the Director of the Computer Centre

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1.0 NEWSLETTER SUMMARY

There is a vast range of software available for use on central systems but, of course, at a cost to the University. In order that users can assess the value of new releases of software products, IBM have agreed to make software available for limited periods for evaluation. A number are described in this issue. These are:

DITTO. A productivity tool for program testing and file handling in both batch and interactive environments.

EXPERT SYSTEMS ENVIRONMENT. Comprises facilities to build knowledge bases and to execute "expert" systems.

PROLOG. A non-procedural programming language for research and development of applications in artificial intelligence, expert systems, automated deduction, theorem proving, knowledge representation, natural language processing and robotics.

TIF. This provides tools to develop information systems for users who do not have specialist programming skills. It provides access to relational data base files (SQL) and automatic screen layout generation. It is menu driven and has a learners guide included in the documentation kit.

RXSQL. This enables Conversational Monitor System (CMS) users to interface with the relational data base system SQL.

XEDIT (Self-Teach). Provides an online tutorial for the IBM editor.

ACRITH. A high accuracy arithmetic subroutine library for solving problems of numerical analysis. It includes tutorial and training components.

IBM have been a little too generous on this occasion in providing programs for evaluation. The Centre needs help from its users. If you are prepared to assist in evaluation and will provide a report on the value of any of these systems, please contact Allan Woodland (extension 4017). He will provide an appropriate IBM kit for evaluation purposes at no charge.

- A new version of FORTRAN is available on the IBM system. it provides improved performance, with an extension of mathematical routines and better interactive programming debug support.

- NAG is a well accepted collection of algorithms for the solution of numerical problems. It is now available on the IBM UQVM system.

- A system called Query Management Facility has also been installed on the IBM system. It has been designed for casual users and provides facilities for interactive query, update, report definition and report-writing.

- It is now possible to queue files for printing on the IBM 4250 Electro-Erosion printer described in the previous newsletter.

- UQ KL10 users can direct line printer output to VAX/VMS systems connected to the network.

- A summary of the monthly US DEC User Society newsletter is available on the UQ KL10 and UQ VAX systems.

- Information is provided about SPEARNET (South Pacific Education And Research NETwork). All New Zealand Universities have joined the network and the number of Australian sites is growing. The Prentice Computer Centre has taken a leading role in the organisation of this network and, as a matter of interest, Graham Rees is responsible for the name SPEARNET.

- Telecom Australia has announced some new AUSTPAC services. Arthur Hartwig would be pleased to discuss possible applications.

- Barry Maher has provided some tips on setting up, saving and re-using SAS-V formats.

- Details of Prentice Computer Centre courses for staff and post-graduate students are provided.

Director
extension 2189

2.0 VS FORTRAN Version 2 available on the UQVM System

VS FORTRAN on the UQVM system has now been upgraded to Version 2. It offers all the function of VS FORTRAN Version 1 plus a number of enhancements which provide greater accuracy and performance, improved mathematical routines in the Library, and full-screen Interactive Debug support, such as source listing window, animation, and new cursor control commands.

Highlights

- New mathematical routines, yielding improved accuracy and performance
- Improved interactive debugging support
- Eased compile-time restrictions on size/complexity of programs
- Support of the Engineering and Scientific Subroutine Library
- Support for programs that have been converted by FORTRAN Language Conversion Program (5668-864)
- Support of the 3090 Vector Facility

Potential Benefits

- Significant performance and usability enhancements
- Reduced program development effort

References

GC26-4219	VS FORTRAN Version 2: General Information
SC26-4221	VS FORTRAN Version 2: Language and Library Reference
SC26-4222	VS FORTRAN Version 2: Programming Guide
SC26-4223	VS FORTRAN Version 2: Interactive Debug Guide and Reference
SX26-3751	VS FORTRAN Version 2: Reference Summary

Additional details are available on the UQVM system via the following commands:

INFO FORTVS for VS FORTRAN Version 2 compilation information.
INFO FORTIAD for VS FORTRAN Version 2 interactive debug information.

Noela Meier
extension 4287

3.0 DITTO: A General-Purpose CMS File Utility

DITTO (Data Interfile Transfer, Testing, and Operations Utility) is available for evaluation on UQVM. DITTO is a general-purpose utility program for magnetic tape, disk, diskette, and card I/O devices. It provides the facility to list, copy, alter, and create files or portions of files. Its wide range of user-oriented functions is intended to aid program testing, reduce the need for separate specialised utility programs, and provide

greater operational productivity. DITTO offers the user an efficient and easy-to-use tool for testing and file-handling in both batch and interactive environments.

A summary of DITTO commands is included in the HELP file for DITTO, which can be viewed by entering "DITTO ?" or "HELP DITTO" from CMS.

DITTO requires less than 1 Mbyte to execute.

Highlights

- Processing control functions allow changes to the card end-of-data delimiter, dump output format, printed output formatting, language for message, and header page suppression.

- DITTO provides the user with the ability to create diskette, SAM, ISAM, VSAM or CMS files from cards, tapes, diskette, or other SAM, ISAM, VSAM or CMS files. The user may also change blocking factors and file locations. (These functions may be performed on a complete file or portions of a file.)

- Device-to-console functions allow the user to display small amounts of tape, disk or diskette data directly on a console for scanning and verification purposes.

  Note: "console" means the user terminal when used under CMS.

- Includes tape functions to scan, alter, list, copy and compare tape files or portions of tape files.

- Also included are disk functions to scan, alter, list, and display data stored on direct access storage devices on a physical address basis.

- Disk Volume Tables of Contents (VTOCs) can also be listed, sorted either by name, creation or expiration dates, or by extents (including free areas). VTOC entries can also be scratched or renamed.

- Buffer functions allow the creation of simple test data on tape, SAM, VSAM and diskette files directly from data in an in-core buffer according to user specifications.

- A HELP file is available for use with the CMS HELP command.

- Operations may be performed in (interactive) online mode from any VM/CMS terminal. In batch mode, operations are controlled via job control statements. In online operation, multiple parameters may be entered in a single operator command, reducing console message time. Control card parameters are free-form and variable-length format.

- A tape error correction routine allows the user to correct records in error directly on the console before copying onto an output file.

- Tape, disk, and diskette scanning functions are provided to search records for a given scan argument.

- Full-screen display mode for record display and alteration functions. This support includes data scrolling and locate functions to rapidly find data of interest.

- A tape-to-tape compare function to compare the contents of two different files. If an inequality is found, the input and output records will be printed out.

- A VSAM Record Load function to allow direct alteration of VSAM file records.

Potential Benefits

- Aids programmer testing.

- Reduces the need for specialised utility programs.

- Provides greater operational productivity.

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- Offers an efficient and easy-to-use tool for testing and file handling in both batch and interactive environments.

References

GH19-6103	DITTO General Information Manual
SH19-6104	DITTO Program Reference/Operations Manual
GH19-6105	DITTO Specifications
SX11-6106	DITTO Reference Summary

Arthur Pool
extension 2952

4.0   NAG is now available on UQVM

The NAG library is a collection of numerical subroutines, linkable to user programmes. The library is divided into chapters of related routines. The following is a list of the principal library chapters:

CODES	*LIBRARY CHAPTERS*
A02	Complex Arithmetic
C02	Zeros of Polynomials
C05	Roots of one or more Transcendental Equations
C06	Summation of Series
D01	Quadrature
D02	Ordinary Differential Equations
D03	Partial Differential Equations
D04	Numerical Differentiation
D05	Integral Equations
E01	Interpolation
E02	Curve and Surface Fitting
E04	Minimising or Maximising a function
F01	Matrix Operations, Including Inversion
F02	Eigenvalues and Eigenvectors
F03	Determinants
F04	Simultaneous Linear Equations
F05	Orthogonalisation
G01	Simple Calculations on Statistical Data
G02	Correlation and Regression Analysis
G04	Analysis of Variance
G05	Random Number Generators
G08	Nonparametric Statistics
G13	Time Series Analysis
H	Operations Research
M01	Sorting
P01	Error Trapping
S	Approximations of Special Functions
X01	Mathematical Constants
X02	Machine Constants
X03	Innerproducts
X03	Input/Output Utilities

Access

To use the NAG library you must write a FORTRAN program containing calls to the NAG library subroutines, access the NAG library by invoking the NAGLIB exec, then compile and load the program in the usual manner.

Example Programs

Example programs with associated sample input data and result files are available in the NAGMK11A filelist on the X-disk. This filelist can be accessed by the command:

"FILELIST NAGMK11A FILELIST X"

Manuals & Usage Information

NAG Mark10 manuals are available from the PCC HELP Desk. Additional information is available by typing "INFO NAG" or "INFO NAGLIB".

Edward Lindsay
extension 3022

5.0 Expert System Environment Available on UQVM

The Expert System Environment/VM is now available on the IBM 3083 for evaluation.

The Expert System Environment/VM (ESE/VM) is the generic identification for two complementary IBM program offerings:

- Expert System Development Environment/VM (ESDE/VM) (program number 5798-RWQ). This program is used to "build" knowledge bases. It is used by human experts (or persons working with experts) to introduce knowledge into the expert system environment.

- Expert System Consultation Environment/VM (ESCE/VM) (program number 5798-RWP). This program provides the facilities for executing expert systems. It is designed for use by persons without the requisite knowledge or experience to obtain expert knowledge and advice. The term "expert" is used here to include those individuals with valuable or useful knowledge, such as insurance underwriters, financial planners, bank loan officers, sales personnel, scientists and many others.

Highlights

- Integrated, interactive, display-oriented programs for use in development and execution of expert systems.

- Extensive certainty processing capabilities, including facilities for "fuzzy" logic.

- Both forward-chaining and backward-chaining inferencing methods with high-level user control.

- Focus control blocks enable a complex problem to be broken up into more manageable sub-problems.

- External data interface allows user-written routines to read from and write to data bases.

- Explanation facility to inquire into why a piece of information is needed or how a parameter obtained its value.

- Interchangeability of knowledge bases with Expert System Environment/MVS products.

- Extensive debugging tools.

- A built-in editor that does semantic checking while knowledge bases are being entered.

Primary Users

- Any "non-expert" who requires expert knowledge and advice in a certain field.

- Developers and users of expert systems.

- Professionals in all industries and disciplines.

Potential Benefits

- Substantial reduction in time, cost and risk in the development and maintenance of expert system applications.

- Expert System Environment can provide an approach to applications considered difficult or impossible to program and maintain using traditional programming techniques.

References

G320-0828	Expert System Environment Release Notice
GH20-9597	ESCE and ESDE General Information Manual
SH20-9606	ESCD User Guide
SH20-9608	ESDE User Guide
SH20-9609	ESCE and ESDE Reference Manual

Sarah Barry, extension 4281, has some experience in working in this environment and queries should be directed to her in the first instance.

Arthur Pool
extension 2952

6.0   Query Management Facility (QMF) on UQVM

QMF is now installed and available for general use on the IBM 3083 system.

QMF provides easy-to-use, interactive query, update, report definition and report-writing capabilities for business professionals with little or no data processing experience, as well as for data processing experts. It offers the user a choice of two query languages: Structured Query Language (SQL) and Query-by-Example (QBE).

Facilities

- Ad hoc query and data manipulation capabilities in SQL or QBE languages.

- Data definition functions through the SQL language.

- Easy-to-specify interactive report definition and generation capability.

- Preparation of data for graphic presentation.

- Definition and execution of a procedure consisting of a series of query/report functions.

- Batch invocation of QMF procedures.

- Simple set of commands that allows handling of queries, report forms, and procedures.

- Accesses data stored in the SQL/DS relational data base management system.

- Program function (PF) keys for many functions, prompts to suggest correct information, user-friendly messages, and online HELP when needed.

- Invocation of the interactive chart utility (ICU) of GDDM to present data prepared by QMF.

Primary Users

- End users with little or no data processing knowledge.

- Professional programmers.

Potential Benefits

- Easy and interactive access to relational data base facilities.

- A high-productivity programming tool for data processing professionals.

References

GC26-4071	QMF General Information
GC26-4094	Introduction to Query Management Facility
SC26-4094	QMF Learner's Guide
SC26-4096	QMF User's Guide and Reference
SX26-3741	QMF Reference Summary

Arthur Pool
extension 2952

7.0 DECUS Newsletters

The U.S. DEC users society (DECUS) publish a monthly newsletter in which contributing members describe their DEC experiences and pass on any useful programs and tips that they have developed or discovered.

Items in the newsletters are grouped according to areas of special interest including Datatrieve, personal computers, networks, graphics, education, VAX systems etc. Not all areas are represented in each newsletter.

Each month, a brief summary is made of each newsletter. The newsletter itself, is kept at the Computer Centre HELP Desk, where any articles of interest may be perused.

The summary may be viewed by typing:

```
    .TYPE DOC:DECUS.aaa on UQKL10
  or
      $TYPE SYS$DOC:DECUS.aaa on UQVAX
```

(aaa is the month of the newsletter. e.g. DEC, JAN, FEB ...)

Richard Armstrong
extension 4280

8.0 VM/System Product Interpreter Interface to SQL/DS

The VM/SP Interpreter Interface to SQL/Data System (RXSQL) is a programming interface from the VM/SP System Product Interpreter (REXX) to the Structured Query Language/Data System (SQL/DS).

The full power of SQL/DS is made available to writers of Conversational Monitor System (CMS) execs. REXX variables may be used to hold SQL statements, pass input values to SQL statements during processing by SQL/DS, retrieve values fetched from the database, and receive information about the outcome of the SQL statements as they are processed.

RXSQL is now installed on the IBM 3083 system (UQVM) for evaluation.

Highlights

- Execs can now transfer data between SQL/DS databases and user files, networks, interactive editors, menu processors and other applications.

- Processing decisions can be made based on the results of database queries.

- Uses both Dynamic SQL and Extended Dynamic SQL functions.

- Contains sample execs which allow immediate productive use.

- Provides a simple vehicle for application prototyping.

- Allows access to the online HELP facility of SQL/DS.

Primary Users

- System and application programmers.

- Technical end users.

Potential Benefits

- Permits CMS writers to exploit the full potential of SQL/DS.

- Allows easy access to the query/report writing and data manager capabilities of SQL/DS.

References

G320-9508	VM/SP Interpreter SQL/DS Interface Availability Notice
SH20-7051	VM/SP Interpreter SQL/DS Interface Program Description and Operations Manual

Arthur Pool
extension 2952

9.0 Self-Teach, the Online XEDIT Tutorial

Self-Teach is an online tutorial for the VM/SP editor (XEDIT). It is now installed on UQVM for evaluation, and can be invoked using the command:

    SLFTEACH

Self-Teach provides an online tutorial for the VM/System Product Editor (XEDIT). Fifteen lessons cover 108 XEDIT commands, supplementing the IBM manuals and the XEDIT HELP Facility. The tutorial presents the theory of XEDIT commands and provides online exercises to reinforce the learning process.

Highlights

- Self-study approach to learning.

- Online exercises.

- Treatment of high usage commands.

- Focus on commands that improve productivity.

- Creation of an editing profile.

- Productive use of macros.

- Built-in HELP facility.

Self-Teach is useful for inexperienced, casual, and experienced users of the VM/System Product Editor (XEDIT).

Potential Benefits

- Helps new users become proficient with XEDIT quickly.

- Sharpens the skills of experienced users.

- Contributes to user productivity, particularly through its macro tutorial capability.

References

G320-9499	SELF-TEACH, the Online XEDIT Tutorial Availability Notice
SH20-6450	SELF-TEACH, the Online XEDIT Tutorial User's Guide/Installation Manual

Arthur Pool
extension 2952

10.0 ACRITH Subroutine Library available on UQVM

The High Accuracy Arithmetic Subroutine Library (ACRITH) is now available for evaluation on the IBM 3083 system (UQVM).

The ACRITH subroutine library provides a set of subroutines (VS FORTRAN and Assembler) for solving problems of numerical analysis with algorithmically verified accuracy. It includes interval arithmetic, which is essential for the computation of reliable bounds, directed rounding for the standard arithmetic operations, and it introduces the scalar (dot) product as a fifth basic operation to obtain high accuracy in higher-level problem solving routines.

The ACRITH routines find application in the following fields: numerical methods, optimisation, structural analysis, nuclear fusion computations, and power systems analysis and forecasting.

The potential benefits in using the ACRITH routines are:

- Automatic verification of computed results.
- Conversational problem solving for smaller problems.
- Reduced programming for certain numerical problems and conversion of data types.

The subroutines cover the following numerical problem areas:

- Basic linear algebra subroutines; conversion from decimal to hexadecimal and vice versa; scalar, vector and matrix operations (real and complex).
- Evaluation of arithmetic expressions.
- Determination of roots of polynomials (real and complex).
- Systems of linear equations and matrix inversion (real and complex) including special routines for sparse or banded matrices.
- Linear programming.
- Eigenvalue/eigenvector problems.
- Systems of nonlinear equations.
- Standard mathematical functions (real and complex).

The ACRITH program product provides:

- A tutorial to numerical problems and their solutions in the real and complex number spaces.

- An Online Training Component (OTC) to be used in familiarisation with the functions of the ACRITH subroutines. The OTC uses menu-driven panels to interactively execute individual subroutines. In the course of execution of an option, random input data can be generated or actual values from a mathematical problem can be entered, thus providing a very comfortable way to solve smaller problems in conversational mode. To use the OTC, enter the command "ACRITH".

- Powerful subroutines to be embedded into FORTRAN application programs to obtain verified results of high accuracy. Enter the command "ACRITH ?" for more information on using the ACRITH routines.

There are a few sample FORTRAN programs available which incorporate the ACRITH routines. Some have been distributed with ACRITH, whilst others have been extracted from the ACRITH User's Guide. To view a list of these programs, enter:

"FILELIST DCQ* FORTRAN *"

References

GC33-6161	ACRITH Program Summary
GC33-6162	ACRITH Specifications
GC33-6163	ACRITH General Information Manual
SC33-6164	ACRITH Program Description and User's Guide
GX33-9009	ACRITH Reference Summary

Mario Bono
extension 2952

11.0 VM/PROLOG Available on UQVM

VM/Programming in Logic (VM/PROLOG) is now available for evaluation on the IBM 3083 system (UQVM).

This program offering is an IBM implementation of the PROLOG programming language. It is suited for the research and development of applications in artificial intelligence, including: expert systems, automated deduction, theorem proving, knowledge representation and processing, natural language processing, relational data base access and robotics.

Highlights

- Execution Speed: When VM/PROLOG rules are not to be dynamically updated in the course of a program, they can be declared static. Static rules are generally interpreted faster than dynamic rules.

- Storage Management: Storage is managed efficiently through the use of two algorithms. One conserves storage on program calls; the other reclaims valuable storage space used by obsolete information.
- Debugging Facilities: Trace and debug facilities are available to aid in debugging VM/PROLOG programs. Built-in predicates are provided to allow the writing of additional debugging routines.
- VM/PROLOG handles 32-bit integers, floating point numbers and strings of characters.

Benefits

- Provides built-in mechanisms, which may allow for easier coding of symbolic manipulation algorithms.
- Enhances the implementation of artificial intelligence techniques.

More information on VM/PROLOG is documented online in the "VMPROLOG INFO" file, which can be viewed by issuing the command "VMPROLOG ?". A sample program shows how to solve the topological problem of pentaminos. This VM/PROLOG program may be browsed by entering the command "BROWSE PENTA PROLOG".

References

G320-9228	VM/PROLOG Availability Notice
SH20-6541	VM/PROLOG Program Description/Operations Manual

Mario Bono
extension 2952

12.0 TIF—The Information Facility—Available on UQVM

The Information Facility (TIF) Version 2 (IBM program offering 5798-DYF) is an application generator providing access to SQL/DS databases and automatic screen layout generation.

TIF is now installed for evaluation on the IBM 3083 system. The TIF command invokes the TIF application generator. By default, the user can then create applications which access data stored in CMS files on the user's A-disk, or in the user's private SQL/DS DBSPACE if the user has been initialised for SQL/DS access.

TIF provides an application creation facility for the user who does not have programming skills of a data processing professional. The beginning user is guided by a basic set of menus designed to facilitate development of simple applications. When application requirements become more complex, more advanced menus are available. That can be tailored to fit the needs of departments within an organisation.

The more advanced user may use a complete command level interface to develop applications directly. Extensive help screens provide guidance to users at all experience levels.

The applications can include graphical presentation of data through access to the Interactive Chart Utility (ICU) function of the Graphical Data Display Manager (GDDM) program.

The end user at an IBM Personal Computer (PC), using the IBM product Host Data Base View (HDBV), can interface to TIF and dynamically generate a customised TIF report, select fields from a host TIF data base and return the report to the Personal Computer.

The Application Development Guide, assists users in designing and implementing applications.

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Relational Data Base Environment: This version of TIF extends the capability of addressing data in VSAM and VM/CMS files to include IBM's relational data base management system SQL/DS.

Educational Support: Two TIF Learner's Guides provide a step-by-step tutorial for the TIF novice. They introduce the user to all the basic functions of TIF by guiding the user through easy-to-understand examples at the terminal. The Application Development Guide provides further assistance and guidance to users in designing and implementing applications.

References

GC26-4198	The Information Facility: General Information Manual
GC26-4217	Introduction to The Information Facility
SC26-4202	The Information Facility: Learner's Guide Volume I
SC26-4203	The Information Facility: Learner's Guide Volume II
SC26-4204	The Information Facility: Concepts and Functions
SC26-4205	The Information Facility: Application Development Guide
SX26-3748	The Information Facility: Reference Summary
SC26-4206	The Information Facility: Reference Manual
SC26-4207	The Information Facility: Messages
GC26-4199	The Information Facility: Licensed Program Specifications

Arthur Pool
extension 2952

13.0   Printing on the IBM 4250 Electro-Erosion Printer

The IBM 4250 printer, and the facilities available to support it, were described in the previous newsletter.

The PRT4250 command is now available to queue files for printing on this printer.

4250 output files (filetype is LIST4250) are normally generated by the Document Composition Facility (DCF, also known as SCRIPT or SCRIPT/VS).

To format a document for printing on the 4250, you can use the DCF command, and specify DEVICE as "4250A4N" (see DCF INFO for more details) to generate A4 size output.

The PRT4250 command is then used to queue the specified LIST4250 file, and also any embedded graphics segment (PSEG4250) files, for printing.

For information on using DCF to format files for the 4250 printer, refer to the on-line "DCF INFO" file, or to these DCF manuals:

GH20-9158	DCF and DLF General Information Manual
SH20-9186	DCF GML Starter Set User's Guide.
SH20-9187	DCF GML Starter Set Reference
SH35-0048	DCF Messages
SX26-3719	DCF GML Quick Reference Summary
SH35-0070	DCF SCRIPT/VS Language Reference
SH35-0069	DCF SCRIPT/VS Text Programmer's Guide
SX26-3723	DCF SCRIPT/VS Text Programmer's Quick Reference
SH20-9188	DCF GML Concepts and Design Guide
SH35-0050	DCF GML Starter Set Implementation Guide

Arthur Pool
extension 2952

14.0 SPEARNET—South Pacific Education And Research NETwork

The directors of the Computer Centres of the Australian and New Zealand Universities have agreed to cooperate in forming a computer network providing a variety of services including remote login, electronic mail, file transfer and process to process communication. The process to process communication facility allows any two programs running on any two machines on the network to exchange data of arbitrary format. New services can be provided using this facility.

Nearly all New Zealand Universities are accessible over the network and an increasing number of Australian Universities are obtaining software and establishing connections.

SPEARNET makes use of the public packet switching networks in each country, so use of SPEARNET is an activity that costs money. Therefore access to SPEARNET sites from the Prentice Computer Centre is currently possible only for DEC-10 users with AUSTPAC access. DEC-10 Users wishing to access SPEARNET sites overseas will need to have AUSTPAC international access enabled. Requests to have AUSTPAC access enabled for a DEC-10 account should be made to the accounts section (extension 2188).

It is planned to provide SPEARNET access to UQVAX users in the near future.

The communications protocols used in SPEARNET are the same as those used by the academic and research community in the United Kingdom on their JANET network, so file transfer and electronic mail facilities are also available to most UK academic and research institutions.

Each system on SPEARNET has been assigned a name (as has each system on JANET). Within the DEC-10 MAIL program, electronic mail can be sent to a user at a SPEARNET site by sending mail to user@site, for example POSTMASTER@AU.JCU. A difficulty with sending electronic mail is that of finding out how to specify the user that you really want to converse with. Unfortunately at this stage there are no directories to consult to find out how to specify the user with whom you wish to converse. However each site has agreed that the special user-id of POSTMASTER will identify someone who can provide some assistance with electronic mail problems. The POSTMASTER at a site may be able to help discover the user-id of a user at another site if you cannot find out another way. However this method should be used as a last resort, since often Computer Centres themselves may not know who uses particular accounts and for what purpose.

The site names assigned by the Prentice Computer Centre to other SPEARNET sites are:

AU.UCNT	University College of Northern Territory, Darwin, a VAX/VMS system.
AU.UNE	University of New England, Armidale, a VAX/VMS system
AU.JCU	James Cook University, Townsville, a VAX/VMS system
AU.FLINDERS	Flinders University, Adelaide, a Prime system
AU.UTAS	University of Tasmania, Hobart, a Prime system
AU.SAIT	South Australia Institute of Technology, Adelaide, a VAX/VMS system
DITMELB	CSIRO Division of Information Technology (Computer Networking Group), Melbourne, a VAX/VMS system.
RPEPPING	CSIRO Division of Radio Physics, Epping, Sydney, a VAX/VMS system
AUSTEK	AUSTEK Microsystems, Adelaide (a VLSI design company), a VAX/VMS system
AAO	Australian Anglo Observatory, Sydney, a VAX/VMS system.

NEW ZEALAND:

NZ.WAIKATO	University of Waikato, a VAX/VMS system
NZ.MASSEY	Massey University, a Prime system
NZ.VUW	Victoria University of Wellington, a VAX/VMS system
NZ.LINCOLN	Lincoln College, a VAX/VMS system

NZ.OTAGO	University of Otago, a VAX/VMS system
NZ.AUKUNI	University of Auckland, a VAX/VMS system
NZ.DSIR	DSIR (Division of Information Technology), a VAX/VMS system.

There are far too many sites on JANET to able to list the directory here. Users wishing to exchange electronic mail with a site on JANET should contact me either by telephone or electronic mail:

from UQVM:	CCARTHUR AT UQVAX
from a VAX on the network:	UQVAX::CCARTHUR
from the DEC-10:	CCARTHUR@UQVAX

Arthur Hartwig
extension 4079

15.0 Printing from the DEC-10 on VAX/VMS printers or RSX-11M printers

Software has recently been written to provide a service whereby a DEC-10 user can direct line printer output to a printer on a VAX/VMS node connected to the network. Similar software for RSX-11M nodes has been available from the Prentice Computer Centre for a number of years now.

Suppose your department has a VAX/VMS or RSX11-M (or RSX-11M-Plus) system connected to the network and there is a printer on that system. Suppose also that you are a DEC-10 user and you want to have your DEC-10 printout produced on your departmental printer (to save time, or save a trip to the Computer Centre). Then when the appropriate software has been installed on your departmental system, you can cause your DEC-10 printout to be printed on your departmental printer by either of the following command sequences: (assume your departmental computer is called MYSYS and on the DEC-10 it has node number 17)

1. PRINT LPT170: = myfile.txt

2. LOCATE MYSYS
    PRINT myfile.txt

Managers of departmental VAX/VMS, RSX-11M systems or RSX-11M-Plus systems who wish to install this software should contact me.

Arthur Hartwig
extension 4079

16.0 New AUSTPAC Services

Telecom AUSTRALIA has recently indicated that some new services will soon become available on AUSTPAC - the national public packet switching network.

2400 bps (V.22 bis) Dial-in service to AUSTPAC

The AUSTPAC dial-in service allows users with modems to dial-up an AUSTPAC computer (called a PAD) and from there to conduct a session on any host computer connected to AUSTPAC. The service costs are the same regardless of the distance between the PAD and the host, and in some cases the service costs are met by the operator of the host system. These costs are $4 per hour connect time, and $0.011 per ten segments of data (where a segment is a unit of 64 characters or part thereof sent by the network in a single group). In many cases using AUSTPAC is far cheaper than making STD calls, though it could be more expensive. The cost depends on the usage.

Accessing the Computer Centre's DEC-10 through AUSTPAC typically costs around $7 per hour.

The new 2400 bps service may therefore be of interest to some users, since it will provide better response and may significantly reduce connect time charges, though there is a trade-off since 2400 bps modems are more expensive than 1200 bps modems.

The telephone numbers to access the various PAD services (along with the name of the international standard specifying how the modem should operate) are:

01921	for 300 bps (V.21 service)
01922	for 1200 bps (V.22 service)
01923	for 1200 bps transmit from AUSTPAC/ 75 bps receive by AUSTPAC (V.23 service)
01924	for 2400 bps (V.22 bis service)

One feature of the V.23 service is that modems for this service are significantly cheaper than V.22 modems (around $300 compared with around $800) and even 75 bps is faster than the typing speed of a fast typist.

X.25 Dial-in and Dial-out service (X.32)

The X.32 service extends AUSTPAC facilities to allow "host" machines to be connected to AUSTPAC "from time to time" without incurring the significant monthly rental charge. However the saving in rental is offset by an increase in the connect time charge when X.25 calls are open ($4 per hour compared with $0.36). This service may be of interest to users who from time to time want a reliable data path between their machine and the Computer Centre machines without the cost of a dedicated line. For example, a small or personal computer in a field station may want to establish a temporary connection to transfer data or program files.

The X.32 service provided on AUSTPAC also allows for a computer with an AUSTPAC connection to dial-up a computer which understands the X.25 protocol. Again this service might be of use to establish a temporary X.25 connection from the Computer Centre machines to a field station.

X.25 cards and software are fairly readily available for personal computers, and it is anticipated by Telecom that the X.32 service will become fairly widely used by personal computers.

I will be happy to discuss possible applications of this service or indeed any aspect of the AUSTPAC service.

Arthur Hartwig
extension 4079

17.0   Proposal to discontinue the ANF-10 CSIROnet gateway

Now that the CSIRONET gateway facilities have been available on UQVAX for some time, it is proposed to discontinue the CSIRONET gateway on the ANF-10 network (host CSIRO). Users of this service who would be inconvenienced by this are asked to contact me before 1st July 1987 so that we can discuss suitable alternate ways of operation.

Arthur Hartwig
extension 4079

18.0 SAS-V FORMATS

Setting-Up/Saving/Re-Using/Format Libraries

User-defined SAS formats are established via the procedure PROC FORMATS.: Under SAS-V, the VALUES/PICTURE statements are still used within this procedure to create sets of values-labels correspondences.

Where these are to be used just within the current command file, SAS-V is no different from the previous version. (Although the documentation suggests labels must be indicated within quotes, practice suggests this may not be necessary.)

Where it is desired to save these formats for use in other command files, the DDNAME = SASLIB option of the PROC FORMAT statement has now been replaced with the option LIBRARY = LIBRARY, e.g.

```
        PROC FORMAT LIBRARY = LIBRARY;
           VALUE F1 1 = HIGH
                2 = LOW;
           VALUE $A A = WEAK
                B = NORMAL
                C = STRONG;
```

If this PROC is part of a file XYZ SAS, then **no option** is used with the SAS command when executing this file, i.e.

    SAS XYZ   not   SAS XYZ (SASLIB libraryname

In this case, however, the formats F1 and $A are NOT automatically stored by SAS as a SAS library. Instead, "loose" text files (called F1 TEXT and $A TEXT) will be produced.

These text files can be used at any time in the future; e.g. if a second command file, ABC SAS, contains a FORMAT statement referring to formats such as F1. or $A., then SAS automatically searches for TEXT files named F1 TEXT and $A TEXT (i.e. no "(SASLIB" option is required when executing ABC SAS).

If desired, these TEXT files can be incorporated into a library, but this is performed by CMS (and not SAS, as was previously the case). To set up a SAS text-library, at least one TEXT file must exist. Then proceed as follows:

    TXTLIB GEN libnam F1 $A ...

  where

      LIBNAM   is the filename of the library to be generated
      F1 $A ... are names of existing TEXT files to be incorporated
              into the library being generated.

This creates a file called LIBNAM TXTLIB, which incorporates the information of F1 TEXT and $A TEXT, so that the original TEXT files may then be discarded.

Once the library has been established, further TEXT files can be added to it (after being generated with PROC FORMATS) by:

    TXTLIB ADD libnam textfilnam1 textfilnam2 ...
    e.g. TXTLIB ADD PQR FRED adds the information of FRED TEXT into PQR TXTLIB.

Individual items within the library may be removed by:

TXTLIB DEL libnam formatname1 formatname2
e.g. TXTLIB DEL PQR MARY removes the format MARY from PQR TXTLIB.

To use formats from a library rather than from loose text files, the "(SASLIB" option must be used with the SAS command, since the TEXT files will presumably now have been discarded.

Thus, if the command file RST SAS contains a FORMAT statement referring to a format AB, which is held in ALLMYOWN TXTLIB, the command required is:

SAS RST (SASLIB ALLMYOWN

All of this information is now available on-line by issuing the command:

"INFO SASLIB".

Barry Maher
extension 3021

19.0   Information Concerning Courses

The following courses will be offered during the period June—July 23, 1987 (i.e. up till the beginning of Semester 2):

June

- Introduction to IBM

  June 9—12
  4 half-days 9—12am each day

- SCRIPT

  June 9—12
  4 half-days 1—4pm each day

- Introduction to SAS

  June 15—19
  5 half-days 9—12am each day

- Conversion to IBM

  June 16—18
  3 half-days 1—4pm each day

†● Conversion to SPSS-X**

  June 23—24
  2 half-days 1—4pm each day

- Further Features of IBM System

  June 25—26
  2 half-days 9—12am each day

† Introduction to DATATRIEVE

  June 29—July 3
  5 half-days 9—12am each day

† RUNOFF (DSR)

  June 29—July 3
  5 half-days 1—4pm each day

July

‡	Introduction to BASIC	July 6—10 5 half-days 9—12am each day
†●	General Graphics* **	July 7—10 4 half-days 9—12am each day
●	Text Facilities on IBM	July 8—9 2 half-days 1—4pm each day
†●	Introduction to FORTRAN**	July 13—17 5 full-days 9—12am + 1—4pm each day
‡	Introduction to PC-DOS/MS-DOS	July 14—16 3 half-days 9—12am each day
‡	Introduction to dBASE III	July 21—23 3 half-days 9—12am each day

●   denotes IBM course
†   denotes VAX course

If marked †● please indicate when enrolling whether you would prefer your course account to be established on the IBM or VAX machine.

‡   denotes PC course.
*   indicates a new course — see Explanatory notes below.
**   please indicate when enrolling which machine (IBM or VAX).

General Notes:

1. As previously stated, it is expected that users attending courses on specific packages (SQL, SAS, SPSS-X, dBASE III, etc) will be familiar with terminal-usage, file-management and editing on the relevant machine (IBM, VAX or PC). Attendance at such short courses without this background provides many problems, as all courses are hands-on. Introductory/conversion courses are given frequently to allow familiarity with the fundamentals *before* attending courses on particular application packages.

2. All courses will be held in the Centre's teaching rooms near the Physics Annexe — the mainframe courses in Course Room 1 and the micro-computer courses in Course Room 2.

3. Staff, kit owners, and post-graduate students are admitted free to courses. The charge is $10.00 per half-day session for other internal users; $17.00 per half-day session for affiliated users; and $37.00 per half-day session for external users.

4. Enrolments for all courses may be made by phoning *extension 3018*.

Barry Maher
extension 3021