

1961-1986



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Toward  
The  
Future

# DECUS U.S. CHAPTER SIGs NEWSLETTERS

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# ARTIFICIAL INTELLIGENCE



## ARTIFICIAL INTELLIGENCE SIG

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## ANNOUNCEMENT

Terry Shannon, Editor of (The (Linked List)), is unavailable this month to edit the newsletter due to difficulties with the equipment that we use for submission. Terry will -- hopefully -- be back at the keyboard next month.

Our Guest Editor this month is Rebecca Wise, "Becky." Becky is Chair of the Newsletter Task Force and our new appointment to represent the SIG on the Communications Committee. Becky has also been functioning as an Administrative Assistant for me and was our Site Coordinator for Dallas. Thanks, Becky!

Cheryl Jalbert, Chair AI SIG

---

### Guest Editor's Introduction

As stated above, Terry Shannon was unable to process the newsletter this month. As Chair of the Newsletter Task Force in the AI Sig, the dubious honor fell to me. I will take this opportunity to solicit input from anyone who has comments on the newsletter. We are trying, through the Newsletter Task Force, to continue to improve on the content of our newsletter. In the process, we hope to give some help to our battle weary editor, Terry.

As for the newsletter itself this month, we have some comments on the AAAI Conference which just completed in Philadelphia. This is probably a good time to remind everyone that, although this is the October Newsletter, it is just the end of August as this is being written. We also have some articles by Jim Sims, who is the Chair of our Public Domain Task Force. Jim gives us an introduction to the task force, as well as some comments on the Macsyma program. In addition, Jim has provided a calendar of upcoming AI events. Finally, we have updated our Steering Committee List on the back page. We have added contact information for several members in visible positions and then listed the other members with their positions on the steering committee.

I hope everyone finds the information in this issue helpful. Comments are welcome as always.

Becky Wise  
Guest Editor and  
Chair of Newsletter Task Force

## AAAI

Before you get this newsletter the DECUS Fall Symposium in San Francisco will have occurred. I could make some guesses and pretend to report on that meeting, but at the moment it's five weeks away and there are other things worthy of comments.

Last summer several members of the SIG and 5400 others attended a joint conference of AAAI and IJCAI in Los Angeles. This year the AAAI conference was in Philadelphia August 11-15 and even more people attended. Next year the AAAI conference is in Seattle and the IJCAI conference is in Milano.

Two sources of considerable excitement at the AAAI and IJCAI conferences are the big names and the exhibit hall. Frequently, there is an overlap, since many of the big names in AI have started their own companies to expand their research. (We will see many of these research efforts reflected at the fall DECUS symposium, and I expect to see even more at future symposia.)

AAAI has begun an "engineering track" this year. The more theory oriented "science track" ran 2-4 parallel sessions on Monday and Tuesday. Thursday and Friday were the days for the engineering track. Some of the sessions were excellent.

There were also things that I missed. The Engineering Track is new. There are not yet as many sessions at AAAI that discuss the application of AI technology as at the DECUS symposium. There are a large number of seminar offerings available, but these half-day seminars are expensive and are in conflict with the sessions. The sessions themselves are generally not aimed at the large portion of the computing community which is currently bootstrapping itself into an appreciation of AI and the application of the AI technologies.

The exhibit hall was a wonderful resource, but I missed our suite and campground as places to meet new people and just talk about experiences and ideas.

I haven't yet arranged for a transcription or re-print of any of the sessions to offer you here, but I did make a number of contacts and took away several ideas which are likely to improve the AI SIG's offerings through DECUS.

In other news, a number of members of the SIG Steering Committee have just completed an incredible two-day meeting near Hudson, Massachusetts, where Digital's AI groups are located. We worked very hard and also enjoyed the opportunity to get to know one another and a number of the Digital AIs much better. There will be a number of improvements to the SIG due to this meeting also.

We're no longer absolutely brand new. At the Nashville symposium in the spring we will celebrate the second anniversary of our formation and our request for SIG status. There are many things that we've accomplished in this time that we have every reason to be proud of. However, ours is a growing SIG and a changing field. Your input is always welcome.

Cheryl Jalbert, Chair AI SIG, DECUS/US

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**Recent Events in AI**

Jim Sims

Oct. 6 - 10 \*\*\* DECUS Fall Symposium in San Francisco \*\*\*  
 contact:  
 any steering committee member listed in  
 this newsletter segment

6 - 8 AI Applications in Material Science  
 contact:  
 Joe R. Beeler, Jr. (919) 737-2125  
 Dept. of Materials Engineering  
 North Carolina State University  
 P.O. Box 7907  
 Raleigh, N.C. 27695-7907

7 - 8 Workshop on High-Level Tools for KBS  
 contact:  
 B. Chandrasekaran  
 Workshop Chairman  
 OSU-LAIR  
 2036 Neil Avenue  
 Columbus, Ohio 43210-1277

**Upcoming Events in AI**

October 14-17 2nd Conference on Aerospace Applications of AI  
 State-of-the-AI-art in Space Systems,  
 logistics, aircrew aiding  
 contact  
 Jack Schira  
 Vitro Corporation  
 5100 Springfield Pike  
 Suite 119  
 Dayton, Ohio 45431 (513) 254-5010

17-20 IEEE Tutorial Week Research Triangle Park  
 contact  
 see prev IEEE Tutorial week

20-24 Expert Systems in Government Planning, Decision  
 Support, C&C, Space App., Man-Machine I/F,  
 Knowledge Engineering Methods, Learning, NLP,  
 Speech  
 contact  
 Conference Chairman  
 Dr. Karnal Karna  
 IEEE Computer Society  
 1730 Massachusetts Ave. NW  
 Washington, D.C. 20036-1903

23-25 International Symposium on Methodologies for  
 Intelligent Systems  
 contact  
 ISMIS '86 Organizing Committee  
 Computer Science Dept  
 8 Ayres Hall  
 UTK  
 Knoxville, Tn 37996-1301

Nov. 2 - 6 1986 Fall Joint Computer Conference (ACM &  
 IEEE)  
 "Exploring the Knowledge-Based Society"  
 contact  
 Dr. Stanley Winkler  
 Conference Chairman  
 FJCC '86  
 IEEE Computer Society  
 1730 Massachusetts Ave. NW  
 Washington, D.C. 20036-1903

17-19 5th International Conference on Entity-Relationship  
 Approach  
 (ACM, AFCET)  
 contact  
 Stefano Spaccapietra  
 Universite de Bourgogne-IUT  
 BP 510-214014 Dijon Cedex, France

17-21 IEEE Tutorial Week San Francisco  
 contact  
 see prev IEEE Tutorial week

18-20 1st Australian AI Conference  
 contact  
 Stephen Moore  
 Director, 1Aaic86  
 37-43 Alexander Street  
 Crows Nest  
 NSW 2065  
 Australia phone (02) 439-5133

26-28 3rd AI and Productivity Conference  
 Methods & techniques in AI, ES, NL, CAD/CAM,  
 CAE, Robotics  
 contact  
 SIMTEC Communications  
 211 rue St-Honore  
 75001 Paris, France

Dec. 8- 10 Winter Simulation Conference  
 Modeling & Analysis Methods and Applications  
 contact  
 James Henriksen  
 General Chairman, WSC '86  
 Wolverine Software Corporation  
 7630 Little River Turnpike  
 Annadale, Va. 22003 (703) 750-3910

15-19 IEEE Tutorial Week Austin  
 contact  
 see prev IEEE Tutorial week

April 27 -  
 May 1, 1987 \*\*\* DECUS Spring Symposium in Nashville \*\*\*  
 contact  
 Cheryl Jalbert, Chair AI SIG or Pam Vavra,  
 Symposium Rep or any steering committee member  
 listed in this newsletter segment  
 call for participations are due October 17,  
 1986

May (early) Call for participations due for Fall DECUS  
 Symposium in Anaheim 1987

July 12 - 18 AAAI '87  
 1987 contact Cheryl Jalbert for more information on  
 AI SIG, DECUS participation

August 23 - 28 IJCAI  
 1987 International Joint Conference for Artificial  
 Intelligence  
 Milano, Italy  
 contact Dr. John McDermott  
 Carnegie Mellon University  
 Pittsburg, PA

December 7 - 11 \*\*\* DECUS Fall Symposium in Anaheim \*\*\*  
 1987 contact  
 Cheryl Jalbert, Chair AI SIG or Pam Vavra,  
 Symposium Rep or any steering committee member  
 listed in this newsletter segment  
 Call for participations will be due in early  
 May.

### Public Domain Task Force Is Formed

The AI SIG's Public Domain Task Force was formed to locate, review, and acquire AI products in the Public Domain.

The PDTF currently has about a dozen participants and has located several products, including:

- (1) NASA's CLIPS - C Language Implementation Production System  
 Written in C, interfaces to/from C routines, for the  
 IBM PC.  
 Available through COSMIC. Reviews in progress.
- (2) Several versions of VAX LISP and XLISP. Reviews in progress
- (3) PROLOG - attempting to get a copy for review.
- (4) DOE MACSYMA - Computer Algebra, written by MIT, once in PD,  
 now questionable. Does symbolic integration, differentiation,  
 factoring, etc.

We welcome your input and participation.

Jim Sims  
 Chair of the Public Domain  
 Task Force

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### MACSYMA

I have come across some interesting information in the last few days and thought you would be interested and/or able to give some help. You have probably heard of the AI program MACSYMA that was developed by MIT to do SYMBOLIC integration, differentiation, factoring, etc. The facts are not clear to me, but MIT developed this program using a Government grant (read YOUR money) and has recently licensed Symbolics to distribute this program. This means that you have the privilege of paying for this TWICE if you want to use it. Once for the development and now again (about \$7000) to get it from Symbolics.

It also happens that DOE has a license to distribute this program on a cost-recovery basis. You pay them a fee to join and annual membership (cost depends on who you are, ~\$2000) and get any two packages free per year. I tried to get a copy from them for evaluation but apparently the license they have with MIT is VERY strange and legally entangling.

This brings us up to the present. Does anyone out there have a copy of MACSYMA at their site they would be willing to evaluate? I am going to further pursue obtaining a copy for evaluation, but it looks like this may be a dead end. I will also pursue the release of this package into the Public Domain since WE PAID FOR IT.

Thanks for listening and any help you can give.

Jim Sims  
Chair of the Public Domain  
Task Force



# BUSINESS APPLICATIONS

## **BUSINESS APPLICATIONS SIC STEERING COMMITTEE**

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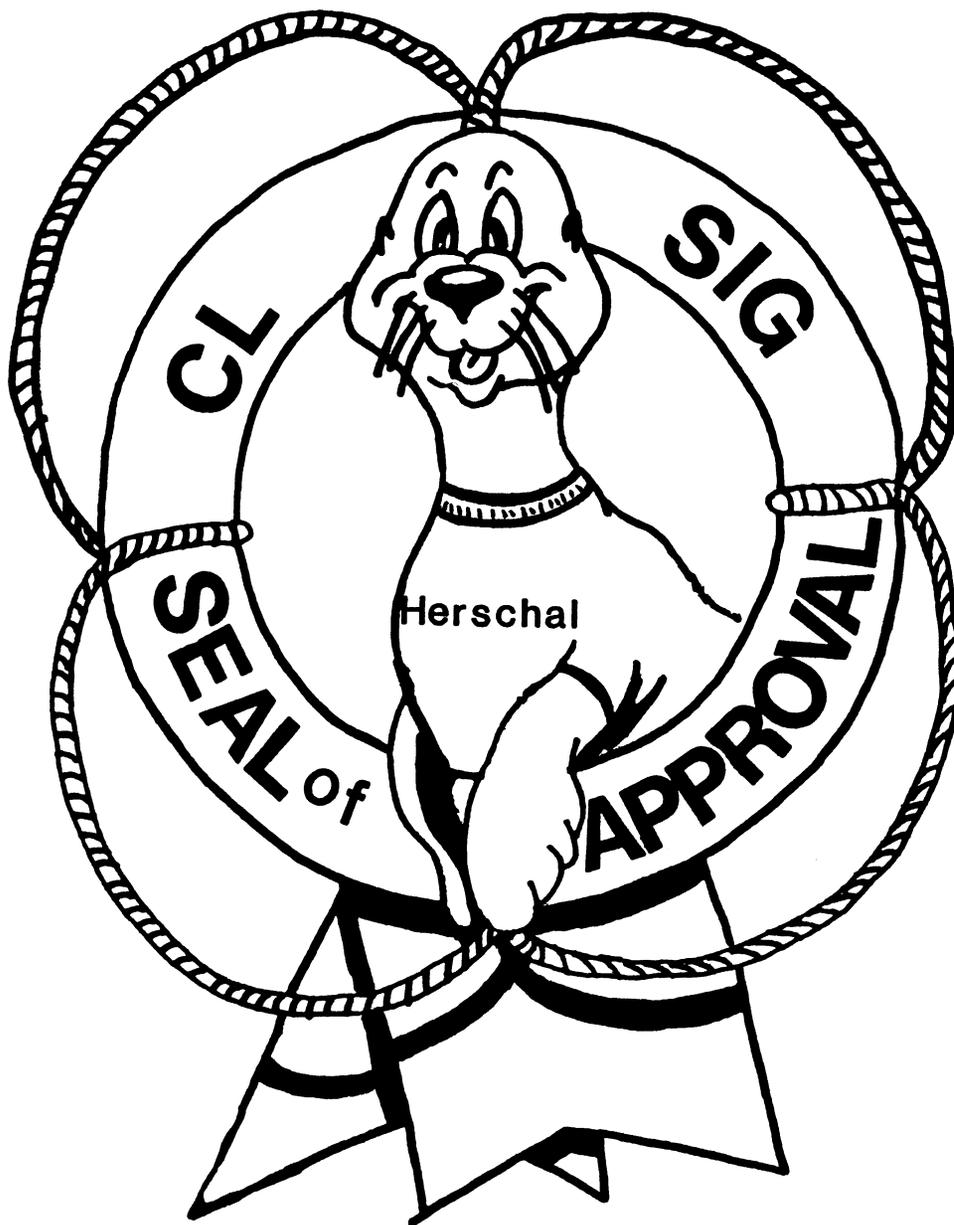
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COBOL

BASIC

DIBOL

RPG

CL

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Macalester College  
St. Paul, MN  
DIBOL  
Eli Szklanka  
TEC  
Newton, MA

Languages Not Included in the Commercial Language SIG  
or the Languages and Tools SIG.  
by

A Usually Reliable Source  
Digital Equipment Corporation  
Somewhere in New England

and

Doug Bohrer  
Bohrer and Company  
Near Chicago

and

Ted A. Bear  
Ramtek  
In the heart of Silicon Valley

APL, BASIC, COBOL, FORTRAN, PASCHAL, RPG ... these programming languages are well known and (more or less) loved throughout the computer industry. There are numerous other languages, however, that are less well known yet still have ardent devotees. In fact, these little known languages generally have the most fanatic admirers. For those who wish to know more about these obscure languages -- and why they are obscure -- I present the following catalogue.

[This article is a reprint of another article which was blatantly stolen from the APL SIG newsletter THE SPECIAL CHARACTER SET, then hacked and printed in the BASIC newsletter.- Ted A. Bear]

BEAN COUNT 1,2,3

BEAN COUNT 1,2,3 is an artificial intelligence language for accountants. The language has one command BOTTOM LINE. All one needs to do is supply the bottom line and BEAN COUNT 1,2,3 makes all of the other numbers fit.

CLOSE ENOUGH

This language is replacing Ada in many sites because it is CLOSE ENOUGH for government work. Commands in CLOSE ENOUGH are obscure and verbose.

The military version contains SECRET CODE (some so TOP SECRET that no one can use them except for teen age hackers who gain illegal access) while the CIA version contains SECRET AGENTS.

C-

This language was named for the grade received by its creator when he submitted it as a class project in a graduate programming class. C- is best described as a "low level" programming language. In general, the language requires more C- statements than machine code instructions to execute a given task. In this respect it is very similar to COBOL.

DOG0

Developed at MIOT (Massachusetts Institute of Obedience Training). DOGO heralds a new era of computer-literate pets. DOGO commands include SIT, HEEL, STAY, PLAY\_DEAD and ROLL OVER. An innovative feature of DOGO is "puppy graphics", a small cocker spaniel that occasionally leaves deposits as it travels across the screen.

FIFTH

FIFTH is a precision mathematical language in which the data types refer quality. The data types range from CC, OUNCE, SHOT and JIGGER to FIFTH (Hence the name of the language), LITER, MAGNUM and BLOTTO. Commands refer to ingredients such as CHABLIS, CHARDONNAY, CABERNET, GIN, VERMOUTH, VODKA, SCOTCH, BOURBON, CANADIAN, COORS, BUD, EVERCLEAR and WHAT\_EVERS\_AROUND.

The many versions of the FIFTH language reflect the sophistication and financial status of its user. Commands in the ELITE dialect include VSOP, LAFITE and WAITERS\_RECOMMENDATION. The GUTTER dialect commands include THUNDERBIRD, RIPPLE and HOUSE\_RED. The GUTTER dialect is a particular favorite of frustrated FORTH programmers who end up using this language.

FUN-4-ALL

FUN-4-ALL was developed by Dr. Fred Rogers (or Mister Roger's Neighborhood) with the main idea to keep the language slow and simple. You must wear a sweater and blue deck shoes to program in this language.

This language is so friendly that commands are called suggestions. If you input a incorrect suggestion you might get a response like this:

§ HELO Hello boys and girls. I see that you entered a suggestion. I am sorry, but I can not recognize HELO. Could you have meant HELLO? Can you say HELLO?

§

Some other suggestions are:

## TOMORROW

FUN-4-ALL sings TOMORROW, because that is when you will get your results.

## TROLLEY

An input suggestion that takes your input into the land of make believe.

This language is also very courteous, all input/output devices are addressed as Mr. or Miss. (Mr. DRBl:). A FUN-4-ALL user would never address anyone or anything by first name.

FUN-4-ALL will not run on Friday the 13th.

## KADAFFY

There are fourteen ways of spelling this name; this variation derived from the cartoon character KADAFFY DUCK. The language is made up completely of bugs and commands that have no meaning. There is a saying among KADAFFY programmers, "Two wrongs don't make a right...but three do."

## LAIDBACK

This language was developed at the Marin County Center for T'ai Chi, Mellowness and Computer Programming (now defunct), as an alternative to the more intense atmosphere in nearby Silicon Valley.

The center was ideal for programmers who liked to soak in hot tubs while they worked. Unfortunately few programmers could survive there because the center outlawed Pizza and Coca-Cola in favor of Tofu and Perrier.

Many mourn the demise of LAIDBACK because of its reputation as a gentle and non-threatening language since all error messages are in lower case. For example, LAIDBACK responded to syntax errors with the message:

"i hate to bother you, but i just can't relate to that. can you find the time to try it again?"

## REGAN

This language was also developed in California, but is now widely used in Washington D.C. It is the current subset of the international bureaucratic language known as DOUBLESPEAK. Commands include REVENUE ENHANCEMENT, DEFENSE, CAP WEINBERGER, MALCOMB BALDRIDGE, CABINET, CHOP WOOD, LAXALT and SCENARIO. WATT and STOCKMAN have been removed from the commands while the current effort is to straighten out MEESE.

The operating system used is NEW\_RIGHT and the designated memory is THE\_RANCH. The compiled SCENARIO is a compile with NANCY followed by a link with BONZO resulting in a SNOOZE. COMMIES and KADAFFY's (program bugs) are removed by disregarding the LINE\_OF\_DEATH command.

A REGAN program commences with LANDSLIDE and terminates with SENILITY.

## RENE

Named after the famous French philosopher and mathematician Rene DesCaters, RENE is a language used for artificial intelligence. The language is being developed at the Chicago Center of Machine Politics and Programming under a grant from the Jane Byrne Victory Fund. A spokesman described the language as "Just as great as dis [sic] great city of ours."

The center is very pleased with progress to date. They say they have almost succeeded in getting a VAX to think. However, sources inside the organization say that each time the machine fails to think it ceases to exist.

## RIP

RIP is a stable product designed for programmers who are dead or have moved up into non-technical management (which is about the same thing.)

RIP contains only termination commands.

STOP, END, FINISH, TERMINATE, PUT TO SLEEP, GONE AWAY, BIG SLEEP, HIBERNATE, GREAT REWARD, LAYOFF, FIRED, NO LONGER WITH US, HAPPY HUNTING GROUND

## SATRE

Named after the late existential philosopher, SATRE is an extremely unstructured language. Statements in SATRE have no purpose; they just are. Thus SATRE programs are left to define their own functions. SATRE programmers tend to be boring and depressing and are no fun at parties.

## SIMPLE

SIMPLE is the acronym for Sheer Idiot's Monopurpose Programming Linguistic Environment. This language, developed at Hanover College for Technological Misfits, was designed to make it impossible to write code with errors in it. The statements are, therefore, confined to BEGIN, END and STOP. No matter how you arrange the statements, you can't make a syntax error.

## SLOBOL

SLOBOL is best known for the speed, or the lack of it, of the compiler. Although many compilers allow you to take a coffee break while they compile, the SLOBOL compiler allows you to travel to Columbia to pick the coffee. Forty-three programmers are known to have died of boredom sitting at their terminals while waiting for a SLOBOL program to compile.

## VALGOL

From its modest beginnings in Southern California's San Fernando Valley, VALGOL is enjoying a dramatic surge of popularity across the industry.

VALGOL commands include REALLY, LIKE, WELL and Y\*KNOW. Variables are assigned with the =LIKE and =TOTALY operators. Other operators include the California Booleans, AX and NOWAY. Repetitions of code are handled in FOR - SURE loops.

Here is a sample program:

```
LIKE, Y*KNOW (I MEAN) START
IF PIZZA =LIKE BITCHEN AND
GUY =LIKE TUBULAR AND
VALLEY GIRL =LIKE GROODY**MAX (FERSURE)**2
THEN
FOR I =LIKE 1 TO OH*MAYBE 100
DO*WAH - (DITTY**2)
BARF(I) =TOTALLY GROSS(OUT)
SURE
LIKE BAG THIS PROGRAM
REALLY
LIKE TOTALLY (Y*KNOW)
IM*SURE
GOTO THE MALL
```

VALGOL is characterized by its unfriendly error messages. For example, when the user makes a syntax error, the interpreter displays the message:

```
GAG ME WITH A SPOON!!
```



**D A A R C**

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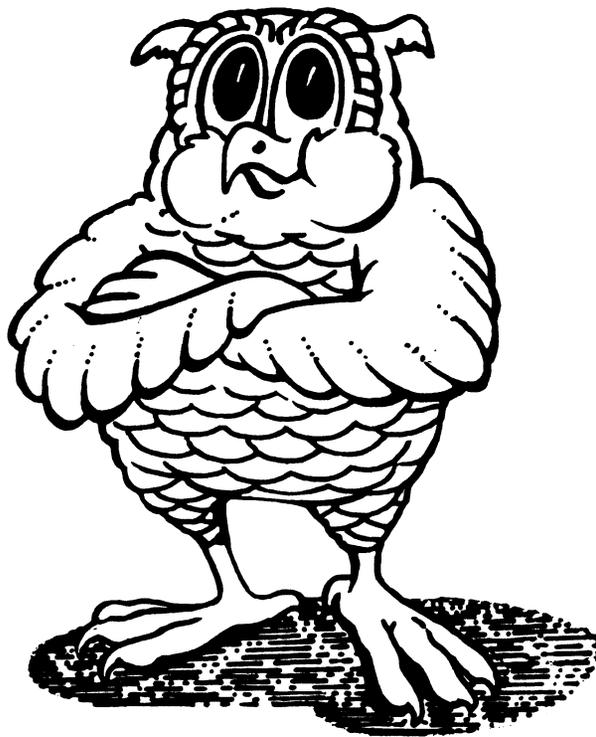
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**INFO-the DMS SIG NEWSLETTER**



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Rocky Hayden, UserWare International

I'd like to take a moment of your time to review three very interesting seminars being offered by the DMS SIG. The DMS SIG sponsors the pre-symposium seminars in order to disseminate specific concentrated information to the members of DECUS. The revenue generated by these seminars is used to fund DECUS Society projects for the betterment of the Society.

The instructors at these seminars are experts and include technical consultants, database administrators and Digital Software Engineers. Since these instructors donate their time to give these seminars, there is a personal involvement not found in normal profit oriented seminars. They do their very best to bring you a premium seminar and since they are all experts, you are the beneficiaries of their dedication.

Included is a brief outline of all three seminars. If you haven't signed up, don't worry. Starting this symposium, walk-in registrations for pre-symposia are being accepted. See you in San Francisco!

#### DM003 - AN SQL TUTORIAL

This seminar will introduce you to SQL, a widely accepted language in the relational database community. SQL has now been recommended as the standard for relational languages by the ANSI committee. Starting with the basic commands and continuing through to the more complex, PASCAL-like, structured SQL, attendees will become familiar with the SQL language. The emphasis in this seminar is to provide attendees with an understanding of SQL capabilities, and to provide experience in using SQL in a relational environment. Workbook will be provided with practical exercises. Topics to be covered include:

- o Introduction to the SQL language.
- o Basic SQL commands/queries.
- o Joining two or more data structures.
- o Subqueries.
- o Report formatting with SQL.
- o Data manipulation.
- o Letting SQL write SQL commands.
- o Structured SQL.

Your instructor is Herman Spencer. He is the Data Base Administrator for the Army Research Institute. He is also an independent consultant in data base installation and design. He is the designer of TCARS, a data base simulation project developed for the Army.

#### DM002 - INTERFACING SOFTWARE TO DIGITAL'S RELATIONAL DATABASES USING DSRI.

The Digital Standard Relational Interface (DSRI) provides a documented, low-level interface to Digital's relational products. The DSRI allows software developers and end users to develop sophisticated end-user level software layered on top of Digital's relational database engine Rdb/VMS, on top of Digital's access path to IBM databases VIDA, and on top of Digital's other DSRI implementations. This seminar will present the DSRI and examples of how it can be used. The seminar is geared towards programmers and application designers who wish to use the DSRI to create their own user interface to the DSRI products.

Ed Fisher, your instructor, is a Software Engineer for Digital in the Rdb/VMS group.

#### DM001 - RELATIONAL DATABASE DESIGN

To take full advantage of a relational database management system, it is necessary to pay careful attention to the database design, and to understand what a relational database is and what it does. This seminar will provide the you with an overview of databases and relational database theory. It will also present a design methodology for designing relational database applications. The design section will include such topics as entity-relationship modeling and normalization. Topics to be covered include:

- o Databases and relational databases
- o Database design for a relational database
- o Database design in a distributed environment
- o Implementing a database design using Digital's Rdb/VMS

Keith W. Hare is a Senior Consultant with JCC, specializing in relational databases and database design. He has a masters degree in Computer and Information Science from the Ohio State University. He is the DECUS Symposium Committee representative for the Data Management Systems SIG and is a member of ACM.

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Rdb Standards and Guidelines

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VAX Rdb/VMS

Guidelines and Standards Part I:

Database Design and Definition

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New York, N.Y. 10015

July 17, 1986

## 1. Introduction

This paper is the first of three dealing with the use of VAX Rdb/VMS. It will deal with Rdb Database Design and Definition guidelines. The other two will deal with guidelines and standards for Program Design and Programming, and for Database Administration.

I distinguish guidelines from standards in that guidelines are general considerations, trade-offs, or recommendations, while standards are rules, which when followed will accrue benefits of Rdb performance or application maintainability.

These papers are directed at those of you who are less familiar with the concepts of Information Resource Management. An experienced database administrator will already have exposure to the concepts of good database design. The project manager suddenly faced with the need to design an Rdb database may not be so well prepared.

I advocate the use of these standards for the use of Rdb as a database management tool in an integrated database environment. That is, an integrated tool as distinguished from its use as a local file access method or in a prototype mode. Use of the standards and guidelines are likely to add a NEGLIGIBLE amount of effort to the development process. But this slight incremental effort will help ease the maintenance backlog, promote data security, maintain data integrity and promote the efficient utilization of system resources.

## 2. Database Design Guidelines

There are many activities in the Database Design process. Most of these are activities one performs independently of the choice of physical implementation of the database. That is, certain considerations must be given to database issues even before the database management system is chosen:

How does the database fit into your organization's Long Term Strategic Data Plan (be it documented or folklore)?

What is the appropriate level of normalization for your database?

What database navigation paths are required to provide efficient use of the database?

These are all questions that can be answered before you select a particular database management system. These are topics described repeatedly in the literature and I refer you there for more detailed descriptions of these steps in the database design. This paper will touch on them only superficially, while it tries to describe guidelines endemic to Rdb design in more detail.

## 2.1. Long Term Strategic Data Plan

Long Term Strategic Data Planning provides a logical description of data and applications and it provides an ideal ordering scheme for their development. Its composite elements are:

- A Data Architecture
- An Information Systems Architecture
- A Project Module Time and Precedence Sequence.

It is the Data Architecture which has the greatest impact on Rdb design.

The Data Architecture yields a concept of the business data groupings of an organization and an ideal database development schedule. These groupings, or Subject Databases (SDB), describe data entities and the relationships between them. The schedule outlines how to create databases that do not need restructuring for each new application.

The Data Architecture gives the database designer a head start in local application database design. In the creation of the Data Architecture thought has been given to the component entities of the particular SDB, the SDB entities' relationships, and where the development of this SDB fits into the overall organization's database development scheme. The database designer can take advantage of the work which has already been done.

The Database Designer is not the only party to benefit from adherence to the Data Architecture. The organization benefits since adherence results in a database which requires minimum maintenance since it fits into your organization's plans.

Most organizations do not have a formal Long Term Strategic Data Plan. What is a Database Designer to do without one?

If a formalized Data Architecture does not exist, the database designer will have to go out and create one. That is, answer these questions in regards to your application's database:

How does it fit into your organization's data scheme as a whole? That is, what are the data interfaces, what data needs to be created before your database can operate, and what databases are dependent on data from your database?

## 2.2. Normalization

Normalization provides guidelines for 'record' design. While the Data Architecture represents a top-down view of an organization's data, normalization is performed bottom-up - bottom-up in the sense that normalization is applied to elemental details of the data model, resulting in an optimized mapping of data attributes to data entities.

Normalization includes the following steps:

- remove repeating groups
- remove non-key fields which are not wholly dependent on the entire key
- remove non-key fields which are wholly dependent on another non-key field (this second non-key field will be the key of a new relation).

After normalization, it may be advantageous to de-normalize in order to improve query response time. That is, normalized data may be fragmented such that the retrieval of data required for a single query is too costly. Pulling this data into a single relation, or duplicating this data in a single relation may improve query response time (perhaps at the expense of added work in database updating).

## 2.3. Transaction Modeling

Transaction modeling is a process used to determine whether the database design (including entity, attribute, and relationship definitions) is appropriate for the things the application needs to do with the data. It helps determine if the relationship paths are adequate, if entry points are appropriately defined, and so on.

Transaction modeling includes the following steps:

### 2.3.1. Identify the transactions:

- who is the user
- what is the identifiable transaction
- what entities and attributes are needed
  - update or retrieval only

### 2.3.2. Create transaction maps:

- what paths does each transaction require
- what entry points are required
- what relationships are needed but not yet defined
- what load exists for each path

Transaction modeling helps in identifying:

- traffic volume between entities with no defined relationships
- heavy traffic between entities with defined relationships
- physical considerations necessary for maximum efficient transaction activity
- implementation of sequential, random and keyed approaches to entities

Transaction modeling can be performed once Functional Analysis is completed. Once you know all the functions your application will perform, you can identify their mapping to tasks. For each task, you can identify the data required at the entry point and the data entities used by the task. This permits you to determine the optimal database navigation paths.

## 2.4. Database Design in the Life Cycle

Where does the DB design fit in the application development life cycle?

The answer is that DB design never really dies. That is, until an application is very stable (a state many applications, by necessity, never achieve), the DBA needs to keep an eye on how the database is performing in order to be ready to change and tune it. Hence the opportunity to leverage Rdb's relational capability to easily change meta-data.

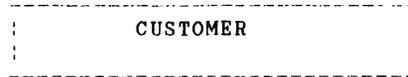
## 2.5. Design Documentation

While the database is being designed, how do you show the world what the design looks like. This is certainly important during the design review process. The documentation will be a source of such information as: What are the database's composite entities? What are the relationships between these entities? What fields belong each entity? Which of these fields are indices?

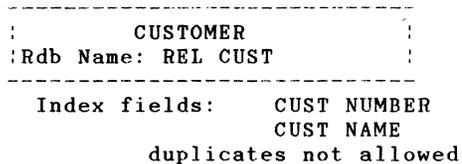
The notational convention chosen should be one which will ease the tedious definition phase by organizing the meta-data efficiently. This will result in ease of creating the RDO definitions for fields, relations, indices, views, constraints, etc.

2.5.1. Entity Relationship (E-R) Diagrams are the best tool to graphically depict entities with their attributes, and relationships between entities.

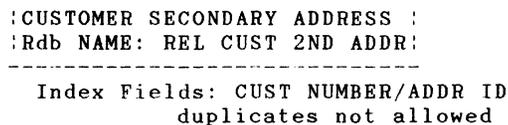
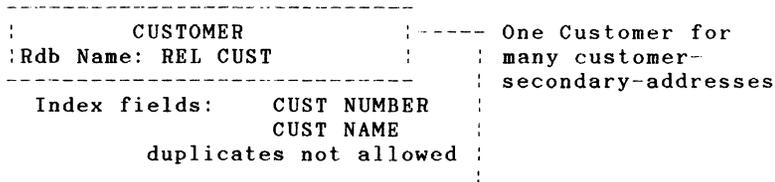
With an Entity Relationship Diagram, an entity is represented by a box:



We could indicate a variety of things we know about the relation alongside the box. Things like its Rdb name, what fields are used as index values, and whether duplicate index values are allowed:



You could also indicate how this entity relates to other data entities. For instance a customer may have many mailing addresses:



The line from one entity to the other represents the subordinate entity's 'reference' to the related entity. In this case, the reference has integrity if, for each customer number in each secondary address, there exists a customer stored in the customer relation with that customer number. It is the job of the database administrator and the database management system to maintain the integrity of this reference. (Hence the term 'referential integrity.')

For even a moderately complex database design these diagrams can become difficult to draw and maintain. Even with some automated support, graphic representation of the design can be labor intensive. But its usefulness makes this effort worthwhile.

2.5.2. Fields for each relation is described in tabular form. You create one table for each relation and list the relation's fields in the table. The entry for each field contains:

- the Rdb field name
- field datatype, size, and other characteristics
- a descriptive short name
- a description of how each field is used
- field validity information to be used for VALID IF clauses, Rdb Constraint definitions, and application code edits.

2.5.3. When do you put together this documentation?

Over and over again. The E-R Diagram can be a useful tool during normalization and during transaction modeling. But transaction modeling is likely to reveal circumstances which will dictate a change to the diagram.

## 2.6. Use of Views

In transaction modeling you mapped relations to the transactions which use them and we apply traffic volumes to these navigational paths. This process may reveal the need to de-normalize, that is recombine some fragmented entities into a single relation. But say these relations are of necessity fragmented. That these relations are frequently used together suggests that the queries against this set of relations will be frequently used.

This is an opportunity to create a view which will combine this set of relations. This provides the database administrator with the opportunity to code a standard optimal query.

## 2.7. Referential Integrity

Rdb maintains referential integrity by the use of Constraints. Constraints are a method by which you can assure, for instance, the existence of a record with a given field value identical to a field value in another relation. The constraint is checked at update or commit time (user definable) and requires Rdb to do some work. This is work that could likely be done more efficiently by application code.

In fact, it may be better, performance-wise, to let application code check the reference since application code may better handle locking contention. The trade-off is between performance and Rdb control of data integrity.

You may want to keep a constraint, regardless of performance, if it keeps the integrity of an important part of the database. Otherwise, code and test the constraints and replace by application code only those constraints which demonstrate less than acceptable performance.

## 2.8. Duplicate Index Values

Take care in allowing duplicate values for indices. If the index is used as an entry point to the relation, too many duplicates will impede performance. If possible, add a field to the index, one whose value is known to the entry point. This addition may reduce the number of duplicate values and consequently improve performance.

## 3. Database Definition Guidelines

Defining a pre-designed database will test your organizational abilities. Here, neatness counts. Good practices in the Database Definition phase will allow speedier definition, ease of programming, and a smoother move to a production environment.

You will find that proceeding methodically will make your job easier. Use the design documentation. It will be your source of what needs to be defined:

- fields
- relations
- indices
- constraints and
- views.

In fact, coding the Rdb definitions in this order will smooth the definition process.

### 3.1. Based-on fields

Before you define anything to Rdb, first examine all the fields listed for each relation in your design documentation. Examine these fields to determine which are really based on the same data. For instance, the customer number which identifies the customer relation is based on the same data as the customer number in the secondary address relation. These two fields will be based on the same field.

Gather a list of all such fields and define them to Rdb before you define any other data. Then when defining each relation which contains such a field, you will refer to that field in the relation definition, either directly by its name, or through the use of the BASED ON clause.



### 3.4. Naming Conventions

Meaningful names need be given to the elements of the database definitions. Meaningful names helps promote understanding and ease of development and maintenance.

Names for fields, relations, indices, views, and constraints are standardized by a unifying scheme.

For RELATIONS the scheme includes a multi-part name. It consists of a prefix of 'REL ' to indicate a relation. The second part consists of one to three standardized words or abbreviations. These words and abbreviations will be spelt the same whenever they appear in any type of definition. For example, whenever the word address is represented, standardize it so that it is always spelt say, 'ADDR'.

For FIELDS, the same rules apply as to the standardized use of words and abbreviations. In addition, prefix each field definition by a three to five character prefix unique for each relation. Follow that prefix by a single character which will indicate the datatype of the field, e.g. T for TEXT, L for Longword, etc. Then follow that by standard words or abbreviations.

For BASED ON FIELDS there is no single relation to which they belong. For their use in relations, define their names as described above, but include the BASED ON clause referring to the based-on field name. The based-on field name will follow the same convention, but instead of a three to five character prefix unique for the relation, use a three to five character prefix such as 'BASED'.

For VIEWS, prefix the name with 'VIEW'. If all the fields in the view come from a single relation, then use that relation's unique prefix in the view name. If they do not, then create some standard name.

For INDICES, prefix the name with, say 'IDX' and follow that with the relation's unique prefix. If there is going to be more than one index defined for a relation, follow the unique prefix with a meaningful, standardized qualifier.

For CONSTRAINTS, similarly prefix them with a qualifier like 'CNS'. Follow the qualifier by the unique prefix associated with the primary relation in the constraint's RSE. For example, take the constraint that the secondary address relation's customer number must exist in the customer relation. If the secondary address relation's unique prefix is 'ADDR2', the constraint name would be formatted 'CNS ADDR2 suffix'. The suffix will define the nature of the constraint. Since constraint names are used in formatting error messages when a constraint is violated, the suffix will be something meaningful. So the constraint could be named 'CNS ADDR2 CUST NO EXISTS'.

### 3.5. Descriptors

Take advantage of any DESCRIPTION IS clause you can find. It is a way of including a valuable description of how a field, relations, constraint, index, or view is used.

### 3.6. Field Definitions

Use the Design Documentation tables of relations when defining field's in each relation. This will be the source of the fields missing value, whether a missing value is allowed, and any other VALID IF constraints.

Take care not to define VALID IF's which are inconsistent with the MISSING VALUE specification. Rdb will allow such inconsistent data to be stored, but the relation will be corrupt after backup and restore!

### 3.7. Grouped Items

To support the need to group elemental fields use the COMPUTED BY-concatenation clause. Say you define a whole phone number (WHOLE PHONE NUMBER) as two parts: area code (AREA CODE) and phone number (PHONE NUMBER). You would define a field for area code and one for phone number. The WHOLE PHONE NUMBER field would be COMPUTED BY AREA CODE:PHONE NUMBER.

### 3.8. Protection

At this stage of database development, the most important protection to give the database is one which will support control over who is allowed to add or change Rdb definitions. Overall ability to change definitions will be limited to at least the database administrator. The database administrator may share some of this responsibility with a project team member.

The ability to change certain Rdb definitions may be a necessary part of the application so the database administrator will take care to dole out this type of access appropriately.

#### 4. Conclusion

The most important aspects of database design are independent of the choice of the database management system. Make sure your database fits into your organization's overall plan, normalize your data, perform some sort of transaction modeling, and carefully document and organize your work. This coupled with detailed reviews of your design and definitions will spell success.

#### 5. Bibliography

- 5.1. James Martin, Strategic Data-Planning Methodologies, Prentice Hall, 1982
- 5.2. James Martin, Managing the Data-base Environment, Prentice Hall, 1983
- 5.3. Robert Holland, Database: A Manager's Guide, Technology Transfer Institute, 1985
- 5.4. William R. Durell, Data Administration, McGraw-Hill, 1985

The Wombat

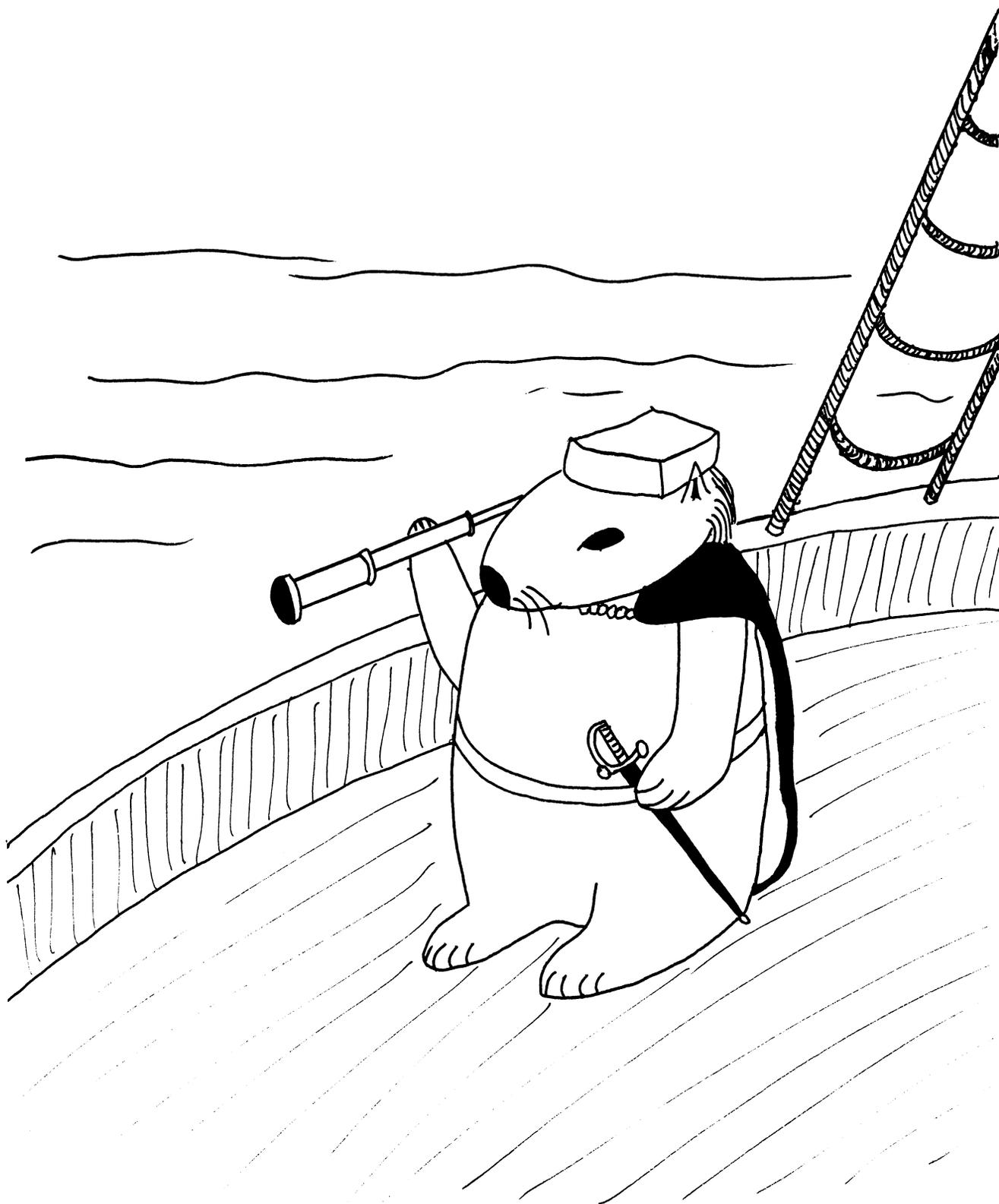
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## Contributions

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Submissions to this newsletter are constantly sought. A submission can be an article, a letter to the Wombat Wizard, a technical tip, or anything of interest to people using or considering the use of Datatrieve or any 4GL product. Submissions on magnetic media are preferred but almost any type will be considered.

Contributions for the newsletter can be sent to either of the following addresses:

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## Chairman's Corner

Joe H. Gallagher, Ph. D., 4GL Solutions, Overland Park, KS

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Hopefully you will be reading this as you are boarding your plane (or car) to go the 1986 Fall DECUS Symposium in San Francisco. (It is hoped that you will be going to the symposia and it is also hoped that this October issue will get to you before you go.)

This is a time of several firsts. It is the first time that the west coast symposia has been held so early in the year. It is also the first time that I can remember that there are so few serious problems within the DECUS organization. The Board and Management Council have settled down; functional areas are putting out their products and services; DECUS leadership is looking at new ways to service its members; and the DTR/4GL SIG Steering Committee is in good shape (everybody has a good job). This is also the first time that I can ever recall Digital Equipment Corporation being in such a good position - financially and technologically. Business and profits are up and the VAX line from the 8800's down to the VAX Star presents an awesome array of products.

See you in San Francisco.

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## From the Editor's Pen

Donald E. Stern, Jr., Warner Lambert Company, Milford, CT

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In my August editorial, I urged those concerned with the publication of this newsletter to improve the quality of the final copy delivered to subscribers. Since the time I wrote that editorial and now, I've had the chance to review the July and August issues. I, for one, have noticed a manyfold improvement. Thanks to all who contribute their time and talent to the newsletter publication.

At this writing, I've got my hotel reservation and plane tickets for the San Francisco symposium. I'm looking forward to renewing old acquaintances and making new ones. As has become my habit at the symposia, I'll constantly be looking for members who would like to contribute an article, technical note, etc. to the newsletter. If you're there and you think that you might have something, please contact me. If you've remained behind this time give me a call or drop me a letter.

As you read this, you are probably either flying to the symposium, returning from it, or hearing about all the good things you missed by not attending. Do yourself and your company a favor and plan now for the Spring symposium next year.

Do you want to get more involved with DECUS? If so, contact our Volunteer Coordinator and Past Chairman, Larry Jasmann. I'm sure that he'll find something for you to do.

---

## ReCallable DATATRIEVE

Dana J. Schwartz

---

Under VMS 4.4, the Screen Management routines (SMG\$) provide the recall of the last 20 commands, just like DCL. I wrote the following FORTRAN program to use DTR\$DTR and SMG\$ to give DATATRIEVE this ability! This is really neat to use and saves a lot of retying in an interactive session.

```

PROGRAM RECALLABLE_DTR

IMPLICIT INTEGER ( A-Z )

INCLUDE 'DTR$LIBRARY:DAB.FOR'
EXTERNAL DTR$_EXIT, SMG$_TRM_CTRLZ, SMG$_TRM_CR
CHARACTER LINE*255

CALL SMG$CREATE_VIRTUAL_KEYBOARD ( KEYBOARD )
CALL SMG$CREATE_KEY_TABLE ( TABLE )

CALL DTR$INIT ( DAB, 100, MSG_BUFFER, AUX_BUFFER,
  DTR$_K_SEMI_COLON_OPT )

OPTIONS = DTR$_M_OPT_CONTROL_C + DTR$_M_OPT_STARTUP +
1   DTR$_M_OPT_FOREIGN + DTR$_M_OPT_BANNER +
2   DTR$_M_OPT_CMD
DTR_STATUS = DTR$DTR ( DAB, OPTIONS )

TERM = %LOC(SMG$_K_TRM_CR)
DO WHILE (( DTR_STATUS .NE. %LOC(DTR$_EXIT)) .AND.
1   ( TERM .NE. %LOC(SMG$_TRM_CTRLZ) ))

CALL SMG$READ_COMPOSED_LINE ( KEYBOARD, TABLE,
1   LINE, MSG_BUFFER(:DAB$_W_MSG_LEN),
2   REC_LENGTH,,,,, TERM )

CALL DTR$COMMAND ( DAB, LINE(:REC_LENGTH) )

```

```

DTR_STATUS = DTR$DTR ( DAB, OPTIONS )

ENDDO

CALL DTR$_FINISH ( DAB )

END

```

I think I got everything right... except for some CTRL-Z responses, it looks just like DTR32.

To Build:

```

$ FORTRAN RECALL
$ LINK RECALL.SYS$INPUT:/OPTIONS
SYS$LIBRARY:DTRSHR/SHARE. -
DTR$LIBRARY:TERMSERVE/LIB/INC=(ADT,EDT,GUI,HLP)
`Z

```

To use:

```

$ RUN RECALL

```

-or-

```

$ DTR := RUN SYS$LOGIN:RECALL
$ DTR

```

---

## Recallable Datatrieve (Macro-32 Version)

Bart Z. Lederman - I.T.T. World Communications, New York, NY

---

The idea behind this version of Dana Schwartz's program is that not everyone has FORTRAN, but just about everyone should have Macro-32. You don't have to know much about Macro.

MACRO/OBJ RECALL

should be the only command you need. Then link with the same command as for the FORTRAN version. The following source should be in the file RECALL.MAR

```

.TITLE          RECALLABLE
.IDENT          /V1.0/

```

```

;This is a Macro-32 version of Dana Schwartz's program that
;calls DTR in such a way as to allow previous command line

```

```
;recall through the SMG routines. I did it because not
;everyone has FORTRAN, and because people might want to
;see how to call DTR from Macro.
```

```
;
; B. Z. Lederman 18-Jul-1986

$SMGDEF ; define SMG constants
$DSCDEF ; define descriptor constants

.LIBRARY /DAB.MLB/ ; my own private library which holds:

$DABDEF ; my DTR DAB definition macro.

.PSECT $PDATA, PIC, CON, REL, LCL, SHR, NOEXE, RD, -
NOWRT, LONG
```

```
; Constants
```

```
SEMI_C: .LONG DTR$K_SEMI_COLON_OPT
HUNDRED: .LONG 100
OPTIONS: .LONG DTR$M_OPT_CONTROL_C ! -
          DTR$M_OPT_STARTUP ! -
          DTR$M_OPT_FOREIGN ! -
          DTR$M_OPT_BANNER ! -
          DTR$M_OPT_CMD
```

```
.PSECT $LOCAL, PIC, CON, REL, LCL, NOSHR, NOEXE, -
RD, WRT, LONG
```

```
; Variables
```

```
LINE: .BLKB 255
LINE_LEN = . - LINE
.EVEN
KEYBOARD: .BLKL 1
TABLE: .BLKL 1
TERM: .BLKL 1
REC_LENGTH: .BLKL 1
```

```
; String Descriptors
```

```
DESC_MSG:
.WORD DTR$MSG_BUF_LEN
.BYTE DSC$K_DTYPE_T
.BYTE DSC$K_CLASS_S
.ADDRESS DTR$MSG_BUF
```

```
DESC_AUX:
.WORD DTR$AUX_BUF_LEN
```

```
.BYTE DSC$K_DTYPE_T
.BYTE DSC$K_CLASS_S
.ADDRESS DTR$AUX_BUF
```

```
DESC_LINE:
```

```
.WORD LINE_LEN
.BYTE DSC$K_DTYPE_T
.BYTE DSC$K_CLASS_S
.ADDRESS LINE
```

```
; All purpose string descriptor
```

```
STR_SIZ:
```

```
.WORD 0 ; length set later
.BYTE DSC$K_DTYPE_T
.BYTE DSC$K_CLASS_S
```

```
STR_ADR:
```

```
.LONG 0 ; address also set later
```

```
; Argument lists for various calls (SMG and DTR)
```

```
CVK_ARG:
```

```
.LONG 1
.ADDRESS KEYBOARD
```

```
CKT_ARG:
```

```
.LONG 1
.ADDRESS TABLE
```

```
INI_ARG:
```

```
.LONG 5
.ADDRESS DAB
.ADDRESS HUNDRED
.ADDRESS DESC_MSG
.ADDRESS DESC_AUX
.ADDRESS SEMI_C ; DTR$K_SEMI_COLON_OPT
```

```
DTR_ARG:
```

```
.LONG 2
.ADDRESS DAB
.ADDRESS OPTIONS
```

```
RCL_ARG:
```

```
.LONG 12
.ADDRESS KEYBOARD
.ADDRESS TABLE
.ADDRESS DESC_LINE ; LINE
.ADDRESS STR_SIZ
.ADDRESS REC_LENGTH
```

```

        .LONG 0           ; null arguments
        .LONG 0
        .LONG 0
        .LONG 0
        .LONG 0
        .LONG 0
        .ADDRESS      TERM

CMD_ARG:
        .LONG 2
        .ADDRESS      DAB
        .ADDRESS      STR_SIZ

FIN_ARG:
        .LONG 1
        .ADDRESS      DAB

.PSECT $CODE, CON, REL, LCL, SHR, EXE, RD, NOWRT, LONG
; Program starts here

.ENTRY RECALLABLE_DTR, ^M<IV, R2>

        CALLG  CVK_ARG, G^SMG$CREATE_VIRTUAL_KEYBOARD
        CALLG  CKT_ARG, G^SMG$CREATE_KEY_TABLE
        CALLG  INI_ARG, G^DTR$INIT

        CALLG  DTR_ARG, G^DTR$DTR ; check DTR link
        MOVL  R0, R12           ; save status return

        MOVAL  SMG$K_TRM_CR, TERM
        MOVAL  DTR$_EXIT, R2

LOOP:
        CMPL  R12, R2           ; is DTR_STATUS = DTR$_EXIT?

        BEQL  FINISH           ; branch if yes
        MOVAL SMG$K_TRM_CTRLZ, R0 ; get constant
        CMPL  TERM, R0         ; did we get a Control-Z?
        BEQL  FINISH           ; branch if yes

        CVTWL DAB$W_MSG_LEN, R0 ; convert data types
        MOVW  R0, STR_SIZ      ; length of DTR$MESSG_BUF
        MOVAB DTR$MESSG_BUF, STR_ADR ; addr of DTR$MESSG_BUF
        CALLG RCL_ARG, G^SMG$READ_COMPOSED_LINE ; read line
                                   ;from terminal

```

```

        MOVW  REC_LENGTH, STR_SIZ ; length of line
        MOVAB LINE, STR_ADR      ; address of line
        CALLG CMD_ARG, G^DTR$COMMAND ; send command to DTR

        CALLG DTR_ARG, G^DTR$DTR ; check DTR status
        MOVL  R0, R12           ; and save it
        BRB   LOOP             ; repeat until done

FINISH:
        CALLG FIN_ARG, G^DTR$FINISH ; clean up interface

        $EXIT_S                 ; go byebye

        .END  RECALLABLE_DTR

```

You will notice a reference to DAB.MLB and DABDEF: there are certain data structures and constants that are needed to call DTR. These are supplied by DEC for FORTRAN, BASIC and COBOL (I think) but not MACRO, so I created my own. The following Macro source can be put in a file called DABDEF.MAR. and put into your system library or the DTR macro library. but in this example I'm putting it in my own private library with the command:

```
LIBRARY/CREATE/MACRO DAB.MLB DABDEF.MAR
```

The file itself contains:

```

        .MACRO $DABDEF, $GBL

; Macro-32 DATATRIEVE Access Block
;
; B. Z. Lederman           15-Jul-1986

        $DEFINI DAB, $GBL           ; use the VMS system defs

; Constants

$EQU  DTR$K_STL_CMD      1
$EQU  DTR$K_STL_PRMPRT  2
$EQU  DTR$K_STL_LINE    3
$EQU  DTR$K_STL_MSG     4
$EQU  DTR$K_STL_PGET    5
$EQU  DTR$K_STL_PPUT    6
$EQU  DTR$K_STL_CONT    7
$EQU  DTR$K_STL_UDK     8
$EQU  DTR$K_STL_END_UDK 9

$EQU  DTR$K_SEMI_COLON_OPT  1

```

```

$EQU DTR$K_UNQUOTED_LIT      16
$EQU DTR$K_SYNTAX_PROMPT    32
$EQU DTR$K_IMMED_RETURN     64
$EQU DTR$K_FORMS_ENABLE     128
$EQU DTR$K_VERIFY           256
$EQU DTR$K_CONTEXT_SEARCH   2048
$EQU DTR$K_HYPHEN_DISABLED  4096
$EQU DTR$K_MORE_COMMANDS    8192

$EQU DTR$K_ABORT            16384
$EQU DTR$K_LOCK_WAIT        32768

$EQU DTR$M_OPT_CMD          1
$EQU DTR$M_OPT_PRMP        2
$EQU DTR$M_OPT_LINE         4
$EQU DTR$M_OPT_MSG          8
$EQU DTR$M_OPT_PGET        16
$EQU DTR$M_OPT_PPUT        32
$EQU DTR$M_OPT_CONT        64
$EQU DTR$M_OPT_UDK         128
$EQU DTR$M_OPT_DTR_UDK     256
$EQU DTR$M_OPT_END_UDK     512
$EQU DTR$M_OPT_UNWIND      1024
$EQU DTR$M_OPT_CONTROL_C   2048
$EQU DTR$M_OPT_STARTUP     4096
$EQU DTR$M_OPT_FOREIGN     8192
$EQU DTR$M_OPT_BANNER      16384
$EQU DTR$M_OPT_REMOVE_CTLC 32768

$EQU DTR$K_UDK_SET          1
$EQU DTR$K_UDK_SET_NO      2
$EQU DTR$K_UDK_SHOW        3
$EQU DTR$K_UDK_STATEMENT   4
$EQU DTR$K_UDK_COMMAND     5

$EQU DTR$K_TOK_TOKEN        1
$EQU DTR$K_TOK_PICTURE     2
$EQU DTR$K_TOK_FILENAME    3
$EQU DTR$K_TOK_COMMAND     4
$EQU DTR$K_TOK_TEST_TOKEN  5

```

; This is where the data is passed between programs. This  
; definition is compatible with FORTRAN COMMONs

```
.PSECT DAB_COMMON, pic, ovr, rel, gbl, shr, noexe, -
      rd, wrt, long
```

```
DAB:
DAB$B_BID:          .BLKB 1      ; total length 100
```

```

DAB$B_BLN:          .BLKB 1
DAB$L_CONDITION:   .BLKL 1
DAB$A_MSG_BUF:     .BLKL 1
DAB$W_MSG_BUF_LEN: .BLKW 1
DAB$W_MSG_LEN:     .BLKW 1
DAB$A_AUX_BUF:     .BLKL 1
DAB$W_AUX_BUF_LEN: .BLKW 1
DAB$W_AUX_LEN:     .BLKW 1
DAB$W_IDI:         .BLKW 1
DAB$W_STATE:       .BLKW 1
DAB$L_FLAGS:       .BLKL 1
DAB$L_OPTIONS:     .BLKL 1
DAB$W_REC_LENGTH:  .BLKW 1
DAB$W_VERSION:     .BLKW 1
DAB$W_LEVEL:       .BLKW 1
DAB$B_VER_LETTER:  .BLKB 1
DAB$W_BASE_LEVEL:  .BLKW 1
DAB$W_UDK_INDEX:   .BLKW 1
DAB$W_COLUMNS_PAGE: .BLKW 1
DAB$W_TT_CHANNEL:  .BLKW 1
                    .blkb 51.      ; total length of
                    ; DAB_COMMON should be 100 bytes

```

```
.PSECT DTR$BUFFERS, pic, ovr, rel, gbl, shr, noexe, -
      rd, wrt, long
```

; Here are two definitions which are not part of the  
; "official" definition but are nevertheless useful.

```

$EQU DTR$MSG_BUF_LEN 80
$EQU DTR$AUX_BUF_LEN 20

DTR$MSG_BUF:
      .BLKB DTR$MSG_BUF_LEN

DTR$AUX_BUF:
      .BLKB DTR$AUX_BUF_LEN

      $DEFEND DAB, $GBC, DEF

      .ENDM

```

The program itself, once assembled, is used just like the FORTRAN version.

---

## Datatrieve Novice Questions and Answers

(Spring 1986 DECUS U.S. Chapter Symposium)

Session Chair: Dana Schwartz

Transcribed by: B. Z. Lederman

---

### Panelists:

Joe H. Gallagher, Research Medical Center, Kansas City, MO

Chris Wool, DuPont Co., Wilmington, DE

B. Z. Lederman, Brooklyn, N.Y.

Larry Jasmann, U.S. Coast Guard, Burke VA

This is a transcription of a panel presentation which answers some of the most common questions asked by new DATATRIEVE users. The transcription may paraphrase some questions or answers for clarity, and the transcriber apologizes in advance for any misspelled names. DTR is used as an abbreviation for DATATRIEVE.

Kickoff Question: I already have a record definition for a domain, and I want to add a field in the middle of the record. How do I do that?

(Joe:) This is relatively easy. Ready the existing domain under an alias, for example:

```
READY FOO AS OLD READ
```

This brings the old definition into memory and sets it aside so you can read the data in the domain.

```
EDIT FOO_RECORD
```

to bring the record definition into the buffer, and add the new field(s). Exit from the editor, and the new definition is now in the dictionary. DEFINE FILE FOR FOO .. to create a new file for the revised record definition. READY FOO AS NEW WRITE to ready the new domain. = OLD to move all of the old data into the new domain.

This will leave default values (blanks or zeroes) in the new fields.

If you want to put something into the new fields, you can do the following (in place of NEW = OLD):

```
FOR OLD STORE NEW USING BEGIN
    NEW_REC = OLD_REC
    NEW_VARIABLE = constant
END
```

It is quite easy to add a new variable and restructure a domain with a few statements. One caution: if the system crashes while you have NEW and OLD readied, the definition will be in the new form, while the data is in the old form. You may have to delete the new (partially filled) file, and the new record definition and go back to the old ones (or rename them to save new definitions).

Rand Wilson. Wilson Concrete: I've done restructuring a few times, and it seems to compress the data (the new file occupies less space). Will you comment on that?

(Chris:) You are using an indexed file? (Yes) You have also done multiple deletes before restructuring? (Yes) When you delete records, you don't delete everything: records have what is called a Record File Address (RFA). When you delete a record, the RFA cannot be reused, so there is a little piece of information which is still in the file. When you restructure the file and rewrite the data, you are eliminating all of the pieces of unusable space. If you are doing a lot of deletes (or storage of new records) on a file, you should run CONVERT fairly often to rewrite the file. One thing you have to watch out for is VMS V4 CONVERT, which reduces the amount of blocks used, but not allocated: if you start with an 8000 block file and after conversion you only need 3000 blocks, 8000 are still allocated. That is a bug which is known and should be fixed some time in the future. If you are tight on quotas you may have to use FDL to define a new file of the proper size and have CONVERT use the new definition to set a file of the proper size. CONVERT is a DCL level command, and is faster than using DTR to read one file just to write to another. If you are adding a field to a large data file (more than 1000 - 2000 records), you may want your NEW domain (from the previous question) to be a sequential file, and then use CONVERT to change it to an indexed file. DTR is not the most optimum tool for populating and empty indexed file from both performance and time standpoints, because DTR populates it by descending primary key one record at a time.

(Larry:) one final comment: if you have reasonably large files, you should get familiar with the RMS utilities and how to tune files. It can pay big dividends in disk space and especially in performance.

Kevin Cullan, Vitamix Corp.: I have a situation where I have a lot of zoned numeric fields, they are used as key values, and DTR doesn't seem to recognize them as keys. I've been forced to define them as unsigned numeric, and that isn't what I really want to do. Is there some way around this problem? I realize that if they really are zoned numeric they won't be sorted in the order normally expected. [Editor's note: the sign flag, you don't see when the number is printed, can change the apparent sort order if the data is taken as characters or numbers without sign flags.] (Question from panel: is there a reason why you have to use zoned numeric?) I have to use zoned numeric for compatibility with another language. There does not seem to be any reason why it shouldn't work. (Question from panel: I assume you define the fields in DTR and then do a DEFINE FILE KEY = field: have you ever looked at the FDL description of the file to see what data type DTR is using?) I don't create the file with DTR I do it with FDL, and the field is defined as STRING.

(Bart:) That might be the problem. DTR may be recognizing your data as numeric and will not be sending it out to RMS as a string. As a first shot, I'd create a file with DTR with a zoned numeric field as a key, and then look at the file DTR creates to see what data type it is expecting for that field. What we usually recommend in these cases is to always define the file with DTR first, to insure that the keys have the proper data type, and are in the correct location. Then, if you want to, by all means use FDL to optimize the file for your application, but use DTR first to get the keys in the right place.

Kevin Cullan: What I've done is to use unsigned numeric, and that does work.

(Chris:) The other thing to do is to run DTR in DEBUG mode and do an RSE to see if DTR identifies that as an indexed read or not. [Rather than run the DTR image directly, issue the command `DEBUG SYS$SYSTEM:DTR32` using the appropriate directory and file name for your DTR image. After DEBUG issues some informational messages, enter the command GO and you will see the normal DTR prompt. From that point you use DTR as you normally would, but will receive extra informational messages about such things as the keys being used for record retrieval.]

Kevin Cullan: I have not done a DEBUG, but from the time it takes I believe it is not doing indexed reads. It takes hours if the field is zoned versus seconds for unsigned numeric. I can see how zoned variables could cause problems, and am wondering if they are not allowed as keys. I'd prefer DATATRIEVE to do what I ask, whether it thinks it's a good idea or not.

Actually, DTR usually allows you to do what you want, even if it is a poor idea, such as crosses over fields which are not keys. We may have to pursue this problem in the campground.

Wayne Heiderman. (?) International: Do you have any recommendations on bucket sizes?

(Bart:) On the PDP-11, use the smallest bucket size that will hold the data. On the VAX, increasing bucket size may or may not get you anything. If you are reading through the file sequentially, a larger bucket size may help you: if you are retrieving a particular record and are likely to immediately use the next record(s) then an increased bucket size may help; if your accesses are more random, and are scattered throughout the file, an increased bucket size won't help and may even hurt a little. If you want to get fancy, you can use FDL to examine the file definition: a larger bucket size which will flatten the index structure usually improves accessing the file, but it's usually a case of try it on your particular data file and application and see what happens.

(Chris:) I'd also suggest you look for efficient use of the buckets. If you have a 600 byte record, then you don't want a 2 block bucket size, as you may only have one record per block and about 400 bytes unused space. A bucket size of 3 might be better: you don't want a large amount of unused space. You do want some extra space for the RFAs mentioned earlier, otherwise if you delete one record there may not be enough space for a new record and RFA and again space will be wasted, so do leave a little space for future deletes.

Frank Schipani, Emery University. I manage a comparatively large database with DTR and due to various changes in the database I have to use CONVERT a great deal. One feature I miss that is available on other systems that I don't have in CONVERT is a field description language, so if I am going to insert a field in the middle of a record is to go through an involved procedure. [Editor's note: a process using RMS utilities and sometimes COBOL was described.] Is there any prospect of enhancing CONVERT.

(Bart:) I don't think a data restructure facility will be added to CONVERT. However, if you are doing things like that often you may want to use the SORT utility, which does have a field description language and a way to restructure records. SORT might be faster than DTR though not as fast as CONVERT.

Frank Schipani: SORT is going to have to sort a very large file that doesn't really need to be sorted.

(Bart:) I believe that MERGE has the same field description capability, and I believe there is also a qualifier that you can use to tell SORT that the data is close to being sorted already, or use /STABLE to tell it that it has less work to do.

(Chris:) I guess I don't understand why you would have a problem doing a redefine as was described [in the first question].

Frank Schipani: it took two weeks as a background job.

(Chris:) Were you going from an indexed file to an indexed file? (Yes) O.K., that is your problem. You should try going indexed to sequential to restructure the data.

Frank Schipani: That's true but then it would still take overnight to do that. There should be a faster way: for example, if I use COBOL to unload to a sequential file, the same file that takes [] hours in DTR takes 8 minutes.

(Chris:) what you can also do is write a special record definition which has only three large fields. One goes from the beginning of the record to the place the new data will be inserted, then a field for the new space, and a third to cover the data to the end of the record. This will increase speed by reducing the time DTR takes for a field by field copy. This lets you stay in DTR rather than having to write in COBOL.

Frank Schipani: that's true.

(Bart:) also, when you define your sequential file, did you also pre-allocate space in the output file? When you move very large amounts of data, you want to go from one disk to another if possible, and you want to open the file with the space allocated all at once at the beginning rather than having to get it in chunks while the program is running. Otherwise, going from an indexed file to a sequential file should be about as fast in DTR as any other language unless you are doing a lot of fancy things with the fields.

Frank Schipani: I think that MOVE CORRESPONDING works faster than whatever DTR is using, I think now that the difference was more like 1/2 hour versus 8 minutes.

Lisa Axelrod, EG&G: I have a record definition I cannot change, and it has a history element which occurs 18 times, and has numeric and non-numeric information. I can't find any way to get "down there" unless FIND a unique record; and if they are all blank, how do I get down to a particular one?

(Chris:) what you are trying to do is find the first blank record?

Lisa Axelrod: no. I have 18 occurrences, and depending on what is happening, I may have to get to the n'th element to store something in it.

(Chris:) there are several things you can do. Are you in a procedure, or doing this interactively? Is it within a BEGIN-END block so you can't do FIND and SELECT?

Lisa Axelrod: I'll do it any way I can.

(Chris:) [To do an interactive query.] you find the record you want to operate on, and SELECT it. Then you do a FIND giving the name of the list (the name on the OCCURS clause). This gives you what appears to be a collection of all of the data in the occurs clause. You can then do a PRINT ALL, and if you want the 5th one say SELECT 5, and you can then print, modify, store, etc.

(Don Stern:) if you check the April 1986 issue of the newsletter, there was some "magic" printed from the Anaheim symposia on using running counts to get to a particular occurs clause record.

(Chris:) that is better for procedures, rather than interactive queries which may be better with FIND / SELECT.

(Bart:) The trick is to get one particular record, then treat the OCCURS clause as if it was another domain: that is what you have to remember. There was also an earlier newsletter that shows another method of getting to OCCURS clauses. [The two articles referred to are both transcriptions of Magic sessions. The first was by Diana Washburn, doing "subscripting" or "indexing" an OCCURS, printed in the *Wombat Examiner*, Volume 6 Numbers 1&2, April 1985 (combined Winter/Spring issue), pages 30-35. The second was by Rowland W. Fox, Doing a Modify to the n'th Field in an OCCURS, and is on page DTR-20 of the Combined Newsletter for April 1986, Volume 1, Number 8.]

Doak Bane (?) Coleson Inc. I have a problem getting a date field defined as a date field in FMS. It does not seem to go into DTR as a date field. Is there some way around this?

(Chris:) The simple thing is that you cannot use FMS date fields with DTR date fields. The field in FMS must be character.

Doak Bane: I found that out. I had defined a date field and found that FMS sent more characters than I had defined. (Was the form defined for a domain or using a DISPLAY\_FORM?) It used DISPLAY\_FORM.

(Chris:) The simple thing to do then is to set the edit string in DTR to the way you want it, then use a character field in FMS (if you want MM/DD/YY then the FMS field must be 8 characters), then you can do a PUT\_FORM fms\_field = FORMAT(date\_field). This will force DTR to output the date to FMS as specified by the edit string. When you read it in, do a field = GET\_FORM fms\_field, which DTR will read as ordinary characters and convert to a date as normal. It's the same with TDMS [as it is with FMS].

Wayne Heiderman: I'm dumping some information from an IBM mainframe, and it has a dollar figure with an overpunch on the last digit. Is there an easy way to get rid of it?

(Joe:) That particular problem has been addressed, and has been published in the newsletter. Basically, the method is to use define the last character of the field (the one that has the sign) separately from the rest of the numeric field, and use tables to convert the character that appears here to extract the sign and value for that field. You then use a COMPUTED\_BY field or equivalent to reconstruct the number by multiplying the leading digits by 10 (the least significant digit was stripped off, remember), multiply by the sign (+1 or -1) from the sign table, and add the least significant digit from the conversion table. [An alternate method used by Bob Lott to convert DEC COMP\_5 fields to IBM format using a CHOICE statement to change the least significant digit was published in the *Wombat Examiner*, Volume 5, Number 4, Fall 1984, pages 46 and 47.]

Paul Merbeme, Contro Co.: We have several records which were built with DIBOL and which have many dates in them. How do we convert that to DTR? (Question from Chris: what format are the dates in? Are they 6 characters, or 8 characters?) I believe they are 6 characters. (Chris: like two digit month, two digit day, etc.?) Yes.

(Chris:) it turns out that DTR is smart enough to do this during file restructuring. Your old file record would be PIC X(6), the new file would have USAGE DATE, both fields have the same name, if you do an NEW = OLD [as in the first question] DTR will do the date conversion.

(Larry:) in some cases where the dates in the old files are not matching up correctly, for they go year, month, day, then you can separate them into separate fields, and reshuffle them around [as in a COMPUTED\_BY], and as long as you can put it into something that looks like one of the DTR date formats it will do the conversion. Sometimes you have to put in the "/" characters, etc., but you should be able to make it work.

Paul Merbeme: I've tried that with EXTRACT to try flipping around the fields, with some success.

(Chris:) do you have the capability of changing that data file?

Paul Merbeme: no, otherwise the DIBOL program has to change. I don't have any problems printing out the dates, [but I want to use the date field in selection expressions to find certain dates].

(Chris:) presently, a COMPUTED\_BY field cannot have a USAGE DATE.

(Joe:) do you have the ability to add an additional field at the end of the record, so that DTR could read the file and put in the data in USAGE DATE format in the extra field?

Paul Merbeme: No. I can't change the file. I could copy the whole thing over, but it would take a lot of space and time.

(unidentified:) why not just define the field in DTR with an edit string of "MMDDYY"?

(Joe:) it would not be a DATE data type, to be used for proper date comparisons. DTR treats the DATE data type in a very special manner. There is a difference between a data type of date, and numeric values corresponding to a month, day, and year.

(Bart:) It sounds like you want to prompt somebody in DTR for a date, and then find the one in your file. (We want a starting and ending date). Doing a BETWEEN on data types other USAGE DATE will be rather difficult.

Paul Merbeme: I don't remember the exact solution, but basically I changed the date to strings.

(Chris:) you can also convert the date to a numeric value using year \* 10,000 + month \* 100 + day, to yield a numeric value which will sort dates properly. Then your starting and ending dates would also be PIC 9(6), and this format will compare properly.

Paul Merbeme: I have tried this.

(Bart:) I believe that if the COMPUTED\_BY is done with the FN\$— function that converts an ASCII string to a date type, that perhaps that will yield the proper COMPUTED\_BY field type. I have used this to convert dates. The format must be DD-MMM-YYYY, and you may need a table to convert the numeric month to JAN, FEB, MAR, etc.

(Don Stern:) If you are willing to do the conversion in a FOR loop, you can declare a temporary variable of USAGE DATE outside the FOR loop, and then use FN\$STRING\_EXTRACT to put it back into a date form, then do the math on the declared variable.

(Chris:) we've got it: FN\$DATE does the conversion from ASCII characters to 64 bit date type, so you can change your MM/DD/YY to a USAGE\_DATE.

(Bart:) I've used it, and I'm fairly certain the date input has to be DD-MMM-YYYY. I had to do a field = FN\$DATE(day|"-"|month via mon tab|"-"|year) to get the conversion to work. The result was a standard USAGE\_DATE field that did all of the normal DTR date functions and searches.

(Joe:) I think the converted month must be upper case. [Converting the numeric month via a table yields an upper case month.]

Ken Fox, Shearing Plough (?). I heard earlier this week that VMS was allowing shared access to sequential files. Does this mean we should expect DTR to follow in the near future?

Andy Schneider, DEC: [Editor's note: though not scheduled as a panelist, the person primarily responsible for the VAX-DATATRIEVE product obviously could not resist the opportunity to answer the question.] Please, I repeat, *please*, don't use shared sequential file access with DTR if you are going to write to the file: let me explain why. DTR, when it s to a sequential file, connects to END-OF-FILE. If you connect to END-OF-FILE, and your neighbor [sharing the file] connects to END-OF-FILE, and you are writing records to the file, and then your neighbor decides to add records, he is trying to add to his END-OF-FILE, but your END-OF-FILE is past that so he is going to write over your records because the END-OF-FILE markers don't get updated [from one user to another]. We are frantically looking at the correct method to do this, working with the RMS developers to determine what the right method is. For now, the watchword is CAUTION. Version 3.4 warns the users of the pitfalls. The problem has to be addressed by RMS as well as DTR.

(unidentified:) in the current version of DTR, will it even let you have more than one person write to a shared sequential file?

Andy Schneider: sure. What DTR does when you say READY domain SHARED, DTR does not look at what type of file it is, it simply passes the request off to RMS. Up until VMS V4.4, RMS did support shared writes to sequential files if they were 512 byte fixed length records, and DTR will work with that file. The rejection comes from VMS.

(unidentified:) on shared files, if a file is locked by another user, is the only switch I have to set the DTR WAIT\_LOCK switch, or are there also CDD and VMS switches I have to set for my users to wait before access?

Andy Schneider: you're talking about records in an RMS file? (Yes) Yes, WAIT\_LOCK is the only switch you have to set to have the DTR user stall until the record is free. (Not CDD?) No, you are not in the CDD at that point. This has no effect on your data files. [There were some comments about dictionary sharing, which was lost as the tape changed sides.] If you set CDD wait, then it should not affect multiple users executing procedures, but will effect users if one person is editing a procedure.

(unidentified) It was stated at a previous session that SELECT is not supported within a BEGIN-END block. I'd like a clarification of what "not supported" means, because in an application I wrote I have several people sharing update access to a single record in an indexed file (to increment a counter), and in order to release the record so the other users can get to it it is necessary to deselect the record. SELECT NONE apparently works.

Andy Schneider: SELECT NONE does work, but let me explain. There are two restrictions in DTR that people seem to stumble over every 5 minutes: the restriction that you can't use a FIND and you can't use a SELECT within a BEGIN-END block. Now, if you try to do it, DTR won't tell you "YOU CAN'T DO THAT!". The reason we say it isn't [supported] is because of the way DTR compiles and executes a BEGIN-END block. DTR treats the entire BEGIN-END block as one statement, not a bunch of separate ones. If you have a FIND within a BEGIN-END block it will work: for example:

```
BEGIN
      FIND YACHTS
END
```

works. However, if you have FIND — and SELECT in the BEGIN-END block, it won't work, because when it goes through and tries to generate the context for the SELECT, the FIND hasn't taken place, UNLESS: there was a FIND done outside the BEGIN-END block, and in that particular case the context for the SELECT is driven off of that FIND. As long as that FIND is for the domain the SELECT is supposed to be on, that's O.K. If the SELECT is in a loop, you will probably be selecting the same record over and over again, I believe, [because the context has already been set outside of the loop].

(user:) That's exactly what I want to do: I want to SELECT the same record over and over again, and deselect the same record.

Andy: well, in that case it's not a restriction. We designed DATATRIEVE just for you! [laughter] Next question!

Larry: I think you should realize that at nearly every symposium someone comes up with something that's never been done, or we never ever conceived of being done in DTR, and I think you just blew Andy's mind for this symposium.

Andy: any other new features you'd like us to put in like that? [more laughter]

(user:) I'd also like compiled procedures.

Andy: I was probably supposed to talk about this at some time. Any of you who have seen wishlists in the past have seen our response, which is, "that's a good idea, we will consider it for the future". Well, we spent about a month looking at compiled DTR, and what it would mean to compile DTR language. With the current architecture of the product, there would be so many restrictions that READY YACHTS might not even work properly, because of it's flexibility and the point in it's path at which it resolves certain specifications. We investigated at a gut level how many man-months it would take to re-design DTR, and I won't give the figure but it's very large. At this stage in DATATRIEVE's stable life, and I say stable because we put in a lot of effort to make DTR a stable product, without bugs, it just doesn't seem to really work [to make it compile].

(user:) what about the intermediate stages in the parse/compile/execute process? Does it have to be stored at the text level?

Andy: sometimes, maybe. There are certain things we do opening the dictionary and parsing things (described in the internals session), and it turns out that the earliest stage we could break the process and store the results and guarantee that it would work is at the lexical analysis stage, which is essentially where it is now in the CDD. We could find some simple cases where it could work at a later stage, but you couldn't do anything with database products, forms products, or distributed work. This eliminates a lot of functionality from DTR. We are not throwing the idea away: I can fairly safely say that compiling DTR (the language) is something you will not see. The concept of compiling an entire application is something we are very seriously looking at for whatever else may come down the pike in this area .

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## Rdb to RMS Techniques

Sue Harris, Digital Equipment Corp. - VAX Datatrieve Group

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[Editor's Note: Originally intended for presentation at the Spring 1986 Symposium Wombat Magic session, there was no time left for Sue's presentation. The following was assembled from the slides.]

Two techniques will be demonstrated:

- Restructuring an Rdb Database to an RMS File
- Looking at Rdb field definitions from within DTR

Restructuring an Rdb relation to an RMS file:

```
DTR> set dictionary cdd$top.dtr$lib.demo.rdb
DTR> ready personnel read !READY relation
DTR> show ready
Ready sources:
  WORK_STATUS: Relation, Rdb, snapshot read
                <_CDD$TOP.DTR$LIB.DEMO.RDB.PERSONNEL>
  SALARY_HISTORY: Relation, Rdb, snapshot read
                <_CDD$TOP.DTR$LIB.DEMO.RDB.PERSONNEL>
  JOB_HISTORY: Relation, Rdb, snapshot read
                <_CDD$TOP.DTR$LIB.DEMO.RDB.PERSONNEL>
  JOBS: Relation, Rdb, snapshot read
                <_CDD$TOP.DTR$LIB.DEMO.RDB.PERSONNEL>
  EMPLOYEES: Relation, Rdb, snapshot read
```

```
                <_CDD$TOP.DTR$LIB.DEMO.RDB.PERSONNEL>
DEPARTMENTS: Relation, Rdb, snapshot read
                <_CDD$TOP.DTR$LIB.DEMO.RDB.PERSONNEL>
DEGREES: Relation, Rdb, snapshot read
                <_CDD$TOP.DTR$LIB.DEMO.RDB.PERSONNEL>
COLLEGES: Relation, Rdb, snapshot read
                <_CDD$TOP.DTR$LIB.DEMO.RDB.PERSONNEL>
No loaded tables.

DTR> set dictionary cdd$default
DTR> !
DTR> ! Now define a domain and a file for the RMS data
DTR> !
DTR> define domain my_own_jobs using
DFN> cdd$top.dtr$lib.demo.rdb.personnel.rdb$relations.jobs on
DFN> my_own_jobs.dat;
DTR> define file for my_own_jobs;
DTR> ready my_own_jobs write !READY for write access
DTR> show ready
Ready sources:
  MY_OWN_JOBS: Domain, RMS sequential, protected write
                <_CDD$TOP.ENGINEERING.USERS.STERN.MY_OWN_JOBS;1>
  WORK_STATUS: Relation, Rdb, snapshot read
                <_CDD$TOP.DTR$LIB.DEMO.RDB.PERSONNEL>
  SALARY_HISTORY: Relation, Rdb, snapshot read
                <_CDD$TOP.DTR$LIB.DEMO.RDB.PERSONNEL>
  JOB_HISTORY: Relation, Rdb, snapshot read
                <_CDD$TOP.DTR$LIB.DEMO.RDB.PERSONNEL>
  JOBS: Relation, Rdb, snapshot read
                <_CDD$TOP.DTR$LIB.DEMO.RDB.PERSONNEL>
  EMPLOYEES: Relation, Rdb, snapshot read
                <_CDD$TOP.DTR$LIB.DEMO.RDB.PERSONNEL>
  DEPARTMENTS: Relation, Rdb, snapshot read
                <_CDD$TOP.DTR$LIB.DEMO.RDB.PERSONNEL>
  DEGREES: Relation, Rdb, snapshot read
                <_CDD$TOP.DTR$LIB.DEMO.RDB.PERSONNEL>
  COLLEGES: Relation, Rdb, snapshot read
                <_CDD$TOP.DTR$LIB.DEMO.RDB.PERSONNEL>
No loaded tables.

DTR> ! now do the RESTRUCTURE
DTR> !
DTR> my_own_jobs = jobs
DTR> !
DTR> ! check out the new RMS domain
DTR> !
DTR> find my_own_jobs
[15 records found]
DTR> print all
```

JOB CODE	WAGE CLASS	JOB TITLE	MINIMUM SALARY	MAXIMUM SALARY
APGM	4	Associate Programmer	15000.00	24000.00
CLRK	2	Clerk	12000.00	20000.00
DGFR	1	Deputy Gopher	7000.00	15000.00
DMGR	4	Department Manager	50000.00	100000.00
DSUP	4	Dept. Supervisor	36000.00	60000.00
EENG	4	Electrical Engineer	20000.00	40000.00
GFER	1	Gopher	10000.00	17000.00
JNTR	1	Janitor	10000.00	17500.00
MENG	4	Mechanical Engineer	20000.00	35000.00
PRGM	4	Programmer	20000.00	35000.00
PRSD	4	Company President	100000.00	200000.00
SANL	4	Systems Analyst	40000.00	60000.00
SCTR	3	Secretary	10000.00	25000.00
SPGM	4	Systems Programmer	25000.00	50000.00
VPSD	4	Vice President	75000.00	150000.00

```
DTR> !
DTR> ! all done creating the RMS file
DTR> !
```

Looking at Rdb field definitions from within Datatrieve:

If you try to show Rdb field definitions with a Datatrieve SHOW command an error message will result. For example:

```
DTR> show cdd$top.dtr$lib.demo.rdb.personnel.rdb$relations.jobs
Source text for CDD$TOP. ... .JOBS not found in dictionary.
```

It is, however, possible to edit it to see the DTR equivalent definition. Just don't ever EXIT from the editor! For example:

```
DTR> edit cdd$top.dtr$lib.demo.rdb.personnel.rdb$relations.jobs
```

The edit screen looks like this:

```
REDEFINE RECORD JOBS
01 JOBS.
   03 JOB_CODE PIC X(4).
   03 WAGE_CLASS PIC X(1).
   03 JOB_TITLE PIC X(20).
   03 MINIMUM_SALARY USAGE LONG SCALE -2.
   03 MAXIMUM_SALARY USAGE LONG SCALE -2.
;

!!! Make sure you say QUIT !!!
```

## Spring 1986 Product Improvement Requests Ballot Results

Philip A. Naecker, Consulting Software Engineer

The results of the Spring 1986 Product Improvement Request (PIR) Ballot have been compiled and are published in this issue of the Wombat Examiner. The intent of the Ballot was to ask the DTR/4GL user community for the direction they would like to see software developers take in the development of software products. Because the DTR/4GL SIG has only recently expanded its scope from just Datatrieve to all 4GL's, this ballot has focused primarily on topics of interest to DTR user. In future ballots we hope to expand our scope considerably and include Product Improvement Requests for all the products falling under the SIG's umbrella.

Both the SIG steering committee and our DEC counterparts feel that a ranked ballot of the type we're using in the PIR system has substantial advantages over a traditional "wish list" approach. It gives the developers a much better idea of how many and how strongly users want a particular feature to be added to the product. Because the Product Improvement Requests originate with you, SIG membership, the PIR's reflect your needs in the product, not just the needs as perceived by the developers. And because the PIRs are edited and combined into a coherent list of features, with similar requests combined into one and complicated PIRs broken into smaller, more do-able pieces, there is better communication between the developers and the SIG membership.

We received 44 replies to the Spring Ballot. On the one hand, we feel that 44 concerned users is a small number, considering the fact that there are something like 20,000 DTR licenses out there. On the other hand, the VMS System Improvement Request process has received as few as 200 replies, so perhaps it just represents a general apathy in the user community! Despite the low response rate, we feel that the results received are a reasonably good reflection of the DTR/4GL user community's desires, so we are passing them along to you and to DEC.

In the weeks that follow, your SIG steering committee will be meeting with DEC to discuss these results and receive their responses. We hope to publish a response by DEC to this ballot in a future issue of the Examiner.

### Analysis of Spring PIR Results

The PIRs were analysed by the following breakdowns.\*\*

All Ballots\*\* Broken Down by Application Type (EDP/MIS, Education, Scientific, etc.)\*\* Broken Down by CPU Type\*\* Broken Down by Expertise Level (Wizard, Advanced, etc.)\*\*

Some of the breakdowns are published in this issue. The entire report will be available in the DTR/4GL Campground at the San Francisco Symposium.

The top of the list in almost all categories was PIR 10, a request for command recall in VAX-DTR, similar to that provided in DCL. In the broadest classification (all ballots), this request received twice the points of the next highest request.

The second request in the All Ballots category, and also high in the Wizards category, was for an Outer Join. This request has been heard several times before at DECUS Symposia, but until now it was not clear that this was very broadly desired functionality.

Support for TDMS/FMS Scrolling Regions, and for TDMS Requests has also been heard before at Symposia. DEC has said before that this looks like a difficult feature to add, but perhaps its inclusion in the Top Ten will encourage them to consider it.

We encourage you to peruse the reports that follow and make suggestions to the any member of the SIG Steering Committee or to the PIR Editor at the address below.

Philip A. Naecker, PIR Editor  
Consulting Software Engineer  
3011 North Mount Curve Avenue  
Altadena, CA 91001  
(818) 791-0945

Editor's Note: Digital's Datatrieve/4GL software developers and their management have indicated to the SIG Steering Committee that the Product Improvement Request system is extremely helpful in planning enhancements for future releases of Digital software. Please use the PIR submission form at the back of this newsletter to make your requests known and don't forget to vote when the ballot appears.

## DTR/4GL PIR Results for All Ballots

12-Aug-1986

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Based on All Users      Total ballots in this category : 44

PIR No.	PIR Description	Total Pts	Pct of Ballots Pos Pts	Pct of Ballots Neg Pts	Avg Pts Given	Std Dev of Pts
10	Provide command recall similar to that in DCL	264	77.3	0.0	7.5	2.9
21	Provide an outer join	144	38.6	0.0	8.5	2.5
24	Provide support for forms scrolling regions	137	38.6	0.0	8.1	2.3
4	Provide a device-independent interface to VAX-11 DTR graphics	133	36.4	0.0	8.3	2.6
15	Extend the DEFINE FILE command to use FDL files	132	45.5	0.0	6.6	3.1
19	Provide a sort-merge join optimization	121	31.8	0.0	8.6	2.0
7	provide access to the TDMS Request and Validation functions from DTR	118	34.1	0.0	7.9	2.7
12	Support bit datatypes and Boolean (logical) fields	117	38.6	0.0	6.9	2.6
22	Provide a merge operator	113	34.1	0.0	7.5	2.9
13	Implement EXTRACT ALL [object-type]	92	31.8	2.3	6.1	3.3
9	Implement features supported in the Screen Management RTL	72	22.7	0.0	7.2	2.5
16	Provide access to VMS CONVERT utility from DTR	65	20.5	0.0	7.2	2.8
11	Provide SET and SHOW commands for all debugging features of DTR	57	18.2	0.0	7.1	2.9
18	Provide a means to edit a field-value directly using the pre-selected editor	52	15.9	0.0	7.4	2.5
6	Provide an artificial-intelligence training and guidance tool	50	13.6	0.0	8.3	2.6
25	Interface the CDD ACL system with the VMS security system	47	15.9	0.0	6.7	2.4
2	Provide a means to specify that edit-strings are to be used with forms	45	18.2	0.0	5.6	3.8
1	Provide a case-insensitive equals Boolean operator	40	15.9	4.5	4.4	5.8
14	Support other editors from DTR (e.g., callable TPU, LSE, etc.)	38	11.4	0.0	7.6	2.5
30	CDD needs to have version limits and/or SET NO VERSIONS	33	13.6	0.0	5.5	3.2
5	Provide full functionality for remote domain access	31	9.1	0.0	7.8	2.6
28	Improve CDDL support from languages	30	9.1	0.0	7.5	2.9
8	Provide a Value type User Defined Keyword	29	9.1	0.0	7.3	4.3
3	Evaluate more than one level of logical name for DTR\$STARTUP	26	9.1	0.0	6.5	4.4
23	Provide a SET [NO] VALIDATE command	25	11.4	0.0	5.0	2.1
26	Provide a call interface to the CDD	21	6.8	0.0	7.0	3.6
20	Avoid unnecessary SORTED BY processing	16	9.1	0.0	4.0	1.2
29	Improve DELETE/HISTORY command and support for history lists	15	6.8	0.0	5.0	0.0
17	Utilize the RMS connect-time field options implemented in FDL whenever possible	10	2.3	0.0	10.0	0.0
27	Support CDDL in LSE	8	2.3	0.0	8.0	0.0
31	Enhance use of privileges or ACLs	7	2.3	0.0	7.0	0.0

## DTR/4GL PIR Results by Application Type

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As Ranked By Application Type : Business EDP/MIS - Total ballots in this category : 26

PIR No.	PIR Description	Total Pts	Pct of Ballots		Avg Pts Given	Std Dev of Pts
			Pos	Neg		
10	Provide command recall similar to that in DCL	142	43.2	0.0	7.5	2.6
21	Provide an outer join	109	27.3	0.0	9.1	2.2
24	Provide support for forms scrolling regions	102	27.3	0.0	8.5	2.0
19	Provide a sort-merge join optimization	77	20.5	0.0	8.6	2.2
22	Provide a merge operator	76	20.5	0.0	8.4	2.5
13	Implement EXTRACT ALL [object-type]	69	22.7	2.3	6.3	3.7
7	provide access to the TDMS Request and Validation functions from DTR	68	18.2	0.0	8.5	2.8
9	Implement features supported in the Screen Management RTL	67	20.5	0.0	7.4	2.6
12	Support bit datatypes and Boolean (logical) fields	64	22.7	0.0	6.4	2.7
15	Extend the DEFINE FILE command to use FDL files	63	25.0	0.0	5.7	3.0
4	Provide a device-independent interface to VAX-11 DTR graphics	50	13.6	0.0	8.3	2.6
16	Provide access to VMS CONVERT utility from DTR	32	9.1	0.0	8.0	2.4
30	CDD needs to have version limits and/or SET NO VERSIONS	31	11.4	0.0	6.2	3.0
18	Provide a means to edit a field-value directly using the pre-selected editor	30	9.1	0.0	7.5	2.9
11	Provide SET and SHOW commands for all debugging features of DTR	29	6.8	0.0	9.7	0.6
14	Support other editors from DTR (e.g., callable TPU, LSE, etc.)	28	9.1	0.0	7.0	2.4
28	Improve CDDL support from languages	25	6.8	0.0	8.3	2.9
25	Interface the CDD ACL system with the VMS security system	22	6.8	0.0	7.3	2.5
1	Provide a case-insensitive equals Boolean operator	20	6.8	0.0	6.7	2.9
26	Provide a call interface to the CDD	18	4.5	0.0	9.0	1.4
6	Provide an artificial-intelligence training and guidance tool	15	4.5	0.0	7.5	3.5
23	Provide a SET [NO] VALIDATE command	13	4.5	0.0	6.5	2.1
8	Provide a Value type User Defined Keyword	11	4.5	0.0	5.5	6.4
3	Evaluate more than one level of logical name for DTR\$STARTUP	11	4.5	0.0	5.5	6.4
17	Utilize the RMS connect-time field options implemented in FDL whenever possible	10	2.3	0.0	10.0	0.0
20	Avoid unnecessary SORTED BY processing	10	4.5	0.0	5.0	0.0
2	Prove a means to specify that edit-strings are to be used with forms	9	6.8	0.0	3.0	2.0
27	Support CDDL in LSE	8	2.3	0.0	8.0	0.0
31	Enhance use of privileges or ACLs	7	2.3	0.0	7.0	0.0
5	Provide full functionality for remote domain access	6	2.3	0.0	6.0	0.0

## DTR/4GL PIR Results by Application Type

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As Ranked By Application Type : Software Development - Total ballots in this category : 28

PIR No.	PIR Description	Total Pts	Pct of Ballots Pos Pts	Pct of Ballots Neg Pts	Avg Pts Given	Std Dev of Pts
10	Provide command recall similar to that in DCL	173	52.3	0.0	7.2	3.2
7	provide access to the TDMS Request and Validation functions from DTR	100	27.3	0.0	8.3	2.5
4	Provide a device-independent interface to VAX-11 DTR graphics	95	25.0	0.0	8.6	2.3
24	Provide support for forms scrolling regions	80	20.5	0.0	8.9	1.8
22	Provide a merge operator	75	22.7	0.0	7.5	2.8
19	Provide a sort-merge join optimization	73	18.2	0.0	9.1	1.8
12	Support bit datatypes and Boolean (logical) fields	66	22.7	0.0	6.6	2.6
21	Provide an outer join	64	18.2	0.0	8.0	2.8
15	Extend the DEFINE FILE command to use FDL files	62	25.0	0.0	5.6	2.6
13	Implement EXTRACT ALL [object-type]	54	18.2	2.3	6.0	3.9
9	Implement features supported in the Screen Management RTL	54	15.9	0.0	7.7	2.9
11	Provide SET and SHOW commands for all debugging features of DTR	43	13.6	0.0	7.2	2.8
18	Provide a means to edit a field-value directly using the pre-selected editor	42	13.6	0.0	7.0	2.4
14	Support other editors from DTR (e.g., callable TPU, LSE, etc.)	38	11.4	0.0	7.6	2.5
2	Provide a means to specify that edit-strings are to be used with forms	31	11.4	0.0	6.2	3.6
30	CDD needs to have version limits and/or SET NO VERSIONS	31	11.4	0.0	6.2	3.0
6	Provide an artificial-intelligence training and guidance tool	30	9.1	0.0	7.5	2.9
1	Provide a case-insensitive equals Boolean operator	30	11.4	4.5	4.3	6.7
5	Provide full functionality for remote domain access	21	6.8	0.0	7.0	2.6
28	Improve CDDL support from languages	20	6.8	0.0	6.7	2.9
25	Interface the CDD ACL system with the VMS security system	20	9.1	0.0	5.0	0.0
23	Provide a SET [NO] VALIDATE command	18	6.8	0.0	6.0	1.7
16	Provide access to VMS CONVERT utility from DTR	12	4.5	0.0	6.0	1.4
29	Improve DELETE/HISTORY command and support for history lists	10	4.5	0.0	5.0	0.0
3	Evaluate more than one level of logical name for DTR\$STARTUP	10	2.3	0.0	10.0	0.0
20	Avoid unnecessary SORTED BY processing	10	4.5	0.0	5.0	0.0
8	Provide a Value type User Defined Keyword	9	4.5	0.0	4.5	4.9
26	Provide a call interface to the CDD	8	2.3	0.0	8.0	0.0
27	Support CDDL in LSE	8	2.3	0.0	8.0	0.0

## DTR/4GL PIR Results by Application Type

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As Ranked By Application Type : Education - Total ballots in this category : 4

PIR No.	PIR Description	Total Pts	Pct of Ballots Pos Pts	Pct of Ballots Neg Pts	Avg Pts Given	Std Dev of Pts
10	Provide command recall similar to that in DCL	26	6.8	0.0	6.5	4.5
22	Provide a merge operator	25	6.8	0.0	8.3	2.9
13	Implement EXTRACT ALL [object-type]	18	6.8	0.0	6.0	1.0
9	Implement features supported in the Screen Management RTL	17	4.5	0.0	8.5	2.1
21	Provide an outer join	15	4.5	0.0	7.5	3.5
12	Support bit datatypes and Boolean (logical) fields	12	4.5	0.0	6.0	1.4
16	Provide access to VMS CONVERT utility from DTR	12	4.5	0.0	6.0	1.4
1	Provide a case-insensitive equals Boolean operator	10	2.3	0.0	10.0	0.0
4	Provide a device-independent interface to VAX-11 DTR graphics	10	4.5	0.0	5.0	0.0
23	Provide a SET [NO] VALIDATE command	8	2.3	0.0	8.0	0.0
24	Provide support for forms scrolling regions	7	2.3	0.0	7.0	0.0
25	Interface the CDD ACL system with the VMS security system	7	2.3	0.0	7.0	0.0
31	Enhance use of privileges or ACLs	7	2.3	0.0	7.0	0.0
15	Extend the DEFINE FILE command to use FDL files	5	2.3	0.0	5.0	0.0
7	provide access to the TDMS Request and Validation functions from DTR	5	2.3	0.0	5.0	0.0
18	Provide a means to edit a field-value directly using the pre-selected editor	5	2.3	0.0	5.0	0.0
30	CDD needs to have version limits and/or SET NO VERSIONS	2	2.3	0.0	2.0	0.0

## DTR/4GL PIR Results by Application Type

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As Ranked By Application Type : Engineering/Scientific - Total ballots in this category : 27

PIR No.	PIR Description	Total Pts	Pct of Ballots Pos Pts	Pct of Ballots Neg Pts	Avg Pts Given	Std Dev of Pts
10	Provide command recall similar to that in DCL	160	47.7	0.0	7.3	3.2
4	Provide a device-independent interface to VAX-11 DTR graphics	113	31.8	0.0	8.1	2.7
15	Extend the DEFINE FILE command to use FDL files	89	29.5	0.0	6.8	3.3
12	Support bit datatypes and Boolean (logical) fields	74	22.7	0.0	7.4	2.5
21	Provide an outer join	74	22.7	0.0	7.4	2.8
19	Provide a sort-merge join optimization	64	15.9	0.0	9.1	1.6
7	provide access to the TDMS Request and Validation functions from DTR	63	20.5	0.0	7.0	2.9
22	Provide a merge operator	61	20.5	0.0	6.8	3.1
16	Provide access to VMS CONVERT utility from DTR	55	18.2	0.0	6.9	2.8
24	Provide support for forms scrolling regions	54	18.2	0.0	6.8	2.2
13	Implement EXTRACT ALL [object-type]	51	18.2	0.0	6.4	2.1
11	Provide SET and SHOW commands for all debugging features of DTR	48	15.9	0.0	6.9	3.0
18	Provide a means to edit a field-value directly using the pre-selected editor	47	13.6	0.0	7.8	2.5
6	Provide an artificial-intelligence training and guidance tool	45	11.4	0.0	9.0	2.2
25	Interface the CDD ACL system with the VMS security system	37	13.6	0.0	6.2	2.0
1	Provide a case-insensitive equals Boolean operator	35	13.6	4.5	4.4	6.2
5	Provide full functionality for remote domain access	31	9.1	0.0	7.8	2.6
9	Implement features supported in the Screen Management RTL	31	11.4	0.0	6.2	2.4
8	Provide a Value type User Defined Keyword	29	9.1	0.0	7.3	4.3
23	Provide a SET [NO] VALIDATE command	20	9.1	0.0	5.0	2.4
2	Prove a means to specify that edit-strings are to be used with forms	20	11.4	0.0	4.0	3.5
3	Evaluate more than one level of logical name for DTR\$STARTUP	16	6.8	0.0	5.3	4.5
29	Improve DELETE/HISTORY command and support for history lists	15	6.8	0.0	5.0	0.0
14	Support other editors from DTR (e.g., callable TPU, LSE, etc.)	15	4.5	0.0	7.5	3.5
26	Provide a call interface to the CDD	13	4.5	0.0	6.5	4.9
30	CDD needs to have version limits and/or SET NO VERSIONS	9	6.8	0.0	3.0	1.7
31	Enhance use of privileges or ACLs	7	2.3	0.0	7.0	0.0
20	Avoid unnecessary SORTED BY processing	6	4.5	0.0	3.0	0.0
28	Improve CDDL support from languages	5	2.3	0.0	5.0	0.0

## DTR/4GL PIR Results by Application Type

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As Ranked By Application Type : Office Automation - Total ballots in this category : 14

PIR No.	PIR Description	Total Pts	Pct of Ballots Pos Pts	Pct of Ballots Neg Pts	Avg Pts Given	Std Dev of Pts
10	Provide command recall similar to that in DCL	91	29.5	0.0	7.0	3.1
22	Provide a merge operator	46	13.6	0.0	7.7	2.7
19	Provide a sort-merge join optimization	45	11.4	0.0	9.0	2.2
7	provide access to the TDMS Request and Validation functions from DTR	45	13.6	0.0	7.5	2.7
21	Provide an outer join	44	11.4	0.0	8.8	2.7
4	Provide a device-independent interface to VAX-11 DTR graphics	40	9.1	0.0	10.0	0.0
13	Implement EXTRACT ALL [object-type]	39	11.4	2.3	6.5	4.7
24	Provide support for forms scrolling regions	35	9.1	0.0	8.8	1.5
15	Extend the DEFINE FILE command to use FDL files	29	13.6	0.0	4.8	2.8
30	CDD needs to have version limits and/or SET NO VERSIONS	25	9.1	0.0	6.3	3.5
14	Support other editors from DTR (e.g., callable TPU, LSE, etc.)	23	6.8	0.0	7.7	2.5
5	Provide full functionality for remote domain access	21	6.8	0.0	7.0	2.6
28	Improve CDDL support from languages	20	6.8	0.0	6.7	2.9
12	Support bit datatypes and Boolean (logical) fields	20	6.8	0.0	6.7	2.9
11	Provide SET and SHOW commands for all debugging features of DTR	20	6.8	0.0	6.7	2.9
9	Implement features supported in the Screen Management RTL	19	6.8	0.0	6.3	3.2
18	Provide a means to edit a field-value directly using the pre-selected editor	15	4.5	0.0	7.5	3.5
25	Interface the CDD ACL system with the VMS security system	15	6.8	0.0	5.0	0.0
6	Provide an artificial-intelligence training and guidance tool	15	4.5	0.0	7.5	3.5
2	Provide a means to specify that edit-strings are to be used with forms	13	4.5	0.0	6.5	4.9
23	Provide a SET [NO] VALIDATE command	13	4.5	0.0	6.5	2.1
29	Improve DELETE/HISTORY command and support for history lists	10	4.5	0.0	5.0	0.0
16	Provide access to VMS CONVERT utility from DTR	7	2.3	0.0	7.0	0.0
20	Avoid unnecessary SORTED BY processing	5	2.3	0.0	5.0	0.0
8	Provide a Value type User Defined Keyword	1	2.3	0.0	1.0	0.0
1	Provide a case-insensitive equals Boolean operator	- 10	0.0	4.5	- 5.0	0.0

## DTR/4GL PIR Results by Application Type

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As Ranked By Application Type : Service Bureau - Total ballots in this category : 2

PIR No.	PIR Description	Total Pts	Pct of Ballots		Avg Pts Given	Std Dev of Pts
			Pos	Neg		
4	Provide a device-independent interface to VAX-11 DTR graphics	15	4.5	0.0	7.5	3.5
22	Provide a merge operator	10	2.3	0.0	10.0	0.0
7	provide access to the TDMS Request and Validation functions from DTR	10	2.3	0.0	10.0	0.0
3	Evaluate more than one level of logical name for DTR\$STARTUP	10	2.3	0.0	10.0	0.0
9	Implement features supported in the Screen Management RTL	10	2.3	0.0	10.0	0.0
1	Provide a case-insensitive equals Boolean operator	10	2.3	0.0	10.0	0.0
10	Provide command recall similar to that in DCL	10	2.3	0.0	10.0	0.0
11	Provide SET and SHOW commands for all debugging features of DTR	10	2.3	0.0	10.0	0.0
21	Provide an outer join	5	2.3	0.0	5.0	0.0
13	Implement EXTRACT ALL [object-type]	5	2.3	0.0	5.0	0.0
15	Extend the DEFINE FILE command to use FDL files	5	2.3	0.0	5.0	0.0

## DTR/4GL PIR Results by Application Type

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As Ranked By Application Type : Other - Total ballots in this category : 4

PIR No.	PIR Description	Total Pts	Pct of Ballots Pos Pts	Pct of Ballots Neg Pts	Avg Pts Given	Std Dev of Pts
10	Provide command recall similar to that in DCL	25	6.8	0.0	8.3	2.9
12	Support bit datatypes and Boolean (logical) fields	20	6.8	0.0	6.7	2.9
22	Provide a merge operator	18	6.8	0.0	6.0	3.6
24	Provide support for forms scrolling regions	15	4.5	0.0	7.5	3.5
15	Extend the DEFINE FILE command to use FDL files	14	4.5	0.0	7.0	2.8
2	Provide a means to specify that edit-strings are to be used with forms	11	6.8	0.0	3.7	1.2
14	Support other editors from DTR (e.g., callable TPU, LSE, etc.)	10	2.3	0.0	10.0	0.0
7	provide access to the TDMS Request and Validation functions from DTR	10	2.3	0.0	10.0	0.0
4	Provide a device-independent interface to VAX-11 DTR graphics	10	2.3	0.0	10.0	0.0
19	Provide a sort-merge join optimization	10	2.3	0.0	10.0	0.0
13	Implement EXTRACT ALL [object-type]	8	2.3	0.0	8.0	0.0
23	Provide a SET [NO] VALIDATE command	7	4.5	0.0	3.5	2.1
18	Provide a means to edit a field-value directly using the pre-selected editor	7	2.3	0.0	7.0	0.0
29	Improve DELETE/HISTORY command and support for history lists	5	2.3	0.0	5.0	0.0
21	Provide an outer join	5	2.3	0.0	5.0	0.0
9	Implement features supported in the Screen Management RTL	5	2.3	0.0	5.0	0.0
11	Provide SET and SHOW commands for all debugging features of DTR	4	2.3	0.0	4.0	0.0
16	Provide access to VMS CONVERT utility from DTR	3	2.3	0.0	3.0	0.0
26	Provide a call interface to the CDD	3	2.3	0.0	3.0	0.0
20	Avoid unnecessary SORTED BY processing	3	2.3	0.0	3.0	0.0
30	CDD needs to have version limits and/or SET NO VERSIONS	2	2.3	0.0	2.0	0.0

## DTR/4GL PIR Results by CPU Type

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As Ranked By VAX Users - Total ballots in this category : 43

PIR No.	PIR Description	Total Pts	Pct of Ballots Pos Pts	Pct of Ballots Neg Pts	Avg Pts Given	Std Dev of Pts
10	Provide command recall similar to that in DCL	254	75.0	0.0	7.5	2.9
21	Provide an outer join	134	36.4	0.0	8.4	2.5
4	Provide a device-independent interface to VAX-11 DTR graphics	133	36.4	0.0	8.3	2.6
15	Extend the DEFINE FILE command to use FDL files	132	45.5	0.0	6.6	3.1
24	Provide support for forms scrolling regions	127	36.4	0.0	7.9	2.3
7	provide access to the TDMS Request and Validation functions from DTR	118	34.1	0.0	7.9	2.7
12	Support bit datatypes and Boolean (logical) fields	117	38.6	0.0	6.9	2.6
19	Provide a sort-merge join optimization	116	29.5	0.0	8.9	1.8
22	Provide a merge operator	103	31.8	0.0	7.4	2.9
13	Implement EXTRACT ALL [object-type]	87	29.5	2.3	6.2	3.4
9	Implement features supported in the Screen Management RTL	72	22.7	0.0	7.2	2.5
16	Provide access to VMS CONVERT utility from DTR	65	20.5	0.0	7.2	2.8
11	Provide SET and SHOW commands for all debugging features of DTR	57	18.2	0.0	7.1	2.9
18	Provide a means to edit a field-value directly using the pre-selected editor	52	15.9	0.0	7.4	2.5
6	Provide an artificial-intelligence training and guidance tool	50	13.6	0.0	8.3	2.6
25	Interface the CDD ACL system with the VMS security system	47	15.9	0.0	6.7	2.4
2	Prove a means to specify that edit-strings are to be used with forms	45	18.2	0.0	5.6	3.8
1	Provide a case-insensitive equals Boolean operator	40	15.9	4.5	4.4	5.8
14	Support other editors from DTR (e.g., callable TPU, LSE, etc.)	38	11.4	0.0	7.6	2.5
30	CDD needs to have version limits and/or SET NO VERSIONS	33	13.6	0.0	5.5	3.2
5	Provide full functionality for remote domain access	31	9.1	0.0	7.8	2.6
28	Improve CDDL support from languages	30	9.1	0.0	7.5	2.9
8	Provide a Value type User Defined Keyword	29	9.1	0.0	7.3	4.3
3	Evaluate more than one level of logical name for DTR\$STARTUP	26	9.1	0.0	6.5	4.4
23	Provide a SET [NO] VALIDATE command	25	11.4	0.0	5.0	2.1
26	Provide a call interface to the CDD	21	6.8	0.0	7.0	3.6
20	Avoid unnecessary SORTED BY processing	16	9.1	0.0	4.0	1.2
29	Improve DELETE/HISTORY command and support for history lists	15	6.8	0.0	5.0	0.0
17	Utilize the RMS connect-time field options implemented in FDL whenever possible	10	2.3	0.0	10.0	0.0
27	Support CDDL in LSE	8	2.3	0.0	8.0	0.0
31	Enhance use of privileges or ACLs	7	2.3	0.0	7.0	0.0

## DTR/4GL PIR Results by CPU Type

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As Ranked By PDP Users - Total ballots in this category : 6

PIR No.	PIR Description	Total Pts	Pct of Ballots Pos Pts	Pct of Ballots Neg Pts	Avg Pts Given	Std Dev of Pts
10	Provide command recall similar to that in DCL	42	13.6	0.0	7.0	2.4
24	Provide support for forms scrolling regions	30	9.1	0.0	7.5	2.9
7	provide access to the TDMS Request and Validation functions from DTR	23	6.8	0.0	7.7	4.0
9	Implement features supported in the Screen Management RTL	20	6.8	0.0	6.7	2.9
22	Provide a merge operator	19	6.8	0.0	6.3	3.2
23	Provide a SET [NO] VALIDATE command	18	6.8	0.0	6.0	1.7
13	Implement EXTRACT ALL [object-type]	16	6.8	0.0	5.3	2.1
1	Provide a case-insensitive equals Boolean operator	15	4.5	0.0	7.5	3.5
4	Provide a device-independent interface to VAX-11 DTR graphics	15	4.5	0.0	7.5	3.5
18	Provide a means to edit a field-value directly using the pre-selected editor	15	4.5	0.0	7.5	3.5
21	Provide an outer join	15	4.5	0.0	7.5	3.5
11	Provide SET and SHOW commands for all debugging features of DTR	13	4.5	0.0	6.5	3.5
16	Provide access to VMS CONVERT utility from DTR	12	4.5	0.0	6.0	1.4
12	Support bit datatypes and Boolean (logical) fields	12	6.8	0.0	4.0	1.0
2	Provide a means to specify that edit-strings are to be used with forms	11	4.5	0.0	5.5	6.4
19	Provide a sort-merge join optimization	10	2.3	0.0	10.0	0.0
14	Support other editors from DTR (e.g., callable TPU, LSE, etc.)	5	2.3	0.0	5.0	0.0
29	Improve DELETE/HISTORY command and support for history lists	5	2.3	0.0	5.0	0.0
30	CDD needs to have version limits and/or SET NO VERSIONS	2	2.3	0.0	2.0	0.0
15	Extend the DEFINE FILE command to use FDL files	1	2.3	0.0	1.0	0.0
3	Evaluate more than one level of logical name for DTR\$STARTUP	1	2.3	0.0	1.0	0.0

## DTR/4GL PIR Results by CPU Type

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As Ranked By DECsystem Users - Total ballots in this category : 1

PIR No.	PIR Description	Total Pts	Pct of Ballots Pos Pts	Pct of Ballots Neg Pts	Avg Pts Given	Std Dev of Pts
22	Provide a merge operator	10	2.3	0.0	10.0	0.0
21	Provide an outer join	10	2.3	0.0	10.0	0.0
23	Provide a SET [NO] VALIDATE command	8	2.3	0.0	8.0	0.0
16	Provide access to VMS CONVERT utility from DTR	7	2.3	0.0	7.0	0.0
10	Provide command recall similar to that in DCL	7	2.3	0.0	7.0	0.0
13	Implement EXTRACT ALL [object-type]	6	2.3	0.0	6.0	0.0
30	CDD needs to have version limits and/or SET NO VERSIONS	2	2.3	0.0	2.0	0.0

## DTR/4GL PIR Results by Expertise Level

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As Ranked By Beginner Users - Total ballots in this category : 11

PIR No.	PIR Description	Total Pts	Pct of Ballots Pos Pts	Pct of Ballots Neg Pts	Avg Pts Given	Std Dev of Pts
10	Provide command recall similar to that in DCL	82	25.0	0.0	7.5	2.8
19	Provide a sort-merge join optimization	53	13.6	0.0	8.8	1.8
4	Provide a device-independent interface to VAX-11 DTR graphics	43	11.4	0.0	8.6	3.1
24	Provide support for forms scrolling regions	43	11.4	0.0	8.6	2.2
7	provide access to the TDMS Request and Validation functions from DTR	40	11.4	0.0	8.0	2.7
21	Provide an outer join	35	9.1	0.0	8.8	2.5
15	Extend the DEFINE FILE command to use FDL files	32	11.4	0.0	6.4	3.5
25	Interface the CDD ACL system with the VMS security system	30	9.1	0.0	7.5	2.9
6	Provide an artificial-intelligence training and guidance tool	20	6.8	0.0	6.7	2.9
2	Prove a means to specify that edit-strings are to be used with forms	20	4.5	0.0	10.0	0.0
9	Implement features supported in the Screen Management RTL	16	4.5	0.0	8.0	2.8
5	Provide full functionality for remote domain access	15	4.5	0.0	7.5	3.5
30	CDD needs to have version limits and/or SET NO VERSIONS	14	4.5	0.0	7.0	1.4
28	Improve CDDL support from languages	10	4.5	0.0	5.0	0.0
3	Evaluate more than one level of logical name for DTR\$STARTUP	10	2.3	0.0	10.0	0.0
29	Improve DELETE/HISTORY command and support for history lists	10	4.5	0.0	5.0	0.0
22	Provide a merge operator	10	2.3	0.0	10.0	0.0
11	Provide SET and SHOW commands for all debugging features of DTR	10	4.5	0.0	5.0	0.0
26	Provide a call interface to the CDD	8	2.3	0.0	8.0	0.0
27	Support CDDL in LSE	8	2.3	0.0	8.0	0.0
20	Avoid unnecessary SORTED BY processing	8	4.5	0.0	4.0	1.4
16	Provide access to VMS CONVERT utility from DTR	5	2.3	0.0	5.0	0.0
12	Support bit datatypes and Boolean (logical) fields	5	2.3	0.0	5.0	0.0
23	Provide a SET [NO] VALIDATE command	5	2.3	0.0	5.0	0.0
18	Provide a means to edit a field-value directly using the pre-selected editor	5	2.3	0.0	5.0	0.0
13	Implement EXTRACT ALL [object-type]	3	2.3	0.0	3.0	0.0
1	Provide a case-insensitive equals Boolean operator	- 10	0.0	4.5	- 5.0	0.0

## DTR/4GL PIR Results by Expertise Level

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As Ranked By Experienced Users - Total ballots in this category : 15

PIR No.	PIR Description	Total Pts	Pct of Ballots Pos Pts	Pct of Ballots Neg Pts	Avg Pts Given	Std Dev of Pts
10	Provide command recall similar to that in DCL	78	25.0	0.0	6.5	3.3
24	Provide support for forms scrolling regions	59	18.2	0.0	7.4	2.3
12	Support bit datatypes and Boolean (logical) fields	49	18.2	0.0	6.1	2.6
15	Extend the DEFINE FILE command to use FDL files	43	13.6	0.0	7.2	3.5
21	Provide an outer join	40	11.4	0.0	8.0	2.7
22	Provide a merge operator	38	13.6	0.0	6.3	2.9
7	provide access to the TDMS Request and Validation functions from DTR	33	11.4	0.0	6.6	3.2
13	Implement EXTRACT ALL [object-type]	32	13.6	2.3	4.6	3.3
4	Provide a device-independent interface to VAX-11 DTR graphics	30	9.1	0.0	7.5	2.9
16	Provide access to VMS CONVERT utility from DTR	30	11.4	0.0	6.0	2.6
6	Provide an artificial-intelligence training and guidance tool	30	6.8	0.0	10.0	0.0
19	Provide a sort-merge join optimization	23	6.8	0.0	7.7	2.5
11	Provide SET and SHOW commands for all debugging features of DTR	23	6.8	0.0	7.7	3.2
9	Implement features supported in the Screen Management RTL	22	6.8	0.0	7.3	2.5
1	Provide a case-insensitive equals Boolean operator	20	6.8	0.0	6.7	2.9
30	CDD needs to have version limits and/or SET NO VERSIONS	19	9.1	0.0	4.8	3.8
25	Interface the CDD ACL system with the VMS security system	17	6.8	0.0	5.7	1.2
5	Provide full functionality for remote domain access	16	4.5	0.0	8.0	2.8
18	Provide a means to edit a field-value directly using the pre-selected editor	15	4.5	0.0	7.5	3.5
23	Provide a SET [NO] VALIDATE command	15	6.8	0.0	5.0	3.0
8	Provide a Value type User Defined Keyword	11	4.5	0.0	5.5	6.4
28	Improve CDDL support from languages	10	2.3	0.0	10.0	0.0
20	Avoid unnecessary SORTED BY processing	8	4.5	0.0	4.0	1.4
14	Support other editors from DTR (e.g., callable TPU, LSE, etc.)	8	2.3	0.0	8.0	0.0
31	Enhance use of privileges or ACLs	7	2.3	0.0	7.0	0.0
2	Provide a means to specify that edit-strings are to be used with forms	7	6.8	0.0	2.3	1.2
3	Evaluate more than one level of logical name for DTR\$STARTUP	6	4.5	0.0	3.0	2.8
29	Improve DELETE/HISTORY command and support for history lists	5	2.3	0.0	5.0	0.0
26	Provide a call interface to the CDD	3	2.3	0.0	3.0	0.0

## DTR/4GL PIR Results by Expertise Level

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As Ranked By Advanced Users - Total ballots in this category : 11

PIR No.	PIR Description	Total Pts	Pct of Ballots Pos Pts	Pct of Ballots Neg Pts	Avg Pts Given	Std Dev of Pts
10	Provide command recall similar to that in DCL	70	15.9	0.0	10.0	0.0
22	Provide a merge operator	50	11.4	0.0	10.0	0.0
12	Support bit datatypes and Boolean (logical) fields	50	13.6	0.0	8.3	2.6
21	Provide an outer join	45	11.4	0.0	9.0	2.2
13	Implement EXTRACT ALL [object-type]	40	11.4	0.0	8.0	2.7
15	Extend the DEFINE FILE command to use FDL files	35	11.4	0.0	7.0	2.7
4	Provide a device-independent interface to VAX-11 DTR graphics	30	9.1	0.0	7.5	2.9
14	Support other editors from DTR (e.g., callable TPU, LSE, etc.)	25	6.8	0.0	8.3	2.9
24	Provide support for forms scrolling regions	25	6.8	0.0	8.3	2.9
7	provide access to the TDMS Request and Validation functions from DTR	25	6.8	0.0	8.3	2.9
16	Provide access to VMS CONVERT utility from DTR	20	4.5	0.0	10.0	0.0
9	Implement features supported in the Screen Management RTL	20	6.8	0.0	6.7	2.9
19	Provide a sort-merge join optimization	15	4.5	0.0	7.5	3.5
18	Provide a means to edit a field-value directly using the pre-selected editor	12	4.5	0.0	6.0	1.4
8	Provide a Value type User Defined Keyword	10	2.3	0.0	10.0	0.0
28	Improve CDDL support from languages	10	2.3	0.0	10.0	0.0
26	Provide a call interface to the CDD	10	2.3	0.0	10.0	0.0
11	Provide SET and SHOW commands for all debugging features of DTR	10	2.3	0.0	10.0	0.0
2	Provide a means to specify that edit-strings are to be used with forms	8	4.5	0.0	4.0	1.4
1	Provide a case-insensitive equals Boolean operator	5	2.3	0.0	5.0	0.0

## DTR/4GL PIR Results by Expertise Level

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As Ranked By Wizard Users - Total ballots in this category : 7

PIR No.	PIR Description	Total Pts	Pct of Ballots Pos Pts	Pct of Ballots Neg Pts	Avg Pts Given	Std Dev of Pts
10	Provide command recall similar to that in DCL	34	11.4	0.0	6.8	2.9
19	Provide a sort-merge join optimization	30	6.8	0.0	10.0	0.0
4	Provide a device-independent interface to VAX-11 DTR graphics	30	6.8	0.0	10.0	0.0
1	Provide a case-insensitive equals Boolean operator	25	6.8	0.0	8.3	2.9
21	Provide an outer join	24	6.8	0.0	8.0	3.5
15	Extend the DEFINE FILE command to use FDL files	22	9.1	0.0	5.5	3.1
18	Provide a means to edit a field-value directly using the pre-selected editor	20	4.5	0.0	10.0	0.0
7	provide access to the TDMS Request and Validation functions from DTR	20	4.5	0.0	10.0	0.0
13	Implement EXTRACT ALL [object-type]	17	4.5	0.0	8.5	2.1
22	Provide a merge operator	15	6.8	0.0	5.0	1.7
11	Provide SET and SHOW commands for all debugging features of DTR	14	4.5	0.0	7.0	4.2
9	Implement features supported in the Screen Management RTL	14	4.5	0.0	7.0	4.2
12	Support bit datatypes and Boolean (logical) fields	13	4.5	0.0	6.5	2.1
17	Utilize the RMS connect-time field options implemented in FDL whenever possible	10	2.3	0.0	10.0	0.0
16	Provide access to VMS CONVERT utility from DTR	10	2.3	0.0	10.0	0.0
3	Evaluate more than one level of logical name for DTR\$STARTUP	10	2.3	0.0	10.0	0.0
2	Prove a means to specify that edit-strings are to be used with forms	10	2.3	0.0	10.0	0.0
24	Provide support for forms scrolling regions	10	2.3	0.0	10.0	0.0
8	Provide a Value type User Defined Keyword	8	2.3	0.0	8.0	0.0
23	Provide a SET [NO] VALIDATE command	5	2.3	0.0	5.0	0.0
14	Support other editors from DTR (e.g., callable TPU, LSE, etc.)	5	2.3	0.0	5.0	0.0

## DTR/4GL PIR Results by Product Used

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As Ranked By DTR-11 Users - Total ballots in this category : 7

PIR No.	PIR Description	Total Pts	Pct of Ballots Pos Pts	Pct of Ballots Neg Pts	Avg Pts Given	Std Dev of Pts
4	Provide a device-independent interface to VAX-11 DTR graphics	35	9.1	0.0	8.8	2.5
10	Provide command recall similar to that in DCL	32	9.1	0.0	8.0	2.4
1	Provide a case-insensitive equals Boolean operator	30	9.1	0.0	7.5	2.9
24	Provide support for forms scrolling regions	25	6.8	0.0	8.3	2.9
22	Provide a merge operator	24	6.8	0.0	8.0	3.5
7	provide access to the TDMS Request and Validation functions from DTR	20	4.5	0.0	10.0	0.0
21	Provide an outer join	20	4.5	0.0	10.0	0.0
16	Provide access to VMS CONVERT utility from DTR	17	4.5	0.0	8.5	2.1
9	Implement features supported in the Screen Management RTL	15	4.5	0.0	7.5	3.5
15	Extend the DEFINE FILE command to use FDL files	15	4.5	0.0	7.5	3.5
12	Support bit datatypes and Boolean (logical) fields	15	4.5	0.0	7.5	3.5
11	Provide SET and SHOW commands for all debugging features of DTR	14	4.5	0.0	7.0	4.2
13	Implement EXTRACT ALL [object-type]	13	4.5	0.0	6.5	0.7
23	Provide a SET [NO] VALIDATE command	13	4.5	0.0	6.5	2.1
26	Provide a call interface to the CDD	10	2.3	0.0	10.0	0.0
8	Provide a Value type User Defined Keyword	10	2.3	0.0	10.0	0.0
2	Prove a means to specify that edit-strings are to be used with forms	10	2.3	0.0	10.0	0.0
3	Evaluate more than one level of logical name for DTR\$STARTUP	10	2.3	0.0	10.0	0.0
19	Provide a sort-merge join optimization	10	2.3	0.0	10.0	0.0
14	Support other editors from DTR (e.g., callable TPU, LSE, etc.)	5	2.3	0.0	5.0	0.0
18	Provide a means to edit a field-value directly using the pre-selected editor	5	2.3	0.0	5.0	0.0
30	CDD needs to have version limits and/or SET NO VERSIONS	2	2.3	0.0	2.0	0.0

## DTR/4GL PIR Results by Product Used

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As Ranked By VAX-DTR Users - Total ballots in this category : 43

PIR No.	PIR Description	Total Pts	Pct of Ballots Pos Pts	Pct of Ballots Neg Pts	Avg Pts Given	Std Dev of Pts
10	Provide command recall similar to that in DCL	264	77.3	0.0	7.5	2.9
24	Provide support for forms scrolling regions	137	38.6	0.0	8.1	2.3
21	Provide an outer join	134	36.4	0.0	8.4	2.5
4	Provide a device-independent interface to VAX-11 DTR graphics	133	36.4	0.0	8.3	2.6
15	Extend the DEFINE FILE command to use FDL files	132	45.5	0.0	6.6	3.1
19	Provide a sort-merge join optimization	121	31.8	0.0	8.6	2.0
7	provide access to the TDMS Request and Validation functions from DTR	118	34.1	0.0	7.9	2.7
22	Provide a merge operator	113	34.1	0.0	7.5	2.9
12	Support bit datatypes and Boolean (logical) fields	107	36.4	0.0	6.7	2.5
13	Implement EXTRACT ALL [object-type]	92	31.8	2.3	6.1	3.3
9	Implement features supported in the Screen Management RTL	72	22.7	0.0	7.2	2.5
11	Provide SET and SHOW commands for all debugging features of DTR	57	18.2	0.0	7.1	2.9
16	Provide access to VMS CONVERT utility from DTR	55	18.2	0.0	6.9	2.8
18	Provide a means to edit a field-value directly using the pre-selected editor	52	15.9	0.0	7.4	2.5
25	Interface the CDD ACL system with the VMS security system	47	15.9	0.0	6.7	2.4
2	Prove a means to specify that edit-strings are to be used with forms	45	18.2	0.0	5.6	3.8
6	Provide an artificial-intelligence training and guidance tool	40	11.4	0.0	8.0	2.7
1	Provide a case-insensitive equals Boolean operator	40	15.9	4.5	4.4	5.8
14	Support other editors from DTR (e.g., callable TPU, LSE, etc.)	38	11.4	0.0	7.6	2.5
30	CDD needs to have version limits and/or SET NO VERSIONS	33	13.6	0.0	5.5	3.2
5	Provide full functionality for remote domain access	31	9.1	0.0	7.8	2.6
28	Improve CDDL support from languages	30	9.1	0.0	7.5	2.9
3	Evaluate more than one level of logical name for DTR\$STARTUP	26	9.1	0.0	6.5	4.4
23	Provide a SET [NO] VALIDATE command	25	11.4	0.0	5.0	2.1
26	Provide a call interface to the CDD	21	6.8	0.0	7.0	3.6
8	Provide a Value type User Defined Keyword	19	6.8	0.0	6.3	4.7
20	Avoid unnecessary SORTED BY processing	16	9.1	0.0	4.0	1.2
29	Improve DELETE/HISTORY command and support for history lists	15	6.8	0.0	5.0	0.0
17	Utilize the RMS connect-time field options implemented in FDL whenever possible	10	2.3	0.0	10.0	0.0
27	Support CDDL in LSE	8	2.3	0.0	8.0	0.0
31	Enhance use of privileges or ACLs	7	2.3	0.0	7.0	0.0



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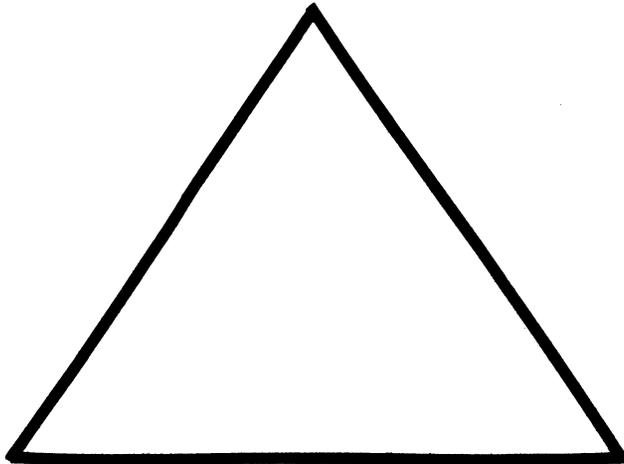
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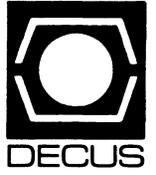
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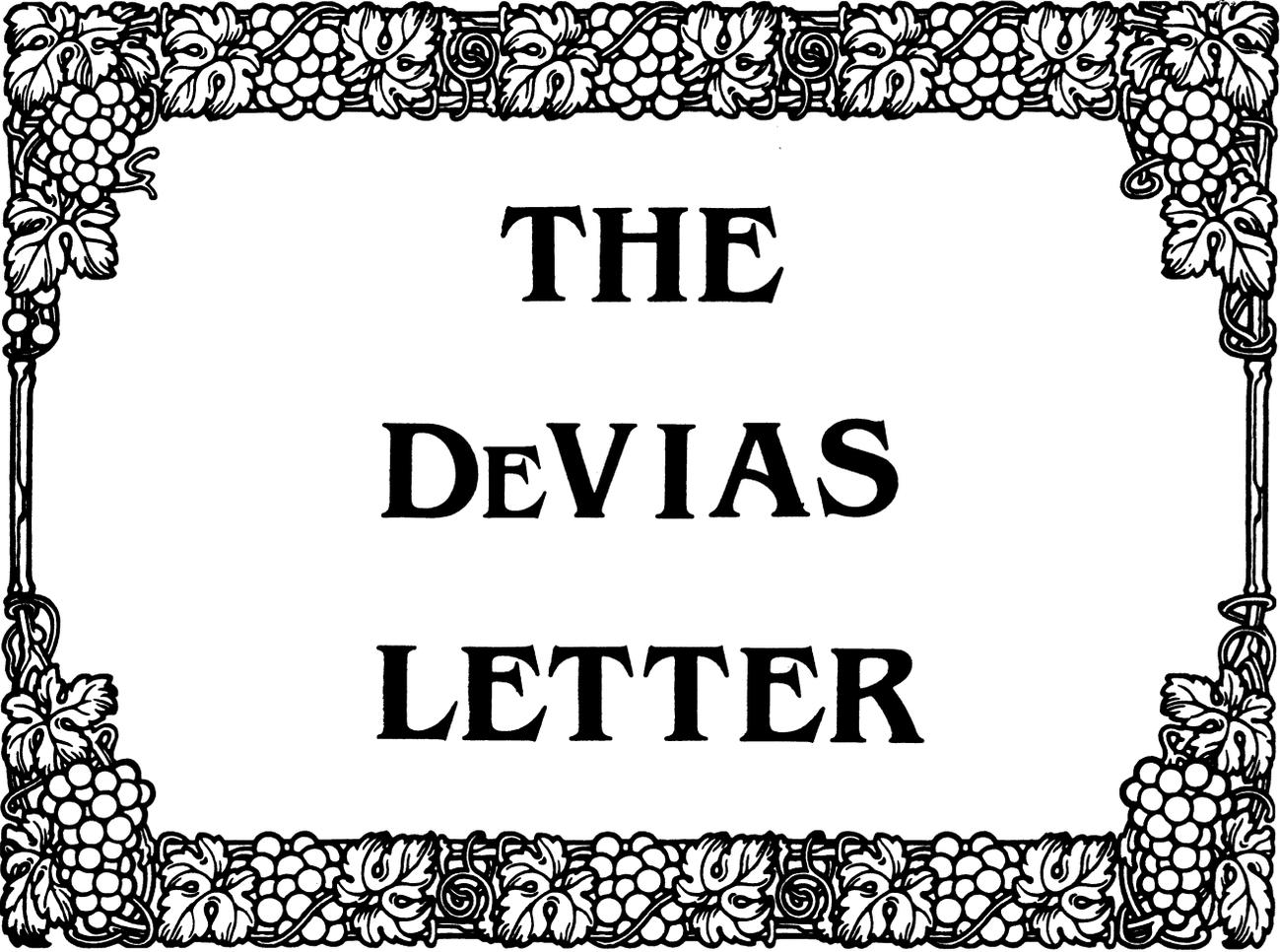
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Contributions of letters, articles, important SPR's etc will be accepted in any form, (including notes jotted in pencil on gravy-stained tablecloths.) Contributions will be much more graciously accepted in one of the following formats:

1. Non machine readable sources, (SPR's etc,) should be reasonably dark to insure good photocopying. Text whatever should be the equivalent of 66 lines at 6 lpi, with 4-line top margin, 5-line bottom margin, left-margin 10, right margin 74 at 10cpi.
2. Machine readable sources may be submitted on 9-track Mag-tape, (800,1600, or 6250 BPI,) DEC-tape II, DecMate floppies, or whatever. We're not fussy, we'll even accept paper tape or cards. Preferred format is DOS or BRU for tapes, Files-11 for DEC-tape II.
3. 1200 baud dial-up modems are available on our IAS system and our VAX, with various servers available. Give the editor a call at (312)-791-2515 (preferably later in the day,) to obtain access information, etc.
4. If long distance dialout is not possible on your system, we'll be willing to call your system and do the work, (unless you want to transfer the entire manual set at 300 baud.)

August 27, 1986  
Monsanto  
M/S GG3I  
700 Chesterfield Village Parkway  
Chesterfield, MO 63198  
(314) 537-7044

Dear IAS Enthusiasts:

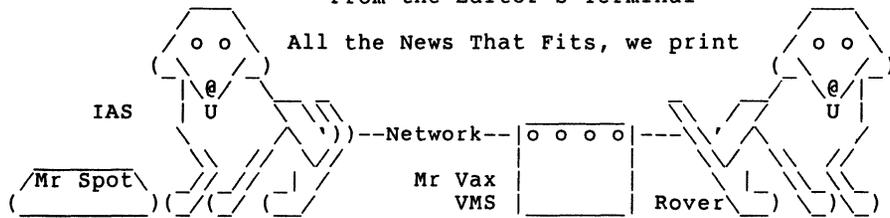
As you may be aware from the last issue of the DeVIAS Letter (and the address above), I have moved to a new job at Monsanto. This job involves the care and feeding of Vaxes and VAX clusters here at the research center. The unfortunate aspect of the job is that it is not related to IAS. For this reason, I am resigning as SIG Chair effective at the end of the San Francisco Symposium. We are very lucky in that Mike Robitaille of Gruman-CTEC, the present Symposium Coordinator, has agreed to take over as SIG Chair. Mike has been involved with the SIG for several years now and is actively working with IAS. I am sure Mike will do an exceptional job.

However, Mike needs your help. If the IAS SIG is a viable entity, as I think it is, it needs the support of the IAS community. As you are now reading this, I assume that you are part of that community. We need you to contribute to the SIG in any way possible. There are steering committee openings. If not that, send in newsletter articles or give a symposium session. You can make a difference in many ways. The future of the SIG is up to you.

I have greatly enjoyed my involvement with the SIG, first as newsletter editor, and as Chair. I thank you for your support and hope you will continue to support Mike and the Sig.

John Roman

From the Editor's Terminal



I dropped the editorial to page 2 this issue due to the late breaking front page item. I've known John for a long time. He's been a major contributor to the Sig, especially in that when more was asked, he managed to give more. Let me be the first to thank him for his long service. After the fall meeting we'll probably see each other around VAX meetings, but the feeling won't be the same.

John's move of course, is a harbinger of what may come to many of us in the SIG, (just as my series of conversion articles is.) I believe it makes it very important for the SIG leadership to get a grasp of how many users are still out there, what they are doing etc. In that vein I am again including a copy of the membership form. (I have changed the mailing to send it to me, temporarily since by the time you read this sending it to John will not be appropriate, and I'm near a submission deadline.) If you haven't filled one out, PLEASE do. If you want to send me one too, do it. (Make a note that it's a repeat.) If you feel inclined to include a short note, please fold it up along with the note and send that also.

This issue will be out about the time you are either (1)thinking about, (2)wishing about, (3)at, or (4)just back from Fall DECUS. If you are going or were there, please think about helping the editor. If you got an idea at DECUS, don't just go home and tell the people there, write an article and tell us too. If you have something to say to DEC but can't get to DECUS, say it through the newsletter. That's what it's for.

If anyone noticed that our "All the news that fits, we print" byline appeared one month after the RSX newsletter started using the same motto, and wants to start yelling "Plagiarism!", please note that it is nearly 2 months from the time we mail a submission till we see it in print, so it was not possible for me to plagiarize from the RSX sig. (Actually I plagiarized from my college roommate and school newspaper editor, who used it \$%\*\*\*transmission error\*\*\* years ago.)

Hope to see you in San Francisco.

## 10 Years Ago This Month

The Multi-tasker contained a full compliment of wierd SPR problems, along with some interesting remarks and notices. Among the more notable:

1. F4P had some nasty problems, it would generate incorrect object code, but only if one specified the /LI:7 option to obtain an assembly listing. Also, data output using a "F" format specification following a "1PE" format are output multiplied by 10. Also, F4P did not detect an integer divide by zero condition. (Probably because this was done using hardware divide, rather than the FPP.)
2. A SPR requested that the Task Builder be given a switch to override any RO PSECTS to be RW. (DEC did finally get to that one, I guess.)
3. The library report stated that Glen Everhart had submitted an RSX FOCAL to the library, (much to the happiness of transported PDP-8 programmers.)
4. A FORUM comment stated that the current RSX11D product manager was the third one in 2-1/2 years, and wondered how one could maintain continuity of service. (Deja vu, deja vu.)
5. And finally, a somewhat sour-grapish SPR complained: "Why do RP04 users get a seek optimizing handler but not RP03 users? We paid the same amount for our software!"

## The Program of the Month

```
20 ! PROGRAM TO SEPERATE RUNOFF FILES INTO LEFT AND RIGHT PAGES
30 ! MUST BE REESE OR BONNER LABS (OR TECO'ED) OUTPUT FORMAT
40 DIM A$(255)V,N$(30)V,N1$(30)V,N2$(30)V,N3$(30)V,NP(5)
60 DIM B$(20),C$(20)V
80 B$=""
100 PRINT "NAME OF SOURCE FILE ";
120 INPUT N$
140 IF POS(N$,".")<1 THEN LET N$=N$+".DOC"
160 N3$=N$+"/RO/LN:255"
180 LET N$=SBS$(N$,1,POS(N$,".")-1)
200 N1$=N$+".LFT/WR/LN:255"
220 N2$=N$+".RGT/WR/LN:255"
240 FF=0 ! CLEAR FORM-FEED FLAG
260 OPEN #3,N3$
280 OPEN #4,N1$
300 INPUT "SKIP PRINTING ON BACK OF FIRST (TITLE PAGE) "A$
320 TP=0
340 IF A$="Y" THEN LET TP=1
360 CF=0
380 INPUT "PRINT CHAPTERS & APPENDICES ON RIGHT PAGE ";A$
400 IF A$="Y" THEN LET CF=1
420 OPEN #5,N2$
440 OL=4 ! FIRST FF WILL SWITCH US TO RIGHT HAND PAGE
460 IF END #3 THEN 1000
480 INPUT LINE #3,A$
500 IF FF=-1 THEN FF=0
520 IF ASC(SBS$(A$,1,1)) <> 12 THEN 660 ! NOT A FORM FEED
540 ! SWITCH OUTPUT FILES
560 FF=1 ! SHOW FF JUST SEEN
580 OL=OL+1
600 IF OL=6 THEN OL=4
620 NP(OL)=NP(OL)+1
640 ! FIRST RNO PAGE HAS TAB, SUBSEQUENT HAVE TAB,CR
660 IF LEN(A$)=2 THEN 880 ! SKIP IF A FF ON 2ND..N PAGES
680 IF FF<1 THEN 880 ! SKIP IF FF NOT PREVIOUS LINE
700 FF=-1 ! CLEAR FORM FEED SWITCH, THIS IS A HEADER LINE
720 C$=SBS$(B$,1,LEN(A$)-1)+CHR$(13) ! MAKE SPACE STRING EQUAL
760 IF C$<>A$ THEN 860 ! SKIP IF NOT BLANK LINE
780 IF OL*CF=5 THEN 860 ! OK IF CHAPTER,APP, ON RT PAGE
800 PRINT #5,CHR$(12) : OL=5 ! PUT A BLANK PAGE
840 NP(5)=NP(5)+1
860 IF TP=1 AND OL=4 THEN LET TP=0 : GOTO 800 ! RT PAGE IF TITLE
880 IF LEN(A$)<>2 THEN 940
900 IF ASC(SBS$(A$,2,1))<>13 THEN 940 ! SKIP IF NOT 2-CHAR HEADER
920 A$=SBS$(A$,1,1) ! TRIM SO DIA PROGRAM NOT CONFUSED
940 IF OL=4 THEN PRINT #4,A$
960 IF OL=5 THEN PRINT #5,A$
980 GOTO 480
1000 PRINT NP(4);" PAGES FOR FILE ";N$;".LFT"
1020 PRINT NP(5);" PAGES FOR FILE ";N$;".RGT"
1040 IF NP(4)<>NP(5) THEN PRINT #4,CHR$(12)
1060 IF NP(4)<>NP(5) THEN PRINT "PAGE ADDED TO ";N$;".LFT"
1080 CLOSE
1100 EXIT
```

## Macro-16 to Macro-32 A Tale of two Systems

Frank R. Borger  
Michael Reese Medical Center

In our third installment of this series, I must confess that the inevitable has occurred. My projected timetable has been blown to pieces. Along with the normal summer effects of vacations, have come some totally unexpected projects that take my time in my other two jobs at this organization, not to mention the effects of the fires which played havoc with our power and air conditioning systems, (it's been a baaad month.) Rather than fake it, I will discuss the differences I see in the available system level subroutines and directives. I had planned to include this "chapter" toward the end of the series. Actually, with the exception of File IO system calls, I have already re-done all the ones I needed, and probably would need a whole chapter for File IO differences anyway, so here goes.

On IAS, system provided routines include subroutines, (routines for text conversion, math, etc.) provided in SYSLIB.OLB and other libraries, and System Directives, routines permanently resident in the operating system, and called by pushing a directive parameter block, (or its address) on the stack, and doing an EMT 377. Lets discuss subroutines first.

The main difference between IAS and VMS is that the VMS developers were quite successful in designing a system-wide utility used by all the different compilers and system level programs. This was a major accomplishment. Getting a BASIC, FORTRAN, BLISS, PL/1, COBOL and a PASCAL compiler developer to agree on how to call a math function is no easy matter. (I don't know what would have happened if they included a C guru.) In general this simplifies things in many ways.

1. Routine names have a constant format of the form fac\$symbol. The fac part is a 2 or three character facility name, (LIB for library, MTH for math routines, OTS for OTS conversion routines, SMG for screen management, etc.) The symbol part is the symbol name, ATTACH, DATE\_TIME, etc.)
2. Since BASIC, FORTRAN, etc use the same routines, you get the same value for SQRT(2) no matter what language you use.
3. You don't have to worry that the calling procedure will change with the next release.
4. Argument passing is done in three standard ways, (you don't have to wonder if you should put a "#" in front of a parameter.)

5. Status/error return is done in 2 standard ways, either in R0 or by an operation called signalling. All errors have a unique status return value, along with a unique return symbol and accessible error message.

This results in a much more predictable set of routines. For example argument passing is done in three standard ways; by value by reference, or by descriptor.

1. Passing by value is passing the actual value, (usually used to pass up to 32-bit integer values.)
2. Passing by reference is passing the ADDRESS of the item, (usually used to pass scalar variables, say to a math routine.)
3. Passing by descriptor involves passing the address of a data descriptor. A typical data descriptor contains 4 items, Length, Type, Class, and Address. (Descriptors are used to pass strings, and other complex data.)

All routines return a status value in R0 or by a special function called SIGNALING. Any error returns have a unique status return, a condition value symbol, and an associated error message. For instance, a status return of MTH\$FLOOVEMTH with an associated error message of "Floating overflow in mathematics library procedure." The standard condition value symbol provides a key for using the standard error messages so that you can output that english error message ... "Floating overflow..."

Having a quick overview of the VMS way, and hopefully reasonably aware of the IAS system routines, let me present some examples. In all cases, I kept the IAS subroutine calls the same, and wrote MACRO interfaces to the equivalent, (or nearly so) VMS ones. As an example let me show the conversion for the \$cbomg routine. The IAS \$cbdmg routine converted a binary word into an unsigned decimal text string. A typical calling sequence looked like this

```

;
mov    #buffer,r0    ;point to ascii buffer
mov    #32.,r1       ;number to convert into r1
clr    r2            ;clear zero suppression flag
jsr    pc,$cbdmg     ;call subroutine
                        ;on exit, r0 points past last
                        ;character of conversion

```

In VMS, the following code replaced the IAS subroutine.

```

;
.psect code,exe,nowrt,rd
.sbttl $cbdmg
;
$cbdmg::
movw   r1,value      ;store value to convert
movl   r0,-(sp)      ;save for now
movl   #tmpbuf,stradd ;store starting conv address

```

```

pushl  #2            ;show 2-byte conversion
tstw   r2            ;supress leading 0's ?
beql   1$            ;br if yes
pushl  #5            ;no, set min out length of 5
brw    2$
1$:    pushl  #1      ;yes, set min out length of 1
2$:    movw   #5,string ;push in maximum conv length
pushaq string        ;push addr of string desc
pushal value         ;push addr of value to conv
calls  #4,g^ots$cvt_1_tu
movl   (sp)+,r0      ;restore text pointer
movl   #tmpbuf,r1    ;point to VMS returned string
cvtwl  string,r2     ;get number of characters
1$:    movb   (r1)+,(r0) ;xfer a character
cmpb   (r0)+,#32     ;is it a space ?
bneq   2$            ;skip if not
decl   r0            ;back up pointer
2$:    sobgtr r2,1$   ;loop till done
rsb
;
;
.psect rwdata,rd,wrt,noexe
string:::word 5      ;length of string
.byte   dsc$k_dtype_t ;type
.byte   dsc$k_class_s ;class
stradd:::long 0      ;address
;
tmpbuf:::blkb 6      ;room for returned string
value:::word 0      ;room for value to convert
.end

```

Although that was a small piece of code, it really contains an awful lot of the differences between PDP11 and VAX macro. One should especially note the following:

1. All instructions now have to specify byte, word, or long mode.
2. We have snuck in a couple of rather obvious new VAX instructions, the PUSH instruction, equivalent to MOV X,-(SP), along with its variation, the PUSHA instruction to push an address on the stack, and the convert word to long instruction.
3. We see that default variable radix is decimal not octal, (in our test for a space character.)
4. The data starting at label string: is an example of a string descriptor.
5. The calls instruction is a standard subroutine call, the s specifies a form where passed parameters have been pushed on to the stack. We have also specified the number of parameters passed, 4. (The subroutine still has to know what they are, its not necessarily 4 words or 4 longwords.)

One more point must be emphasized. DEC's standard debugger is really nice, with lots of bells and whistles, but it can't work unless it knows what is code and what is data. Keeping a minimum of 3 basic PSECTS, (Code, Read-write data, and Read-only data,) is a habit you must form. The first time you activate the debugger and see it list the source code as you step your way thru, you WILL become a convert from the old "everything in one big PSECT" way.

This also illustrates the major differences between PDP11 and VAX subroutine linkage. Much PDP11 data was passed via registers, (often with other registers being used.) VAX data is passed via the stack. Registers, (with the exception of R0 which is used for status returns,) are left alone. This is also the reason I chose to emulate PDP11 subroutines, rather than do a major rewrite of code calling those routines.

There were some more compatability problems, for instance no RAD50 to ASCII and back conversion routines. (Who needs them on an operating system that doesn't use RAD50 packing.) At least for now, the first version of native mode Reese Basic may loose these conversion routines. Another was the lack of a convert binary to octal, signed routine. The end result was a slightly cluded bit of code:

```
$cbosg::
    tstw    r1                ;is it positive
    bgeq    $cbomg            ;yes, do it unsigned
    movb    #^o55,(r0)+       ;else put in minus sign
    mnegw   r1,r1             ;make it positive
$cbomg::
    .
    .
```

In the above note the following:

1. The bgeq (branch if greater than or equal to zero) was a signed comparison. The unsigned op-code would have been bgequ, since all unsigned compares have a "u" at the end.
2. I had to use a temporary octal radix "^o" for the octal constant.
3. Since there is no simple NEG instruction, I did a mov negated value instruction. (My source conversion program changes NEG to MNEGW and NEGB to MNEGB, along with changing from one to two operands.)

All along there were suprises and pitfalls. About 4 pages of convoluted PDP11 code to do ascii to floating conversion were replaced by a 1-page call to a standard VMS routine, but when we came to the inverse, (floating point variable to ascii conversion,) I found that there were VMS routines to do the equivalent of Fortran G or F Format conversion, but NOTHING that would do simpler non-exponent conversions, (NNN.NNN without any exponent.)

When we started looking at the VMS equivalent of IAS system directives, we got another minor surprise. Although many of the IAS system directives have equivalent interfaces under VMS, (called System Services,) many of the things you had to do a directive to get under IAS are available under the system library calls. The reason? Any program you execute under VMS is much more insulated inside your current Process. Communication to the system or other processes goes thru standard subroutine calls. Anything you wanted to know is available if you know how to call for it, (and if you can't access it, you really didn't want to know it anyway.) It's a major change for me. Gone are the care-free days of romping thru the ATL to see who is currently executing, or getting my ATL entry to see who caused me to start executing. Trying to get a look at the innards of VMS from a VMS process is something like a blind man trying to probe the inside of a bowling ball using his cane.

Anyway, few clear-cut equivalents to most of the IAS system calls exist, the systems are just too different. As an example, look at the following PDP code, which returned the system time as 8 binary words, 2-digit year, month, day, hour, minute, second, ticks and ticks per second:

```
;
gettim:   dir$      getdpcb      ;get system time
         .
         .
getdpcb:  gtim$     getbuf
getbuf:   .blkw    8.
```

Under VMS, the following routine returns the time, but in a 23-character string in the format: DD-MMM-YYYY HH:MM:SS.HH (.HH is hundredth of a second)

```
         .psect   code,exe,rd,nowrt
;
dattim::
    movl    r0,-(sp)          ;save reg
    pushal sytime            ;push address of length
    pushaq sytime            ;push add of string descriptor
    calls  #2,g^lib$sys_asctim ;get ascii time
    movl    (sp)+,r0         ;restore
    rsb
;
         .psect   rwdata,noexe,rd,wrt
;
sytime:  .word    23          ;length of string
         .byte    dsc$k_dtype_t ;type
         .byte    dsc$k_class_s ;class
syaddr:  .long    sysdaē      ;addr of string
sysdat:  .blkwb  24          ;ascii buffer
```

The end result was that some of our code, (to translate binary dates into the ascii strings that BASIC gave you,) shrunk dramatically, while other pieces had to expand, (translating ascii dates back to octal, or converting ascii months to decimal.)

Another point to be made. There are two forms of the call routine

1. The CALLS form, where arguments are pushed on the stack, (in reverse order,) and automatically removed before returning to the user. Very similar to the "DIR\$\$" form of an IAS system directive.
2. The CALLG form, where an argument list must be set up, and you only specify the address of the argument list in your program. Very similar to the standard DIR\$ form of an IAS directive. A CALLG form of the above code follows.

```

.psect code,exe,rd,nowrt
;
dattim:
    movl    r0,-(sp)        ;save reg
    callg   timarg,g^lib$sys_asctim ;get ascii time
    movl    (sp)+,r0        ;restore
    rsb
;
.psect rwdata,noexe,rd,wrt
;
sytime: .word    23          ;length of string
        .byte    dsc$k_dtype_t ;type
        .byte    dsc$k_class_s ;class
syaddr: .long    sysdat      ;addr of string
sysdat: .blkb    24          ;ascii buffer
timarg: .long    2           ;number of arguments
        .address sytime      ;number of bytes to write
        .address sytime      ;string descriptor addr

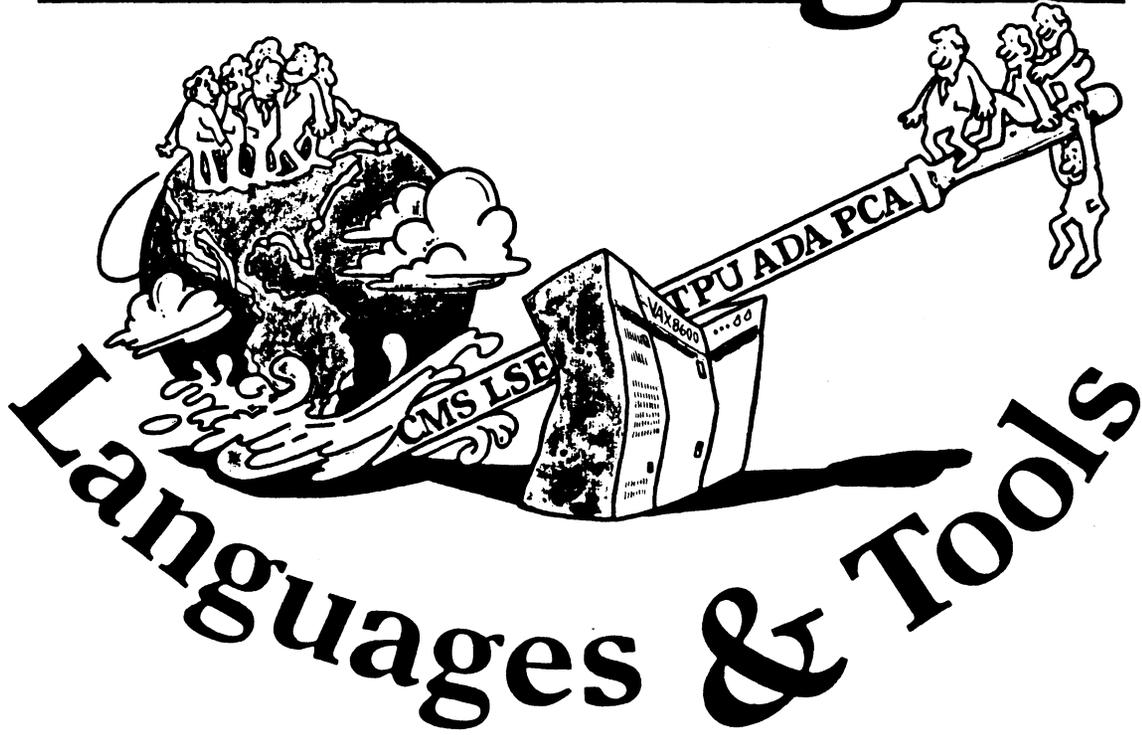
```

Finally, with the wealth of routines to call, often times the hardest thing to do is to find the one you want. With about 840 pages of run-time library routine descriptions, you sometimes spend much time frustratingly paging thru the manuals saying, "There ought to be a routine to do what I want..."

Looks like we'll wait to next time to talk about the equivalent of IAS directives. To give you a little hint, some (like QIOW,) are remarkably similiar, some different, and include some things I expected to find in the runtime library, (Now I know where they went!!)

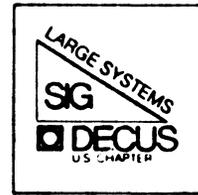
# Leverage

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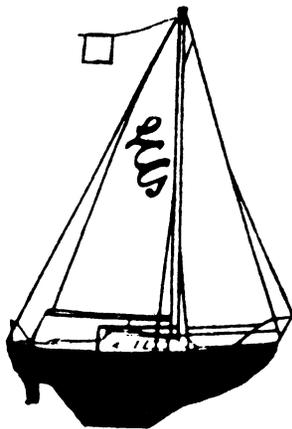
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# Wanted

## Field Test Sites for Fortran-10/20 V11

Digital is soliciting customer volunteers to serve as field test sites for Fortran-10/20 Version 11, the last development release of Fortran for 36-bit machines. Field test for Version 11 is scheduled to begin in early Fall.

The new features planned for V11 include:

- Support for long symbols up to 31 characters, with dollar-sign (\$) and underscore (.) characters allowed. (TOPS-10 and TOPS-20.)
- Support for an RMS/Fortran interface to allow access to RMS sequential, relative and indexed (ISAM) file organizations from the Fortran language. (TOPS-20 only.)
- Network file access. RMS files residing on remote TOPS-20 and VMS hosts will be transparently accessible as if they were local RMS files. Non-RMS file organizations accessible from Fortran V10 and earlier which reside on remote TOPS-20 systems will be accessible as if they were local files. (TOPS-20 only.)

We are particularly interested in sites which meet one or more of the following criteria:

- TOPS-10 and TOPS-20 sites with VAX processor(s) and shared VMS/TOPS Fortran applications who are interested in the transportability between Fortran-10/20 and VMS Fortran.
- TOPS-10 and TOPS-20 sites who plan to use the new capability of long-symbol support, including its support in FORDDT.
- TOPS-20 sites with RMS applications who plan to use RMS from Fortran.
- TOPS-20 sites with an interest in accessing files over the network through Fortran and RMS to other TOPS-20 and VMS hosts.

To volunteer as a field test site, or to obtain information, please contact Dick Bruce, Fortran-10/20 Product Manager, at (617) 467-4352.

The following article is reprinted from the University of Western Ontario newsletter, Focus, by permission.

## You Can't Go Back or Who, What, When, Where, Why, and How did it happen?

Brent Sterner

It is May, 1983. I'm at home for the Victoria day holiday and painting the house. It is very warm on the roof. It doesn't take much convincing to get me down for a beer and to take the long distance phone call from Glen Miller, who is attending the DECUS Conference in St. Louis. I wonder what's wrong.

"I forgot you were at home. How is everyone?" Then, "DEC announced today that they have cancelled Jupiter." It some moments for it to sink in. "They said they couldn't make the delivery window. After long internal debate, they shut the project down." It starts to register. DEC is terminating the 36-bit processor line. The dream machine that sometimes created nightmares for me at work was reaching the end of the line. Motherhood. Apple Pie. How could Digital do this to me?

More small talk, but it doesn't register. I'm numbed. Crazy ideas cross my mind. DEC just sold us a 1091. Interim machine. We have two of these systems. What does this all mean...

### Chapter 1

November 1984. Lots of rumours, and a lot of water has passed under the bridge. We still have two DECsystem-10's, but it is clear that the 1090 can't meet demand during the day. The 1091 does fairly well for the Department of Computer Science (mostly), except when a big assignment is due.

The plan in the rumour calls for the 1090 to be withdrawn. Its users would migrate to the 1091, which has more capacity due primarily to its larger memory size. All of Computer Science would move to a new VAX 8600 system. It could happen overnight. After all, virtually all the faculty, staff, and students on the 1091 were baptized on one of the department's VAX systems. Most courses would require little effort to migrate. It could work, couldn't it? Gradually the rumours develop a skeletal plan. Time passes by. It is January, then February. By March '85, it is clear that it won't happen this term.

### Chapter 2

It is summertime. The rumours are back. Digital Equipment Corporation has been negotiating with UWO for several months, and has a solid proposal. As always seems to be the case, the proposal is too costly, and is being further negotiated. The time has come to begin serious planning for a VAX installation. And a 1090 removal. A lot of questions need to be addressed. Among them, where will this system be installed? It will be primarily for the use of Computer Science, so why not install it over there? Eventually, however, it will be used by the rest of our customer base. In September, the

decision is made. It will be wedged in the CCS machine room, between the 1091 system and the tape library wall. Floor space will be at a premium, but it will fit. The system is a simple cluster, so in the future more VAX systems will be able to connect to this one. The nodes (i.e. processors) in a cluster must all be relatively close to one another; that explains putting it in at CCS.

Another cluster, this time of people, will coordinate the VAX installation and the merging of the DECsystems. It appears that not quite everyone will move off the 1091 onto the VAX. This simple migration carpet is starting to develop wrinkles. The people are chosen and given broad areas of general responsibility:

John Wren - The cluster leader. The migration buck will stop here.

Dave Martin - The VMS expert on loan one day a week from Computer Science. His value will never be calculated.

Greg Harness - Operations Manager. He will be responsible for the machine room wiring, VAX component location, and all operational aspects of the project.

Ted Gauci - Hardware Specialist. He will coordinate the inevitable shuffle of communications lines among the systems.

Stephen Siblock - The new guy on the block. Steve will look after user software migration and magnetic tape problems. Eventually Steve will look after a lot more.

Brent Sterner - The old guy on the software block. He will coordinate the VAX/VMS software installation, eventually manage the VAX, and generally monitor the software implications of the project.

It is not long before the size of the software effort becomes clear, and another software specialist is added to the team. Peter Marshall has had significant experience with the TOPS-10 operating system, but more recently has been involved with communications software. This addition to the team allows for significant load balancing of responsibility. Peter will develop a habit of locating problem areas, thereby increasing the frustration level (and job security) of the entire project team.

A general timetable is determined. Digital has indicated that our new VAX will arrive in early October. Dave Martin will install accounts for the first batch of CS students by October 21. Brent will learn to be a VMS system manager and fight fires on his other systems. Greg, Stephen, and Brent will attend DECUS the week of December 9-13. The 1090 will be unplugged the week of December 16. As much work as is feasibly possible will be done in advance to reduce system disruption. In October and November, Digital will implement their level II system startup package, including system software installation, and four days of on-site system orientation (eventually split into 8 half days). In comparison to our DECsystem-10s, there does seem to be lots of software knowledge in the London branch office.

### Chapter 3

It is January 1986. Merran Neville has asked for a longish newsletter article for Focus. The suggested topic is The VAX installation and the merging of the 1090 and the 1091. Where are we now, anyway?

The 1090 has been packed and shipped to its new owner. The VAX 8600 system is fully installed, although there is no accounting system on it yet. (Unfortunately for our user base, usage information is being gathered, and bills will eventually be generated.)

There are still lots of problems outstanding, but these don't significantly interfere with day-to-day usage.

Getting here has been a bit of a roller coaster ride. Some incidents are interesting and entertaining.

### Hardware Installation

October 1985. Our VAX is expected to arrive this month. Part of the university Physical Plant department is on strike. It is possible that electricians might either strike in sympathy or refuse to cross a picket line, but neither occurs. Electrical cabling for the 8600 proceeds almost routinely.

In fact, the VAX installation is catching up to the electrician! The Digital field service representatives occasionally have to wait for power before plugging in a piece of hardware. When the power for the CPU arrives, it is one wire short, and an extra one needs to be added.

All things considered, the installation was one of the smoothest this author can remember. Newer technology is one factor; never has so little hardware (in terms of space) been acquired for our money. On the other hand, we've never before had so many horses under the saddle either.

### The Hair Trigger System Halter

The VAX system before has a special disk and tape controller called an HSC-50. It is a computer in its own right, and has a terminal attached (mostly for error logging). One day a Digital field service representative was changing the paper on this terminal when, without warning, the system went away. Fortunately, there are few accounts on the VAX this early after delivery. We discovered that if the HSC terminal runs out of paper the HSC software enters a debugging mode and peripherals under its control are no longer available to the system.

Before the obvious solution (tape down the out-of-paper switch) is implemented, it is determined that this feature can be disabled. It now has been.

### The CAI Software Solution

In September and October, Stephen pursued the possibility of installing Computer Assisted Instruction software on the VAX to assist users learning about the system. Dave had cautioned that past releases of the software ran only on VT100 terminals (and look-alikes). (CCS has very few VT100-type terminals; the majority on this campus are simple scrolling terminals with some cursor control.) Twice before ordering, Stephen verified with Digital that the software was rewritten to take advantage of foreign terminal support (new with the latest release of the operating system).

The software was ordered. The CCS Computing Courses brochure advertised the CAI courses to introduce users to the VAX. However, when the software arrived, it had not been rewritten.

We are still awaiting Digital's reply on this issue. In the interim, please accept our apologies for this confusion. We are investigating the possibility of installing more VT100 terminals in the user work area. Watch the VAX system for notices about CAI software.

### Merging TOPS-10 Disks - Part One

There are two tales to tell here. Part one involves the system disk. Before the upgrade, the 1090 had some 2300 files residing on it; the 1091 had 1500 files. Stephen

undertook the mammoth task of analysing all these files and porting them to the 1091. Lists of files were compiled and shipped to the Cyber system where the information was dumped into a database. Stephen got lucky. 1279 of these files were common between the systems. Then it was pointed out that while these files were common, they might not be identical. With some assistance from Peter and myself, they were separated into those which ought to be identical and those which probably ought not to be. The former were compared, and upgraded on the 1091 as necessary. (Running two identical systems inevitably introduces system skew, which explains this situation.) The latter were left alone; files directly relating to the 1090 only would never migrate to the 1091.

Of the remaining files, several hundred had not been accessed in a full year. These files were publicized, and several were rescued by users who indicated they were needed. The rest of the dated files were copied to tape but were never moved to the upgraded 1091.

Active files unique to each system were merged on the upgraded system. This ultimately led to a shortage of free space on that disk (the system likes to have about 70000 blocks available to it to accommodate such things as growth of certain files and storage of dumps following a system crash). Analysis of the structure indicated that 5% of the disk had been lost. (Disk space is lost if it is marked as in use, but it is not in any file. Thus the space cannot be recovered by normal techniques, such as deleting a file.)

Before this situation could be corrected, the system suffered a double crash, filling up the remaining space with dumps. The system could not reload itself at that point, and I got a phone call. Deleting the crash dumps solved the problem; the system disk has since been refreshed (an abnormal procedure to recover the lost space).

#### Merging TOPS-10 Disks - Part Two

If the system disk merge was massive, the merging of the public disks was potentially more so. The system disk is owned and operated by CCS so we knew (or should have known) what was there. But such knowledge is not possible with the public structure (DSKB:). There were other problems here as well. Digital owned two of the RP07 disks, and wanted them back. In all, five RP07 disks would have to merge into three. Further, some accounts existed on both systems, and there were no guarantees that files with the same names would be the same. In this case, which file should be installed on the upgraded 1091? It looked as if half of such files would be wrong regardless of the method used to make the decision.

The space problem did not seem serious. In November, analysis of disk usage indicated that three disks would be enough. As time passed, however, disk usage grew until a fit was impossible. Dave provided a list of courses which would be complete by December 18 (their files could be deleted). Still not enough. At the last moment, several CCS staff removed enough files to make the fit. There were only a few thousand blocks of free space on the public disk for the first day.

The original plan for migrating the disks was to simply uncable the 1091 disks, and recable the 1090 disks to the 1091. That would have been very time efficient. Unfortunately, one of the three 1090 disks had a history of causing trouble. So Digital and CCS jointly decided that one of the two 1091 disks would actually be retained in its place. This meant that on the day of the upgrade, all the public structure would require redefinition, and all files (1090 as well as 1091) would have to be restored from magnetic tape. This decision added about eight hours to the upgrade process, but a large part of that time would be after 6:00PM. It was felt that since the system was advertised to be down for a full day this was a mild inconvenience to our users.

The duplicate file problem (1090 vs 1091) was addressed by brute force. The 1091 system was smaller in terms of disk usage, and so it lost the battle. All 1090 files were restored to the 1091 as they had existed on the 1090. All 1091 files were restored into an alternate project instead of their real project. (Detail: the alternate project was the 1091 real proj plus 100000 octal. Since our site does not assign projects beyond five octal digits, all the alternate projects were unique. Since the programmer numbers were not changed, all files residing in an alternate project were owned by the real owner, allowing personal merging of files at the owner's convenience. All alternate-project files were removed from the system after one month of residency.)

There were a handful of objections, and they were dealt with individually. Overall, this operation went very well. The alternate-project concept is in fact available in the TOPS-10 BACKUP program, which allowed this solution with minimal manpower.

#### Hardware That Would Not Migrate

##### a) DC-10

The migration from the 1090 to the 1091 had two hardware hitches: a DC-10 and three 800 bpi tape drives. The 1090 system has for years offered RJE service to a Cyber system using locally developed software and DC-10 hardware. In fact, the DC-10 hardware originally was installed on a Digital PDP-10 KA processor. (It continues to amaze me that the software to drive the device still works, though I believe unsupported, so many years and operating system releases later.) After considerable debate (and promises by Digital that even if all the requisite hardware were available that it would be very expensive), we decided to purchase some DEC software known as IBMSPL/HASP. The order was placed and delivery was expected in time to allow evaluation and perhaps some modification to make it resemble the previous link.

It did not arrive on time. Investigation located the problem. Digital thought delivery was for October 30, not September 30. No problem, our sales representative would expedite delivery.

By mid-October, we were becoming more concerned. Further investigation revealed that the distribution centre for DEC software did not have this product and did not know when it would have a copy. Not to worry, a colleague at the University of Toronto might have the software. (I know they used to run it before they shut their DECsystem down.) I asked that it be sent to us through our local Digital offices. A week later it arrived. Peter spun the tape and announced that it wasn't the right one. Apparently IBMSPL comes in two flavours: 2780/3780 and HASP. We required HASP. The U. of T. software allowed some investigation into how IBMSPL behaves but no real testing was possible.

In November, a general SOS was sent to colleagues on BITNET explaining the dilemma. As a last resort, I also contacted Digital's Telephone Support Centre (TSC) in Colorado Springs. Clyde Smith answered the call; he and I had met at a previous DECUS symposium. We had developed a good rapport at the time, and he had previously sympathized with problems associated with a university environment. It seems that TSC didn't really support the product. He was optimistic, however, that he could pressure the inner workings of Digital to get us the software.

The following week, Clyde returned my call. Digital didn't really have a distribution tape, but most of the components were on a disk at TSC so a distribution tape was created and sent out. It arrived in early December, in time for some very preliminary testing before migration. Thank you, Clyde and Peter, for all the effort you expended to get the right IBMSPL installed at our site.

## b) TU70 Tapes

The workhorse TU70 tape drives, standard on the 1090 since it was purchased, also had a high migration price. The TU70 drives could read and write tapes at 800 bpi and 1600 bpi, but the units on the 1091 (TU78) read and wrote tapes at 1600 bpi and 6250 bpi. After the removal of the 1090, users with tapes written at 800 bpi could be in trouble.

This problem was addressed in two ways. First, system notices and a newsletter article warned everyone about the potential problem. Perhaps a dozen users came forward to have their tapes dumped and rewritten. Stephen provided assistance to all users of such tapes, and no known user tapes were outstanding when the 1090 was retired.

Unknown to most, an effort was also under way to use other facilities (specifically our Cyber system) to copy TOPS-10 tapes frame for frame to another tape density. The reason for the secrecy was to encourage as many conversions as possible in advance. Further, this process might not be failsafe in some peculiar instance. To date, the few tapes requiring this process have been copied successfully.

Not all TU70 tape problems have been resolved. An unofficial procedure on the 1090 allowed creation of magnetic tapes in a format suitable for generating microfiche at a remote site. The tape format used depended on the TU70 hardware, and is not available on the 1091. A future project is expected to determine a suitable alternate tape format for microfiche production.

### The TTY Shuffle

Virtually all terminal lines connecting to CCS systems pass through a Gandalf PACX port selector. The terminal shuffle associated with installing the VAX and removing the 1090 system was very clean. Since the systems all ran in parallel from October until December, 32 extra PACX ports were purchased. Some reduction of 1090 ports allowed 36 ports to be installed on the VAX prior to migration day.

When the cables to the 1090 were examined, it was discovered that they were only 25 feet long, and could not reach the VAX. Since new cables were required anyway, when the 1090 ports were eventually migrated to the VAX, 25 pair conductors were used to reduce clutter and improve air flow under the raised floor.

### VAX User Identification Codes (UICs)

One of my early tasks as the VAX manager was to learn enough about the system to automate installation of system accounts. The biggest problem encountered was the execution of a (relatively) important system task without fully understanding the system in question. Earlier it was pointed out that our projects consist of five octal digits and our programmer numbers of four. This lowest common denominator is embedded in an accounting database, and pervades all our large systems in one way or another.

The VMS concept of UIC is remarkably similar. There is no reason not to make the member (i.e. programmer) number for each user unique, and so that was done. The group numbers were assigned with care, and so the direct mapping [group,member] = [project,programmer] was made. Procedures were written to manipulate user accounts. The second test account to be added failed.

It turns out that there is a limit on VMS group numbers of 14 bits. CCS projects 40000 and up were not usable on the VAX. An attempt to abandon all projects in this range failed because the first two digits of the project often signify a department. Eventually, a

VMS software technique was implemented to map each UIC into a text string. Thus the format of each UIC is no longer bound by the original constraint. A secondary database maps projects to groups. A user of the CCS VAX system might now login as 65432.3344 with an apparent UIC which looks the same (i.e. [65432.3344]), but numerically it may in fact be [1046,3344]. To date, this has caused no problems.

### The Day The 1090 Was Unplugged

It would be short sighted of me not to talk about the day the DECsystem-10s merged. The memory is still very clear. The date is December 18, 1985, the Wednesday of the week following DECUS. By mutual agreement, Greg, Stephen, and I had agreed to sleep in Monday after travelling all day Sunday. (And the plane from Toronto was an hour and a half late, so we didn't see bed until about 2AM.)

I arrive at work after lunch on Monday and stay for a few hours. Tuesday I don't feel very well, and make the day another short one.

Wednesday, yes, it's the flu. I'm lying on my back in bed, having already decided to get up later and check out the migration after lunch, 9AM the phone rings. It is Terri van de Peer from operations. She reports that to reconstruct the disk structure from three RP07 disks won't work. Call waiting informs me of another call. This time it is my supervisor Gary Goddard. He is not aware that anything is wrong, which is good, but he is aware that the hardware shuffle is well under way and asks me to come in just to keep an eye on things. I would rather sleep until noon, but it looks like I cannot. I inform both Terri and Gary that I'll be in as soon as I up and eat something. Discretion prohibits me wearing a warning sign. Just warn everyone I meet.

At work, I determine that yes, Terri is right. The ONCE-only dialogue that should allow the building of a structure is choking on the last RP07. The software thinks it is part of some other structure. It was, but it surely isn't any more. I ask Joe Guerrero, the DEC maintenance engineer to clear the offending blocks on all three disks again, and silently wonder if all that asperin will do more than control flu symptoms. (I think it did; I have no memory of the headache I should have had that day.)

It is done. This time ONCE lets me build the disk structure. It is almost right. One more pass to make the crash file big enough for two megawords instead of 1.5 megawords. Time to start restoring user files to disk. That starts up just fine. We're only four hours behind schedule. I start up the restore of 1091 files to the alias disk area from a terminal in my office. With two restores running simultaneously, they are both on their knees. At 4:30 I leave supervision of the file restoration to Peter. (Some of Peter's best work is done after I go home. The system is in good hands.)

Thursday, the system is together! All the files apparently did fit onto those three volumes but there is not very much room to spare. I spend the morning freeing up as much space as I can, which is considerable. Happily, most of our users either didn't really expect the system to be available, or have left for Christmas. The system is running just fine. We don't have all the bells and whistles running (IBMSPL and remote printers aren't quite together yet), but for most of our users the system is there if they want it. There is still a lot to do but it seems to be down hill now.

### The Floor Tile Cover-up

Whenever any large system is removed, it leaves a big space. (In our case, a proposal to install a bowling alley was denied. Squash courts are still under consideration, however.) One of the places space is left is in the floor tiles of the raised floor. (Holes are cut in these tiles to accommodate cabling; the floor is raised to allow tidy cabling and to

assist air conditioning.)

Our local sales representative had called the previous week to let me know he had accepted a position in Toronto. Tom Ahlin was visiting (Friday but not the 13th) to introduce me to Doug French, his replacement. After a long talk in my office, a tour of our machine room was suggested (Doug was new to this sort of account and had never seen a VAX 8600). The tour went as planned until we paused at the HSC. (The HSC-50 is the disk controller for the VAX disks.) An idle side-step, and Doug ended up in the hole. (I must remember this for future generations of sales persons.) The hole has since been remedied; a pile of boxes cover it up.

Apparently we must be very short of floor tiles. If any of our readership has any un-cut floor tiles, we would be happy to make an exchange for pre-cut, pre-tested, antique, .....

**MUMPS**

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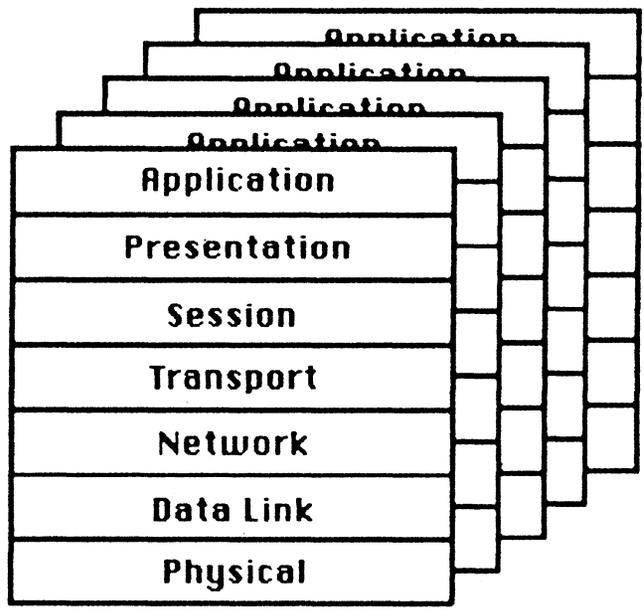
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The NETWORKS SIG Newsletter



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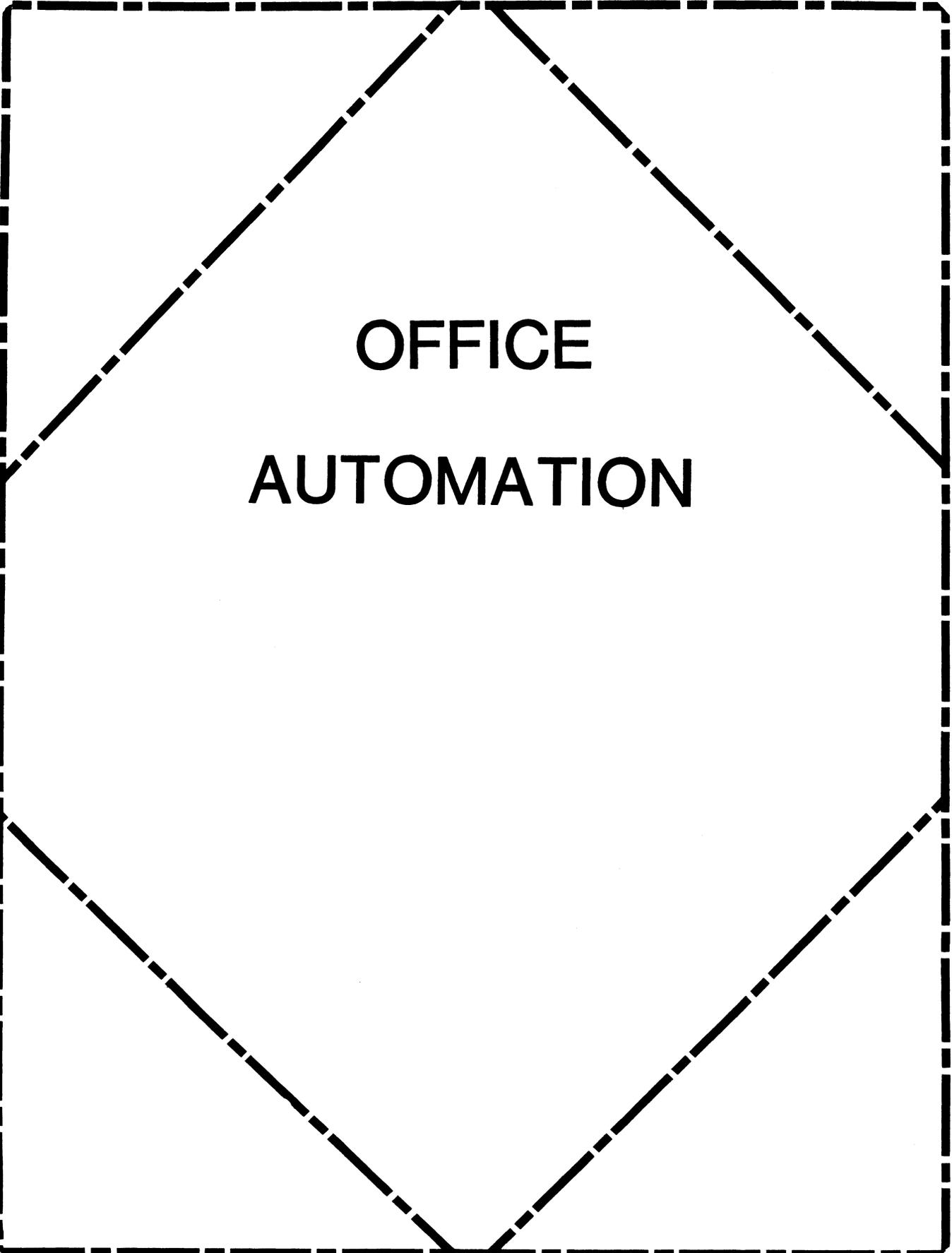
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The Networks Special Interest Group (SIG) is one of 25 SIG's within in Digital Equipment Computer User's Society (DECUS). The main purpose of the Networks SIG is to promulgate information concerning the use, development, and standardization of network products that function or involve Digital Equipment Corporation systems. Additional functions of the SIG include the coordination and scheduling of symposia sessions, providing methods for free-flow communications, publication of the Networks SIG newsletter NETWords, participation in domestic and international standards committees, input to Digital for new products and corrections to existing products, promotion of working groups for special network needs and topics, and many, many other functions.

The Networks SIG Steering Committee invites you to participate in the Networks SIG. There are many ways that you can help the Networks SIG. Some of those include chairing sessions at symposium, participation in the various Networks SIG working groups, participation in special research projects, and others. If you are interested in devoting your time and expertise, contact any of the steering committee members.

DECUS is run entirely by volunteer leadership. Help us make DECUS and the Networks SIG better - take an active part in **your** SIG!



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October's edition of the OA newsletter is another mixed bag of goodies. Ray Kaplan starts things off with the "Third Semiannual Hack-A-Ramma" announcement, highlighting a true "Hacker's" session being held as part of the All-In-1 sessions in San Francisco. For those of you who exist in two worlds (computer that is) we have an excellent article on sending Electronic Mail from A-1 to IBM MVS. If any of you have any comments or additional ideas/methods for doing this, we would be interested in hearing from you.

Finally, we have a technical article about WPS-PLUS and the External Applications Link (XAL) which was passed along to us by our Library coordinator, Bob Hassinger.

I hope that you find this issue interesting and informative. For those of you who will be attending and participating in the Fall Symposium this month, I would like to hear from you on two points:

- 1) What was the most useful thing you learned at the Symposium? Did you pick up information which helped solve a problem that you were dealing with on your own system(s)? Etc.
- 2) How would you approach your manager to justify attending future Symposiums? Or, how do you currently do it?

This information will be used to compile the next "Justification" package which will be published prior to the Spring Symposium in Nashville. Your input is important! (Note: If you do not wish to have your comments published please note that in the letter.)

As always, thank you for your articles, letters and phone calls. It is your continued participation and support that makes our newsletter and interesting forum for ideas and information.

Regards,



Therese LeBlanc  
275 London Place  
Wheeling, IL 60090  
(312) 459-1784

Announcing  
the  
Third Semiannual  
ALL-IN-1  
HACK-A-RAMMA!

by  
Ray Kaplan  
Pivotal, Inc.  
Tucson, Arizona 85715

Ahem! COME ONE, COME ALL (he said with his best "carnival bark" on)!

HACK-A-RAMMA? What, pray tell, is a HACK-A-RAMMA? Well, just what it says that it is. A bunch of folks that get together and share their favorite ALL-IN-1 Hacks with each other. Since ALL-IN-1 is such a rich programming environment and has so many "less than well understood" ways of doing things, it lends itself well to a public forum in which we can "share the wealth" of each other's ALL-IN-1 programming experience.

After two successful "informal" HACK-O-RAMMAS at Birds of Feather (BOF) sessions at recent DECUS Symposia (Anaheim and Dallas), we are going to try to "institutionalize" it. Mitch Brown, our able-bodied OA SIG Symposium person, has scheduled the ALL-IN-1 Hack-A-Ramma as a regular Symposia session for the San Francisco Symposium coming up the week of October 6th. Come on over to Section J of the Moscone Center at 5:00 on Tuesday October 7, 1986 for a little ALL-IN-1 hacking.

We are going to try to have access to an ALL-IN-1 system and a "big screen" video projector so everyone can literally see what the heck their fellow ALL-IN-1 programmers are trying to show.

ALL-IN-1 hacks of all kinds (folks from the DEC side and from the Customer side) are hereby invited to participate in the HACK-A-RAMMA. All that is required is that you come prepared to "show off" your favorite ALL-IN-1 or ALL-IN-1 related VAX/VMS "hack", "ALL-IN-lism", or interesting "ALL-IN-1 thingie". We certainly won't put anyone on the spot, so if you want to come do a "chalk talk", "slide talk", or a talk based on standard overheads, we won't complain! Come show us what you found out about how to "do ALL-IN-1"!

In the event that you want to have us load your favorite ALL-IN-1 "hack" onto the demo system that we will be using in advance of the session, please send it to me BEFORE September 30, 1986 so that I will have time to get it transferred to some common media for transport to the symposium. Please send a TK50, standard magnetic tape, 5 1/4 or 8" floppies. While I prefer VAX/VMS backup format, anything that a VAX can deal with is fine by me. Please send your contribution to me at the above address, using some sort of reusable shipping container so that I can return your media to you.

In the event that you want something produced as a "hand out" for your presentation, please send it along as soon as you can and I will see that it gets reproduced in sufficient numbers for the audience.

See you at the Symposium. In the mean time, Happy HACKING!!

SENDING MAIL TO IBM MVS USING ALL-IN-ONE

by: David Statum / Boeing

HARDWARE REQUIREMENTS:

- o VAX 11/780 class machine running VAX/VMS 4.0 or above
- o IBM mainframe running MVS
- o DECNET/SNA Gateway

Software Requirements:

- o ALLIN1 Version 2.0 or above (VAX)
- o Profs Any version (IBM)
- o DECNET/SNA Gateway RJE (Remote Job Entry) Software

The first thing the user needs to do is get in the ALLIN1 system account and go to the SM menu and select the PROFILE option. Then choose the C option to create a new profile. Next enter the CU option, When the PROFILE Menu appears enter IBM in the ALLIN1 username field (i.e. the first field in the PROFILE menu). Leave all the other fields blank or at their default settings until you get to the MAIL DESTINATION field. change this from ALLIN1 to IBM. Then press RETURN to keep the profile. The user should now have the first part of getting a mail message to the MVS IBM system complete.

Second copy my IBM.COM into the DA#LIB directory as this is where the ALLIN1 system is going to look for it. Set WORLD READ PRIVILEGES ON IBM.COM. Look in the ibm.com file to where the IBM code is generated to send a file to the MVS IBM reader queue. You will need to get your ibm people to give you the code necessary to get this to work on your system, as my account number, bin, and name probably will not work on your IBM system. You will need to change that part of the IBM.COM file. The only other thing you might have to add is trailing IBM JCL. On my IBM system we dont have to append anything after the file. For Example what my code does is:

```

-----
!   IBM ROUTER JCL
!
!   (Appended to )-----
!
!   Allin1 Mail Message
!
-----

```

The user might need trailing IBM JCL so you will have to create a another file in the same fashion that I created the IBM JCL file. and append it to the file that I call "name". Once you have replaced then IBM JCL that my program creates with your system's JCL, you will be ready to give the ALLIN1 to IBM Electronic Mail a try.

First make sure the Gateway is up as one major flaw of my program is that I do no error checking on the SNA Gateway Status. Second make sure that the ibm userid you are sending the message is valid. third make sure your account is big enough to hold whatever message you are going to send. The following is an example of the procedure a user would go through to use the ALLIN1 to IBM mail routine:

ON THE VAX SIDE:

```

Allin1           ! initailize ALLIN1
EM               ! GO TO ELECTRONIC MAIL MENU
C               ! CREATE A MAIL MESSAGE
TO: IBM_DS6230   ! IN RESPONSE TO "TO:" OR "CC:"
TO: IBM_ADXSA02   YOU CAN SEND MESSAGES TO IBM AND
ALLIN1
CC: STATUM      ! USERS AT THE SAME TIME
CC: IBM_EG6230
SUBJECT: THIS IS A TEST OF ALLIN1 TO IBM READER QUEUE
            TRANSFER

```

TYPE IN YOUR MESSAGE  
CNTRL/Z  
EXIT

```

S               ! SEND THE MESSAGE TO THE IBM

                GIVE THE BATCH JOBS A FEW MINUTES TO
                DO THEIR THING THEN GET ON THE IBM

```

ON THE IBM SIDE

GET ON ONE OF THE IBM ACCOUNTS THAT YOU SENT A MAIL MESSAGE AND:

```

PROFS           ! INITAILIZE PROFS
PF2             ! OPEN MAIL
PF12           ! EXIT PROFS NOTES FACILITY
DO YOU WANT TO PROCESS NOTES FROM OTHER THAN PROFS (Y,N)
Y               ! ANSWER YES

```

YOUR NOTE FROM THE VAX SHOULD NOW BE SITTING IN FRONT OF YOU GOOD LUCK AND ANYTHING I CAN HELP WITH GIVE ME A BUZZ.

DAVID STATUM  
BOEING COMPUTER SUPPORT SVCS.  
P.O. Box 5128, Ardmore Station  
Huntsville, AL 35814-5128

```

#!
#!
#! ibm.com written by David Statum
#! most of this code is stolen from the
#! vaxmail.com written by DEC and kept
#! in oa$lib.
#! Boeing Computer Support Services
#! P.O. BOX 5128
#! ARDMORE STATION
#! HUNTSVILLE ALABAMA 35814-5128
#! 205-544-3098
#!
#! for allin1 v2.0
#! 5/29/86
#!
#! suppress any error messages
#!
$SET MESSAGE/NOFACILITY
$SET MESSAGE/NOID
$SET MESSAGE/NOTEXT
$SET MESSAGE/NOEVER
$SET MESSAGE/DELETE
$SET NOON
#!set verify
#! Electronic Mail Subsystem
#! Deliver mail to the "VAXMAIL" destination
#!
#! ASSIGN/USER NLA0: SYS#OUTPUT
#! ASSIGN/USER NLA0: SYS#ERROR
#! ON WARNING THEN GOTO NOT_SENT
#! ORIG_DIR := 'F#DIRECTORY()'
#! MY_NODE := 'F#LOGICAL("SYS#NODE")'
#!
$ UNDERLINE_LOOP:
$ IF "'F#EXTRACT(0,1,MY_NODE)'" .NES. "-" -
THEN GOTO SETUP_PARAM
$ MY_NODE := 'F#EXTRACT(1,99,MY_NODE)'
$ GOTO UNDERLINE_LOOP
$
$ SETUP_PARAM:
$ WRITE DAMAILBOX "OA GET PROFIL.DIRECT[OA#USER]"
$ @DCLMAILBOX:
$ HOME_DIR := "'RESULT'"
$ WRITE DAMAILBOX "OA GET #MAILSUBJ"
$ @DCLMAILBOX:
$ SUBJ := "'RESULT'"
$ WRITE DAMAILBOX "OA GET #MAILFILE"
$ @DCLMAILBOX:
$ FILE := 'RESULT'
$ WRITE DAMAILBOX "OA GET #MAILNODE"
$ @DCLMAILBOX:
$ NODE := 'RESULT'
$ IF NODE .EQS. "" THEN GOTO SEND_IT
$ IF 'F#LOCATE(":",NODE) .EQ. 'F#LENGTH(NODE) -
THEN NODE := 'NODE'::

```

```

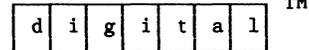
$ IF "'MY_NODE'" .EQS. "'NODE'" THEN NODE := ""
$ WRITE DAMAILBOX "OA GET OA#STATUS=""1""
$ @DCLMAILBOX:
$
$ SEND_IT:
$ WRITE DAMAILBOX "OA GET #MAILADDR"
$ @DCLMAILBOX:
$!
$! WHEN USER WANTS TO SEND A MAIL MESSAGE TO THE IBM HE WILL
$! TYPE IN EM C AND THE MAILING ADDRESS FORM WILL APPEAR
$! WHEN IT ASKS TO: OR CC:, REPLY IN THE FOLLOWING MANNER:
$!
$! IBM_VALIDIBMUSERID
$!
$! FOR EXAMPLE MY IBMUSERID IS DS6230 SO IF I WANTED TO SEND
$! MYSELF A MESSAGE FROM ALLIN1 TO THE IBM, I WOULD TYPE IN
$! IBM_DS6230 AT THE "TO:" OR "CC:" PROMPT.
$!
$! ALLIN1 AUTOMATICALLY STRIPS OFF THE IBM AND LEAVES _DS6230
$! IN VARIABLE "RESULT"
$! SO I STRIP OUT THE _ FROM THE FILENAME LEAVING DS6230 IN
$! VARIABLE "FILENAME"
$!
$ FILENAME = "'result'" - "-"
$ ASSIGN/USER NLA0: SYS#OUTPUT
$ ASSIGN/USER NLA0: SYS#ERROR
$ SET DEFAULT 'HOME_DIR'
$! I AM CREATING A UNIQUE FILENAME FOR EVERY MAIL ADDRESS
$! IF YOU CAN THINK OF A BETTER WAY OF CREATING A UNIQUE
$! NAME PLS WRITE TO ME OR PHONE ME AND I WILL PASS IT ALONG
$!
$CONTEXT = ""
$context = F$time()
$unique = "'CONTEXT'" - "1986 "
$UNIQUE = "'UNIQUE'" - "-"
$UNIQUE = "'UNIQUE'" - "-"
$UNIQUE = "'UNIQUE'" - ":"
$UNIQUE = "'UNIQUE'" - ":"
$UNIQUE = "'UNIQUE'" - "."
$UNIQUE = "'UNIQUE'" - "1"
$UNIQUE = "'UNIQUE'" - "2"
$UNIQUE = "'UNIQUE'" - "3"
$UNIQUE = "'UNIQUE'" - "JAN"
$UNIQUE = "'UNIQUE'" - "FEB"
$UNIQUE = "'UNIQUE'" - "MAR"
$UNIQUE = "'UNIQUE'" - "APR"
$UNIQUE = "'UNIQUE'" - "MAY"
$UNIQUE = "'UNIQUE'" - "JUN"
$UNIQUE = "'UNIQUE'" - "JUL"
$UNIQUE = "'UNIQUE'" - "AUG"
$UNIQUE = "'UNIQUE'" - "SEP"
$UNIQUE = "'UNIQUE'" - "OCT"
$UNIQUE = "'UNIQUE'" - "NOV"

```

```

$UNIQUE = "'UNIQUE' - "DEC"
$!
$NAME = "'UNIQUE' + ".COM"
$!
$!
$!  I M P O R T A N T  N O T E  ! $
$!                               ! $
$!  TO SEND A DYNAMICALLY CREATED FILE THROUGH THE SNA GATEWAY
$!  IT MUST BE CREATED IN THE MANNER BELOW OR IT WILL NOT WORK.
$!
#create 'NAME'
$OPEN/append OUTFILE 'NAME'
$!
$!  HERE IS WHERE YOU WILL NEED YOUR IBM PEOPLES HELP
$!  THIS IS WHERE YOU PUT THE IBM JCL THAT ROUTES THE ALLIN1
$!  MAIL MESSAGE TO THE IBM READER QUEUE
$!  I IN NO WAY AM AN IBM EXPERT AND CAN NOT TELL YOU WHAT TO PUT
$!  HERE BUT ANY IBM MVS PERSON SHOULD BE ABLE TO HELP YOU
$!
$write outfile "//THSNAVAX JOB (2AH070825JIB,A00),STATUM,MSGCLASS=E,
$write outfile "//          CLASS=B,PERFORM=7 TYPRUN=HOLD"
$WRITE OUTFILE "/*LOGONID SAIVX1"
$WRITE OUTFILE "/*XMIT SSPSYSA.'FILENAME'"
$CLOSE OUTFILE
$!
$!  APPEND THE MAIL MESSAGE TO THE IBM JCL
$!
$APPEND 'file' 'NAME'
$!  CREATE A COM FILE TO LAUNCH SNA COMFILE
$!
$OPEN/WRITE OUTFILE Q#Q#Q#.QQQ
$WRITE OUTFILE "$SET DEFAULT 'HOME_DIR'"
$WRITE OUTFILE "$SET PROT=(S:REWD,O:REWD,G:REWD,W:RWDE) 'NAME'"
$WRITE OUTFILE "$SUBMIT/NOLOG/SNA 'NAME'"
$!  YOU MUST HAVE A TIME DELAY AFTER YOU SUBMIT/NOLOG A FILE
$!  TO SNA BEFORE YOU DELETE THE FILE BECAUSE IT TAKES A
$!  MINUTE OR TWO FOR THE SNA READER QUE TO INITIALIZE PROPERLY
$!
$WRITE OUTFILE "$WAIT 00:01:30"
$WRITE OUTFILE "$DELETE 'NAME';"
$WRITE OUTFILE "$DEL Q#Q#Q#.QQQ;"
$WRITE OUTFILE "$EXIT"
$CLOSE OUTFILE
$ASSIGN/USER NLA0: SYS$OUTPUT
$ASSIGN/USER NLA0: SYS$ERROR
$SUBMIT/NOLOG Q#Q#Q#.QQQ
$  SET DEFAULT 'ORIG_DIR
$  set noverify
$SET MESSAGE/FACILITY
$SET MESSAGE/ID
$SET MESSAGE/TEXT
$SET MESSAGE/SEVER
$SET MESSAGE/NODELETE
$  EXIT

```



TM

**EXTERNAL APPLICATION LINK (XAL)**

For WPS-PLUS/VMS V2.0 Advanced Users

Introduction and General Description

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5. Editing a Spreadsheet and Obtaining Its Results (INTERACT.COM)
6. Obtaining the output from a DATATRIEVE Run (DTR.COM)
7. Incorporating VMS Mail Into a Document (MAIL.COM)

WHAT IS THE EXTERNAL APPLICATION LINK?

The External Application Link (XAL) is an advanced feature of WPS-PLUS/VMS V2.0 for users familiar with VAX/VMS command files.

This feature allows a user to execute a VMS command file by entering a keystroke from within the WPS-PLUS editor. For example, a user can use XAL to access spreadsheet software or incorporate information from a VMS data base into a WPS-PLUS document.

ABOUT THIS DOCUMENT

This document is for technically oriented VAX/VMS users, such as system programmers and software support specialists, who want to access VMS command files from within the WPS-PLUS editor.

This document provides an introduction and general description of the XAL feature. It is not a user's guide. Technically oriented VAX/VMS users can use this document to set up VMS command files similiar to the ones supplied in this document, and learn how to use XAL to run other command files on their system.

If XAL can benefit average WPS-PLUS/VMS users on a particular system, the system manager or software support specialist should supply users with additional, specific instructions on how XAL is used on their particular VAX/VMS system.

An average WPS-PLUS/VMS user is a word processing user who is not familiar with the VMS operating system or with programming skills. In this document, the term "user" refers to the average WPS-PLUS user.

**DESCRIPTION**

With XAL, users can execute a previously defined VMS command file (in a subprocess) by entering a series of keystrokes within the WPS-PLUS Editor.

For example, once you set up an XAL control block in the WPS-PLUS Editor, you can run a command file in a user's [.WPSPLUS] directory without leaving the editor.

The steps to using XAL are as follows:

- 1 The system manager, system programmer, or software support specialist must set up the necessary command file and make it available to the user. See the section THE COMMAND FILE.
- 2 The system manager, system programmer, or software support specialist must write an XAL control block for the user, and make it available to the user. See the section USER INTERFACE.
- 3 The WPS-PLUS user, using information other than this document and supplied by the programmer, must place the cursor over the XAL control block and press CTRL/D to start the XAL procedure. See the section USER INTERFACE for more information.

**THE COMMAND FILE****Command File Limitations**

Before you can set up command files to be used by XAL, you must be aware of the limitations of XAL. The following limitations apply to the command procedures you use:

- o The command procedure may execute whatever commands the subprocess is capable of supporting, subject to the same restrictions.
- o The command procedure MUST terminate with the output of the application in a known ASCII file in the subprocess. In XAL, this ASCII file is called TEMP.TMP. See the section Temp.tmp.
- o The command procedure MUST signal that it has completed successfully by setting a status variable, and it must signal this only after it has successfully completed the application and is about to terminate and return control to the calling process.
- o The new data will be brought into or replace existing data, if any, in the editor (using a modification of existing GOLD GET code) ONLY after this successful completion status has been checked by the editor.
- o If the command procedure does not complete successfully (or fails to signal successful completion), no data will be brought in, and no existing data will be replaced.
- o The user MUST maintain the correspondence between the parameters required by the command file and the parameters specified in the document.

**Parameters**

Passing of parameters to and from the subprocess is accomplished using the mailbox facility (see example below). The maximum number of parameters is limited to the number of temporary variables the user can currently create.

**Temp.tmp**

All results to be passed back to the current document MUST be placed in an ASCII text file named TEMP.TMP in the current directory. The results are then moved from TEMP.TMP into the WPS-PLUS Editor. If the results are not placed there, an error will be signalled.

Once WPS-PLUS completes the XAL process, the TEMP.TMP file is deleted.

**USER INTERFACE****Initialization**

To use XAL, the user presses CTRL/D and the following control structure will appear on the screen:

```
[-----START EXTERNAL APPLICATION-----]
-----START CONTROL-----
-----END CONTROL-----
[-----END EXTERNAL APPLICATION-----]
```

This is the XAL Control Block.

The system programmer or software support specialist should write the XAL control block and pass it on to the user. However, the user may enter or edit data in the control block if necessary.

NOTE: If a user inadvertently presses CTRL/D, use a RUB or DEL function to delete the control block.

XAL control blocks are subject to the following constraints:

- o **Command File Name.** The first parameter in the XAL control block must be the name of the command file that contains the external application. It must be prefaced by a dollar sign (\$). Highlighting, such as bolding or underlining, can be used in the XAL control block.
- o **Parameters.** Optional parameters are passed in one of two ways:
  - On the same line as the command file name, as in a normal DCL command file call (and subject to a limit of only nine parameters), or
  - One per line on the lines following the command file name. Leading and trailing spaces are not significant (they are stripped), but embedded spaces are significant. A line containing only spaces or carriage returns will not be passed to the subprocess.

**Activation**

To start an XAL application, the user must position the cursor on the first character of the XAL control block marker. This character is the bracket, [, in the START EXTERNAL APPLICATION marker.

If the user presses CTRL D at any other position, WPS-PLUS will display another XAL control block on the screen.

NOTE: If the user inadvertently presses CTRL/D, normal DEL or RUB functions will delete the control block.

**Execution**

During XAL execution the user will be notified that the application is in progress.

NOTE: Messages may appear on the screen as a result of the currently executing command file. These messages are beyond the capability of the editor to control once the XAL subprocess has started.

**Termination**

After execution, success/failure will be determined from:

- o The internal application status in the temporary variable #WPS\_STATUS, and
- o The ALL-IN-1 supplied status.

Error messages are displayed with the press-any-key-to-continue message so users can read them. Subsequently, the in-progress transition message will be removed, and the screen will be refreshed (to clean up any leftover display from the subprocess).

Replacement of existing data will only take place if the internal application status is successful. The cursor will then be positioned at the bottom of the XAL block.

**SAMPLE XAL CONTROL BLOCKS AND COMMAND FILES**

The rest of this document consists of examples of XAL control blocks and VMS command files. Here is a list of the examples in this document. The suggested name of the command file is in parentheses.

These examples must be printed on paper wide enough to accomodate a left margin setting of 0 and a right margin setting of 80.

- Example 1        Sample command file descriptive header.
- Example 2        Writing to an ASCII file, for subsequent inclusion in the editor (EXTERNAL.COM).
- Example 3        Invoking the command procedure with a DCL-like call (CMDLINE.COM).
- Example 4        Reading in an ASCII file of stock quotes (QUOTES.COM).
- Example 5        Interactivley editing a spreadsheet, and obtaining it's results (INTERACT.COM).
- Example 6        Obtaining the output from a DATATRIEVE run (DTR.COM).
- Example 7        Incorporating VMS mail into a document (MAIL.COM).-----
- 

**EXAMPLE 1****Standard Descriptive Header For Xal Command Files**

The following is the standard command file header you should use for each XAL command file. This header, or one similar to it, should be included at the top of each XAL command file.

```

COMMAND FILE:
$ !+
$ ! ABSTRACT:
$ !
$ ! This command file is used to start up from within the WPS-PLUS editor
$ ! an external application. The application will place it's ASCII output in
a $ ! specified file for subsequent inclusion in the document when this
procedure
$ ! has completed.
$ !
$ ! PRECONDITIONS:
$ !
$ ! The user has elected to perform an external application while in the
$ ! WPS-PLUS editor, and has created or changed a control block of type
$ ! 'EXTERNAL APPLICATION LINK'. The control block contains user editable
$ ! parameters according to the following conventions:
$ !
$ ! parameter 1:  MANDATORY.  An application identifier conforming to VMS
$ !                  filenaming conventions ( it will prefix the
$ !                  '.com' extension to invoke this command
$ !                  procedure ).
$ !
$ ! parameters 2.. OPTIONAL.  Other input parameters to this procedure, as
$ !                  required. These fields either follow field 1
$ !                  on the same line (maximum of 8), or follow on
$ !                  subsequent line (maximum of greater than 8).
$ !
$ ! After modifying the parameters as required/desired, the user may then call
$ ! the external function by using the proper sequence.
$ !
$ ! All fields to be passed to this com file will be placed in the AIO
$ ! variables #WPS_PARAM1, #WPS_PARAM2, ....
$ !
$ ! Subsequently, a call to start up this command procedure will be issued
$ ! by the editor.
$ !
$ !
$ ! PROCESSING:
$ !
$ ! On entry to this command procedure, communication between the parameters
$ ! passed to it and the standard internal command procedure variables p1
$ ! through p9 will be done using the mailbox. A typical sequence is as
follows:

```

External Application Link

```

$ !
$ ! $ GETPARM:
$ ! $ WRITE OAMAILBOX "OA GET #WPS_param1"
$ ! $ @DCLMAILBOX
$ ! $ P1 := 'RESULT' --or--
$ ! $ P1 = "'RESULT'" --or--
$ ! $ P1 = RESULT
$ !
$ ! Actual processing will be dependant on the task; however, the user
$ ! should preface each action that could possibly fail with a preset error
$ ! message which identifies the area, so that the error handler can be
$ ! specific (see below).
$ !
$ ! TERMINATION:
$ !
$ ! Successful completion:
$ !
$ ! When the procedure has successfully completed, it MUST
$ ! flag this by writing a success status of 1 to the known
$ ! status variable, using the mailbox as follows:
$ !
$ ! $ SUCCESS:
$ ! $ WRITE OAMAILBOX "OA GET #WPS_STATUS = 1"
$ ! $ @DCLMAILBOX
$ ! $ GOTO FINISH
$ !
$ ! NOTE: writing to the mailbox should be the last thing done before $
$ ! entering the exit section.
$ !
$ ! Failure completion:
$ !
$ ! Prior to entering any section of the procedure that may
$ ! cause failure, the user should set a local variable with
$ ! a preset message, so that it can let the user know where
$ ! the error occurred. Assuming that the local variable used
$ ! is called 'preset_msg', then a sample error handler
$ !
$ ! $ ERROR:
$ ! $ WRITE OAMAILBOX "OA DISPLAY -"
$ ! $ @DCLMAILBOX
$ ! $ WRITE SYS$OUTPUT "error ''preset_msg'"
$ ! $ WRITE OAMAILBOX "OA WAIT"
$ ! $ @DCLMAILBOX:
$ !
$ ! Exit handling follows success or error termination processing, and
$ ! resets the environment, as follows:
$ !
$ ! $ FINISH:
$ ! $ SET MESSAGE/SEVERITY/IDENTIFICATION/TEXT/FACILITY
$ ! $ SET NOVERIFY
$ ! $ EXIT
$ !-

```

External Application Link

EXAMPLE 2

Writing To an ASCII File For Subsequent Inclusion In the Editor  
(EXTERNAL.COM)

EDITOR INPUT:

```

[-----START EXTERNAL APPLICATION-----]
[-----START CONTROL-----]
!
! Output to an ASCII file example
!
! $external
! dummy parameter 1
! -----END CONTROL-----
[-----END EXTERNAL APPLICATION-----]

```

COMMAND FILE:

```

$ SET NOVERIFY
$ SET MESSAGE/NOSEVERITY/NOIDENTIFICATION/NOTEXT/NOFACILITY
$ ON WARNING THEN GOTO ERROR
$ preset_msg = ""
$ !
$ !-----
$ ! Acquire the input parameters.
$ !-----
$ !
$ preset_msg = "reading parameter 1"
$ WRITE OAMAILBOX "OA GET #WPS_param1"
$ @DCLMAILBOX
$ p1 = RESULT
$ IF p1 .EQS. "" THEN GOTO error
$ !
$ !-----
$ ! Begin the actual processing.
$ !-----
$ !
$ preset_msg = "opening output file"
$ OPEN/WRITE TEMPFILE temp.tmp
$ preset_msg = "writing to output file"
$ WRITE TEMPFILE
$ *****
$ WRITE TEMPFILE "*"
$ *
$ WRITE TEMPFILE "*" output generated : ''F$TIME()' *
$ WRITE TEMPFILE "*" input parameter 1 : ''p1' *
$ WRITE TEMPFILE "*"
$ *
$ WRITE TEMPFILE
$ *****

```

External Application Link

```

$ preset_msg = "closing to output file"
$   CL0SE      TEMPPFILE
$ !
$ !-----
$ ! Signal success here.
$ !-----
$ !
$ SUCCESS:
$   WRITE OAMAILBOX "OA GET #WPS_status = 1"
$   @DCLMAILBOX
$     GOTO FINISH
$ !
$ !-----
$ ! Error handling occurs here.
$ !-----
$ !
$ ERROR:
$   WRITE OAMAILBOX "OA DISPLAY -"
$   @DCLMAILBOX
$   WRITE SYS$OUTPUT "error ''preset_msg'"
$   WRITE OAMAILBOX "OA WAIT"
$   @DCLMAILBOX:
$ !
$ !-----
$ ! Exit handling is placed here.
$ !-----
$ !
$ FINISH:
$   SET MESSAGE/SEVERITY/IDENTIFICATION/TEXT/FACILITY
$   SET NOVERIFY
$   EXIT

```

RESULTS:

```

[-----START EXTERNAL APPLICATION-----]
-----START CONTROL-----
!
!   Output to an ASCII file example
!
$external
dummy parameter 1
-----END CONTROL-----
*****
*                               *
*   output generated : 10-APR-1985 12:52:52.99 *
*   input parameter 1 : dummy parameter 1      *
*                               *
*****
[-----END EXTERNAL APPLICATION-----]

```

External Application Link

EXAMPLE 3

Invoking the Command Procedure With a DCL-Like Call (CMDLINE.COM)

This example has been included since it illustrates how an existing command file used in DCL can be used as an external application with little change. The limitations here are that only eight (8) arguments are passable, since the output designator takes the place of one. If the user is directing output to SYS\$OUTPUT then in most cases this is the way to run the com file using XAL.

EDITOR INPUT:

```

[-----START EXTERNAL APPLICATION-----]
-----START CONTROL-----
!
!   Command line I/F in a more traditional manner
!
$cmdline /OUTPUT=TEMP.TMP arg1 arg2 arg3 arg4
-----END CONTROL-----
[-----END EXTERNAL APPLICATION-----]

```

THE COMMAND FILE

```

$ SET NOVERIFY
$ SET MESSAGE/NOSEVERITY/NOIDENTIFICATION/NOTEXT/NOFACILITY
$ ON WARNING THEN GOTO ERROR
$ preset_msg = ""
$ !
$ !-----
$ ! Begin the actual processing.
$ !-----
$ !
$   WRITE SYS$OUTPUT " output generated : ''F$TIME()'"
$   WRITE SYS$OUTPUT " input parameter 1 : ''p1'"
$   WRITE SYS$OUTPUT " input parameter 2 : ''p2'"
$   WRITE SYS$OUTPUT " input parameter 3 : ''p3'"
$   WRITE SYS$OUTPUT " input parameter 4 : ''p4'"
$ !
$ !-----
$ ! Signal success here.
$ !-----
$ !
$ SUCCESS:
$   WRITE OAMAILBOX "OA GET #WPS_status = 1"
$   @DCLMAILBOX
$     GOTO FINISH
$ !
$ !-----
$ ! Error handling occurs here.
$ !-----
$ !

```

External Application Link

```

$ ERROR:
$ WRITE OAMAILBOX "OA DISPLAY -"
$ @DCLMAILBOX
$ WRITE SYS$OUTPUT "error ''preset_msg'"
$ WRITE OAMAILBOX "OA WAIT"
$ @DCLMAILBOX:
$ !
$ !-----
$ ! Exit handling is placed here.
$ !-----
$ !
$ FINISH:
$ SET MESSAGE/SEVERITY/IDENTIFICATION/TEXT/FACILITY
$ SET NOVERIFY
$ EXIT

```

RESULT:

```

[-----START EXTERNAL APPLICATION-----]
-----START CONTROL-----
!
! Command line I/F in a more traditional manner
!
$cmdline /OUTPUT=TEMP.TMP arg1 arg2 arg3 arg4
-----END CONTROL-----
output generated : 10-APR-1985 12:53:05.85
input parameter 1 : ARG1
input parameter 2 : ARG2
input parameter 3 : ARG3
input parameter 4 : ARG4
[-----END EXTERNAL APPLICATION-----]

```

External Application Link

EXAMPLE 4

Reading In an ASCII File of Stock Quotes (QUOTES.COM)

EDITOR INPUT:

```

[-----START EXTERNAL APPLICATION-----]
-----START CONTROL-----
!
! Digital stock quote history
!
$QUOTES
-----END CONTROL-----
[-----END EXTERNAL APPLICATION-----]

```

COMMAND FILE:

```

$ SET NOVERIFY
$ SET MESSAGE/NOSEVERITY/NOIDENTIFICATION/NOTEXT/NOFACILITY
$ ON WARNING THEN GOTO ERROR
$ !
$ !-----
$ ! Begin the actual processing (NOTE: no parameters needed).
$ !-----
$ !
$ preset msg = "copying to output file"
$ COPY ZEKE"::DBA1:[LIBRARY]QUOTE.LIS temp.tmp
$ !
$ !-----
$ ! Signal success here.
$ !-----
$ !
$ SUCCESS:
$ WRITE OAMAILBOX "OA GET #WPS_status = 1"
$ @DCLMAILBOX
$ GOTO FINISH
$ !
$ !-----
$ ! Error handling occurs here.
$ !-----
$ !
$ ERROR:
$ WRITE OAMAILBOX "OA DISPLAY -"
$ @DCLMAILBOX
$ WRITE SYS$OUTPUT "error ''preset_msg'"
$ WRITE OAMAILBOX "OA WAIT"
$ @DCLMAILBOX:
$ !
$ !-----
$ ! Exit handling is placed here.
$ !-----
$ !

```

External Application Link

```
$ FINISH:
$ SET MESSAGE/SEVERITY/IDENTIFICATION/TEXT/FACILITY
$ SET NOVERIFY
$ EXIT
```

RESULTS:

```
[-----START EXTERNAL APPLICATION-----]
-----START CONTROL-----
```

```
!
! Digital stock quote history
```

\$QUOTES

```
-----END CONTROL-----
```

```
DIGITAL STOCK - NYSE TRANSACTIONS
DATE P/E SALES HIGH LOW CLOSE NET
3/18 12 4152 103 1/2 101 101 -1 5/8
3/19 12 5305 104 1/4 101 1/4 103 1/8 +2 1/8
3/20 12 4397
```

External Application Link

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EXAMPLE 5

Editing a Spreadsheet, and Obtaining Its Results (INTERACT.COM)

EDITOR INPUT:

```
[-----START EXTERNAL APPLICATION-----]
-----START CONTROL-----
```

```
!
! Interactive simplified DECALC example
! Remember to do
!
! and \psal:<whatever> temp.tmp
!
! \E Y
!
! when you exit.
```

\$INTERACT

```
1 |b3
|a2 30
2 |b4
|a3 b1+b2+b3
3
|a4
a1+a2+a3
|b1
10
|b2
20
```

```
-----END CONTROL-----
[-----END EXTERNAL APPLICATION-----]
THE COMMAND FILE:
```

```
$ SET NOVERIFY
$ SET MESSAGE/NOSEVERITY/NOIDENTIFICATION/NOTEXT/NOFACILITY
$ ON WARNING THEN GOTO ERROR
```

```
$ !
$ !
$ ! Acquire the input parameters.
```

```
$ !
$ !
```

```
$ preset_msg = "opening init file"
$ OPEN/WRITE ar1 TEST.ar1
$ i = 1
```

```
$ initin:
$ WRITE OAMAILBOX "OA GET #WPS_param''i'"
$ @DCLMAILBOX
$ p1 = RESULT
$ IF p1 .EQS. "" THEN $GOTO initend
```

```
$ preset_msg = "writing to init file"
$ WRITE ar1 "'p1'"
$ i = i + 1
$ GOTO initin
```

```
$ initend:
$ preset_msg = "closing init file"
$ CLOSE ar1
```

```
$ !
$ !
$ ! Begin the actual processing.
```

```
$ !
$ !
```

```
$ SET NOON
$ DECALC := $ DECALC
$ DEFINE/USER MODE SYS$INPUT SYS$COMMAND:
$ DECALC/INI=TEST.ar1
```

```
$ !
$ preset_msg = "no output file created"
$ OPEN/READ/ERROR=error TEST temp.tmp
$ CLOSE TE $ DELETE TEST.ar1;*
$ ON ERROR THEN CONTINUE
$ DELETE TEST.ar2;*
$ EXIT
```

External Application Link

RESULTS:

```
[-----START EXTERNAL APPLICATION-----]
-----START CONTROL-----
!
! Interactive simplified DECALC example
! Remember to do
!
!           \psal:<whatever> temp.tmp
!         and
!           \E Y
!         when you exit.
!
$INTERACT
1
|a2
2
|a3
3
|a4      30
a1+a2+a3 |b4
|b1      b1+b2+b3
10      ---- ready yachts-sequential
|b2      find yachts-sequential
20      print all on temp.tmp
|b3      exit
-----END CONTROL-----
[-----END EXTERNAL APPLICATION-----]
```

COMMAND FILE:

```
$ SET NOVERIFY
$ SET MESSAGE/NOSEVERITY/NOIDENTIFICATION/NOTEXT/NOFACILITY
$ ON WARNING THEN GOTO ERROR
$ !
$ !-----
$ ! Acquire the input parameters.
$ !-----
$ !
$   preset_msg = "opening init file"
$   OPEN/WRITE TEMPPFILE tmp.com
$   i = 1
$ getpar:
$   preset_msg = "reading parameter 'i'"
$   WRITE OAMAILBOX "OA GET #WPS_param'i'"
$   @DCLMAILBOX
$   p1 = RESULT
$   IF p1 .EQS. "" THEN GOTO endpar
$   preset_msg = "writing parameter 'i' to init file"
$   WRITE TEMPPFILE "'p1'"
$   i = i + 1
$   GOTO getpar
```

```
$ endpar:
$   preset_msg = "closing to init file"
$   CLOSE      TEMPPFILE
$ !
$ !-----
$ ! Begin the actual processing.
$ !-----
$ !
$   preset_msg = "entering datatrieve"
$   dtr32 := $ dtr32
$   dtr32 @tmp.com
$   preset_msg = "deleting init file"
$   delete tmp.com;*
$
$   preset msg = "no output file created"
$   OPEN/READ/ERROR=error TEST temp.tmp
$   CLOSE TEST
$ !
$ !-----
$ ! Signal success here.
$ !-----
$ !
$ SUCCESS:
$   WRITE OAMAILBOX "OA GET #WPS_status = 1"
$   @DCLMAILBOX
$   GOTO FINISH
$ !
$ !-----
$ ! Error handling occurs here.
$ !-----
$ !-----External Application Link-----
```

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BAYFIELD	30/32	SLOOP	32	9,500	10	\$32,875
BLOCK I.	40	SLOOP	39	18,500	12	
BOMBAY	CLIPPER	SLOOP	31	9,400	11	\$23,950
BUCCANEER	270	SLOOP	27	5,000	08	
BUCCANEER	320	SLOOP	32	12,500	10	
DUFOUR	25	SLOOP	25	2,700	08	
WRIGHT	SEAWIND II	SLOOP	32	14,900	00	\$34,480

[-----END EXTERNAL APPLICATION-----]

External Application Link

EXAMPLE 7

Incorporating VMS mail into a document (MAIL.COM)  
with the ability to select which mail messages are to be returned to the Word  
Processing document via the buffer temp.tmp.

```
[-----START EXTERNAL APPLICATION-----]
-----START CONTROL-----
$ mail
-----END CONTROL-----
[-----END EXTERNAL APPLICATION-----]
```

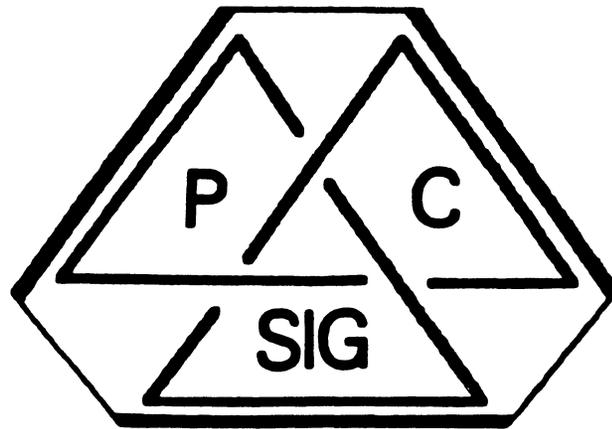
THE COMMAND FILE

```
$ SET NOVERIFY
$ SET MESSAGE/NOSEVERITY/NOIDENTIFICATION/NOTEXT/NOFACILITY
$ ON WARNING THEN GOTO error
  $ ON ERROR THEN GOTO error
$ preset_msg = "entering mail"
$ SET TERMINAL/WIDTH=80
$ SET TERMINAL/INQUIRE
$ t1 = F$TIME()
$ OPEN/WRITE mymailini x.x
$ WRITE mymailini "DEFINE/KEY KP1 ""EXTRACT TEMP.TMP"" /TERMINATE"
$ WRITE mymailini "DEFINE/KEY KP2 ""EXTRACT/APPEND TEMP.TMP"" /TERMINATE"
$ WRITE mymailini "DEFINE/KEY KP3 ""EXTRACT/ALL TEMP.TMP"" /TERMINATE"
$ CLOSE mymailini
$ WRITE SYS$OUTPUT "Use Keypad 1 to save one mail message"
$ WRITE SYS$OUTPUT "Use Keypad 2 to save more mail messages"
$ WRITE SYS$OUTPUT "Use Keypad 3 to save all selected mail messages"
$ DEFINE/USER MODE MAIL$INIT x.x
$ DEFINE/USER_MODE SYS$INPUT SYS$COMMAND:
$ mail
$ t2 = F$TIME()
$ DELETE x.x;
$ WRITE OAMAILBOX "OA GET #WPS_status = 1"
$ @DCLMAILBOX
$ preset_msg = "checking for extract"
$ OPEN/READ/ERROR=noextr TEST temp.tmp
$ CLOSE TEST
$ GOTO exit
$ noextr:
$ preset_msg = "opening output file"
$ OPEN/WRITE TEMPPFILE temp.tmp
$ preset_msg = "writing to output file"
$ WRITE TEMPPFILE "Checked VMS Mail"
$ WRITE TEMPPFILE " Started at: ''t1''"
```

External Application Link

```
$ WRITE TEMPPFILE " Ended at: ''t2''"
$ preset_msg = "closing to output file"
$ CLOSE TEMPPFILE
$ GOTO exit
$ !
$ !-----
$ ! Error handling occurs here.
$ !-----
$ !
$ error:
$ WRITE OAMAILBOX "OA DISPLAY -"
$ @DCLMAILBOX
$ WRITE SYS$OUTPUT "error ''preset_msg'"
$ WRITE OAMAILBOX "OA WAIT"
$ @DCLMAILBOX:
$ !
$ !-----
$ ! Exit handling is placed here.
$ !-----
$ !
$ exit:
$ SET MESSAGE/SEVERITY/IDENTIFICATION/TEXT/FACILITY
$ SET NOVERIFY
$ EXIT
```

# Personal Computer Special Interest Group



## Newsletter

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# TABLE OF CONTENTS

## INTRODUCTION

- PC Sig Steering Committee List.....**  
If you ever have any questions regarding the Sig or any of its activities, get in touch somebody on this list. If that person cannot help you he will direct you to one who can.
- Submitting Articles to the PC Sig Newsletter.....**  
We need your help to make this newsletter the best that we can. Please be sure to read this page and write something for us. We are interested in what you have to say.
- Contributor List.....**  
Once you've made that wise move to write for the DECUS PC Sig Newsletter, your name will appear on this page to let everybody else know who to congratulate.
- PC Post Script.....**  
This is the section where your comments, questions, complaint, compliments, etc. are published. This is very similar to a Letters to the Editor column.
- E> Debug NewsLtr.PC.....**  
Yes, even the DECUS PC Sig Newsletter needs a correction now and then.

## PROFESSIONAL SECTION

- Software Version List.....(Rice).....**  
This is a handy list of all the current versions of Professional Software. It includes both DEC and Third Party packages.
- Wish List Additions.....**  
Here are some of the more recent additions to the Professional wish list that appeared a while ago in this newsletter.
- Wish List Answers.....(Hintz).....**  
Here are some of Digital's answers to the Professional wish list items.
- PRO/SIGHT Graphics Contest.....**  
Do you spend your free time "doodling" with your Professional and PRO/SIGHT? Maybe you work with graphics for a living? Either way, try your hand at this contest.

## DECmate SECTION

- The DECmate Challenge.....**  
You thought you'd tried everything when it came to DECmates! Try this one. . . .

## RAINBOW SECTION

- From the Working Group Chairman.....(Jarrett).....**  
Lynn Jarrett, the Rainbow Working Group Chairman, encourages you to read the Rainbow Section with these comments.
- Rainbow Wish List.....**  
This list of "suggestions" from Rainbow users to Digital was recently submitted to DEC for their review. In San Fransisco, Digital will attempt to answer many of these items so be sure to read these and formulate your own questions for Digital.
- Updated Fido List.....(Elliott).....**  
By popular demand, the errors in the old Fido List were corrected and the list re-published.

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## VAXmate SECTION

- Counterpart Corner.....(Holman).....**  
Katrina Holman introduces the newest section of our newsletter which is devoted to the new VAXmate. Because she is still the Rainbow Counterpart, too, she has to cover both machines in one shot.
- Digital Introduces VAXmate, Its Networked Personal Computer.....**  
Digital has \*finally\* announced the personal computer we've all been waiting for! Here is an official introduction.
- Digital's Personal Computing Systems Architecture.....**  
This is the description of the all-new Digital VAXmate and its architecture.
- Microsoft Applications for the VAXmate.....**  
This article describes the various applications that are already available for the VAXmate from Microsoft.
- New Literature From Digital.....**  
The announcement of a new product, of course, brings with it the announcement of more paper! The Personal Computing Systems Group would like you to know about the new literature that is available.

## QUESTIONNAIRE SECTION

- Rainbow Wish List Ballot.....**  
We need your help to prioritize and clarify what the Rainbow wish list should include. Please give us your input on this form.
- PRO/SIGHT Graphics Contest Entry Form.....**
- PC PostScript Form.....**

## How to Submit an Article

The PC Sig Newsletter serves as your means to share information related to personal computing hardware and software with other members of the Sig. We depend on your contributions for survival. If you have a tutorial or item of general interest, a new and better way to do something, a routine that you've developed and are willing to share, a related enjoyable story, etc., we would like to publish it in our newsletter. The PC Sig Newsletter will be published as often as there are enough submissions, so be sure to contribute if you want to see more issues.

There are several ways you can submit your articles:

- Fill out and mail in the PC PostScript form in the back of this newsletter.
- Mail a Camera Ready hard copy to an address below (Note: this method does not preclude editing).
- On DCS, send articles to LEFEVRE\_K.
- Send an RX50 diskette to an address below in one of the following formats:

WPS-8	WPS-80
CP/M or MS-DOS ASCII	Select
WordPerfect	WPS-Plus/Rainbow
PC-DOS ASCII	PC-Write
- Upload your file to the FIDO bulletin board: (315) 589-7361, Hitchiker's Guide 107/23, William-son, NY; SYSOP: Fritz Howard.
- Use EasyPlex on CompuServe and send it to Kenneth LeFebvre 72447,261.

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**Just think how exciting it would be to open the DECUS PC Sig Newsletter and find YOUR NAME on this page!!! Look back one page and find out how to submit an article to the Newsletter today!**

## PC PostScripts

### DECmate Wish

I wish that WPS had the ability to return to the previous configuration after a change but before filing.

For example, You change an entire document to capital letters but then decide you don't want all caps. As it is now, there is no way to change back. There should be some way to go back to the original format if this is done before filing.

Fred Okrand

## E> Debug NewsLtr.PC

In the August issue of this newsletter, an article was excerpted from the Silicon Valley Users Group Newsletter regarding the Trump program that Digital was offering for a while. It mentioned that the program had been re-instated and gave the telephone number of the office to call. I have been informed by Digital that the Trump program does not exist at the present time. Please accept my apologies for any confusion which I may have caused by including an obviously out-dated article.

## Software Version List

In an effort to keep you informed about software being shipped from various vendors, I began the following list in April, 1986.

Here is the fifth edition of the PRO Software List Update. The information marked with an asterisk is revised from the last time.

I was contacted by only one person this last month, so the updated information is considerably less than last month. However, I have come across some other information about P/OS V3.0 and its effect on the software packages that you might own. I have marked the list as best as I can determine regarding P/OS V3.0 support. If the software "works" but requires you to modify it in some way, I have marked the entry with a footnote. Next month, I will try to explain some of those changes.

DEC Software (alphabetically)	Current or Last Version	Source of Information	Still Avail?	P/OS V3.0 Supported?
20/20	1.0,54	User	Yes	UNK
BASIC-Plus/RT-11	3.0	DEC	Yes	N/A
CTS-300	1.0	DEC	Yes	N/A
Fingraph	2.0	DEC	UNK	UNK
Fortran IV/RT-11	2.6	DEC	Yes	N/A
LOGO	1.4	DEC	Yes	UNK
Mail-Plus	1.0	DEC	Yes	UNK
Phoenix-PRO	1.0	DEC	Yes	UNK
P/OS (Diskette)	1.8	DEC	UNK	No
P/OS (Hard Disk)	3.0	User	Yes	Yes
PRO-2780/3780	1.2	DEC	Yes	No
PRO Application Starter Kit	1.0	DEC	Yes	No
PRO/Associate	1.0	DEC	UNK	No
PRO/BASIC	1.3	User	Yes	Yes <sup>1</sup>
PRO/BASIC Plus 2	2.3	DEC	UNK	Yes
PRO/COBOL-81	2.4	DEC	UNK	Yes
PRO/Comm (Diskette)	1.7	DEC	Yes	No
PRO/Comm (Hard Disk)	3.0	DEC	Yes	Yes
PRO/CPM-80	1.1	DEC	UNK	UNK
PRO/Datatrieve	2.0	User	Yes	Yes
PRO/DECnet	2.0	DEC	Yes	Yes
PRO/DIBOL	1.7	DEC	Yes	Yes
PRO/Fortran-77	5.0	User	Yes	Yes
PRO/Fortran-77 Debug	1.0	User	Yes	Yes
PRO/IVIS Driver & Library	2.0	DEC	UNK	No
PRO/Lab Subroutine Library	1.2	DEC	Yes	No
PRO/NAPLPS	1.0	DEC	UNK	UNK
PRO/Office Workstation	1.4	DEC	UNK	No
PRO/Pascal	1.2	DEC	Yes	Yes
PRO/PRODUCER Toolkit	1.6	DEC	UNK	No
PRO/RDT	1.0	DEC	UNK	No
PRO/Scientific Subroutines	1.3	DEC	UNK	No
PRO/SIGHT	1.0	User	Yes	Yes <sup>1</sup>
PRO/SNA	1.1	DEC	UNK	No
PRO/Smart Mailer	1.0	User	Yes <sup>2</sup>	UNK
PRO/Toolkit	3.0	User	Yes	Yes
PRO/Toolkit Real Time Lib.	2.1	DEC	Yes	No

DEC Software (Continued)	Revision	Source	Avail?	P/OS V3.0?	
PROSE PLUS	2.0	User	Yes	UNK	
RT-11	5.3*	DEC	Yes	N/A	
Supercomp-20	1.28	User	Yes	UNK	
Synergy	2.0	User	Yes	UNK	
WPS/Plus	1.0	DEC	Yes	Yes <sup>1</sup>	
3 <sup>rd</sup> Party Software (alphabetically)	Vendor	Revision	Source	Avail?	P/OS V3.0?
Online Disk					
Unfragmentor	By Hand	1.3	User	Yes	Yes
PRO/Menu Manager	Wasatech Computer	1.0	User	Yes	UNK
PRO/Session Logger	By Hand	2.0	Vendor	Yes	Yes
TK!Solver	Software Arts	1.0(2A)	User	Yes	UNK

\*Revised information since last month

<sup>1</sup>Restrictions apply

<sup>2</sup>This product is available through the DECUS Program Library only

If you have received a shipment of software in the last month (and you DIDN'T get it in a fire sale), please compare the documented REV level to the one I have listed. If your software is more recent (or it isn't listed at all), please let me know so I can update the list. Also, if the source of my information is listed as "DEC", I would appreciate hearing from a user, since I've found that hearing about it from DEC doesn't always mean that it is already shipping.

I will submit a new list to the PC Sig Newsletter about the 20<sup>TH</sup> of each month.

You can contact me by writing to:

Gary Rice  
P.O. Box 5536  
Hacienda Heights, CA 91745-0536

or by calling:

(818) 913-7996 and leaving a message.

Gary Rice

# PROfessional 300 Series Wish List Additions

PROfessional Wish List Additions  
Continued

Several months ago I published the results of the PROfessional wish list balloting. At that time I had mentioned that additional items had been submitted with the wish list ballots that were sent to me. They were not included with the balloting results since everyone did not get a chance to vote on them.

I have compiled the list of new items. Not all the handwriting was completely legible but I think I got the gist of the statements. Other statements were brief and some more detailed. Brevity sometimes created confusion as to the real meaning of the wish list request. However, they are presented here as they were given to me.

You are NOT being asked to vote on the new additions to the list. They are presented for your edification to show you what changes other users would like to see made to the PRO hardware and software. Obviously, not all items pertain to DEC. Some of them relate to DECUS and the availability of DECUS distributed programs. Some of the requests could possibly be filled by one or more of the readers. I encourage you to provide whatever service you can. If you can remedy any of the requests, send me the program(s) that can be distributed or an article that can be put in the newsletter. The other PRO users will appreciate the help.

This list is not presented in any particular order. Depending on how you interpret some of the items, there may be some duplication. Some of these items already have solutions that have recently been addressed in updated versions of DEC software, articles from the DECUS newsletters and/or public domain or commercial software that is available from various sources. But for now, on with the list.

- 
1. 380 memory mother board for 350 to free up expansion slot on 350
  2. New PFT (faster, with wildcards)
  3. The real MCR instead of, or in addition to DCL with or without Toolkit
  4. Multiple CLI support
  5. Non-menu version of P/OS
  6. Languages without RMS-only environment
  7. Better Tektronix 4010/4014 Terminal Emulator
  8. Ability to use colors in terminal mode ala VT241, possibly Tektronix 410X emulator to use color capabilities
  9. Better source, ability, instructions for migrating RSX applications to PRO
  10. Be able to disk format an RX50
  11. Longer cable for console terminal connection
  12. PRO/UNIX support for TMS
  13. Speed up P/OS, disk I/O operations, or POW software. Many POW operations take too long, i.e. menus appearing on screen
  14. Speed up the RSX task builder
  15. Logical symbols as in VMS

16. Version of WPS Plus for PRO Series
17. Dust cover for color monitor
18. More complete documentation on P/OS files; e.g., I'd like to eliminate HELP functions for most P/OS menus
19. Distribution of more DECUS library offerings in PRO readable formats as an option (many of us have use for them & are willing to convert code)
20. Ability to add hard disks while still using internal 10 MB (or whatever) drive
21. Change P/OS to initialize disks or diskettes with the same record TYPES as RSX does in the [0,0] directory
22. Terminal driver more compatible with RSX-11M terminal driver
23. CR/LF at end of line instead of at beginning of I/O
24. An Auxilliary processor quad board with 80186/80181 with 768K ram and up to 256K ROM
25. Megabyte memory boards
26. Software update notification (publication)
27. Hardware update notification (publication)
28. High resolution TEMPEST color monitor for PRO/380
29. Wildcard specification for MFT as well, with query option
30. More capable graphics, more capable, but Easy!
31. Simple Database systems
32. Graphics to videotape
33. Screen-image size adjustment
34. Hardcopy photo input to graphics
35. Instructions on using DMA for data acquisition
36. Comprehensible instructions for writing RTI drivers
37. User training courses on software
38. Provide a Modula-2 compiler
39. A Decent print spooler (one which will accept additional inputs while it is printing previously submitted files)
40. Many of the problems would be solved by a port of micro-RSX to the PRO
41. Ability to access all files & programs on a PRO from a dial-in remote terminal. Dial-in to communication port & run any program as if you were at the main terminal
42. Partitioned hard disk
43. Hardware reset
44. Print Queues with DCL and Tool Kit
45. DCL command line editor the same as the VMS CLE
46. DCL INITIALIZE command to init disks
47. Ability to bypass the menus completely, instead of having to resort to them to do things like formatting and deleting directories
48. PRO Tool Kit C compiler
49. Cheaper upgrade from F-11 to J-11 than the 350-380 kit
50. Complete support for mixed languages, including user-defined character sets. This is so documents containing a mix of English and non-Western European languages can be edited, displayed, printed, etc. User-defined character sets are a necessary part of this (unless DEC plants to support ancient languages-Koine, Greek, Itittite, etc.)

PROfessional Wish List Additions  
Continued

51. UNIX-type tools - like the VAX DEC/Shell package. In general, any and all "internal" information is desired - sources for utilities, O/S, libraries, etc. Or at least more compatible documentation
52. A significant effort should be made to get as much as possible of the DECUS 11-xxx software ported to the PRO. STAT for instance.
53. DECUS software for the PRO: online, downloadable. It would be faster and less expensive than ordering the media through DECUS
54. Provide a new DECUS software class like the "almost freeware" for micros, i.e., if you like it, send a few \$ to the author, and if you incorporate it into something you make some \$ on, then pass a royalty back to the author. This would be particularly useful to get good subroutines/building blocks into circulation. Compare also the requirements put on the use of SUPERMAC by the corporate author.
55. 32-Bit addressing
56. A PRO version of FIDO using reentrant code so that it could run in the background serving as many lines (callers) as you wanted to connect to it.
57. PRO CTI Bus to Q-Bus or LSI-11 Bus converter/interface
58. SCSI Board to permit use of Generic SCSI disk/tape devices
59. Large memory expansion (1 meg card) using 41256 technology
60. FLX under P/OS to transfer RT-11 files to P/OS and from P/OS to RT-11
61. Full RSX utility support & environment support
62. A full RSX system on the PRO 350/380/cluster
63. Device driver to use XK: port as normal terminal port (like LP:)
64. Device driver to use Real time Interface SLU's as port (like LP:)
65. Utility to read and write MS/DOS and CP/M floppies
66. Utility to format empty diskettes
67. Memory oriented editor in contrast to unnecessary slow disk based editor like PROSE or EDT
68. TKB version which uses more memory and less disk and is therefore significantly faster. (PAB)
69. Realization of memory based overlay which should work according to manuals but doesn't. (confirmed by DEC approx. 1.1.85)
70. Directions for replacement of 64K chips on daughter boards (350) and memory option cards with 256K chips. This would specify address decoding ROM location and programming, plus P/OS patches required (if necessary), and include an analysis of power supply limitations. This would permit fully 1 MB on daughter boards and 1 MB on each expansion card.
71. Printscreen to a saved bitmap & commands, which can either print it or restore it at a later time
72. Ability to print more than 1 copy of file and specify number of copies
73. Improved documentation of Communications Port use from PRO/BASIC
74. Remove 20 file limitation on selecting files to be restored from floppy when entire directory was backed up. Nuisance!
75. PDP software packages available on RX50's or retrievable electronically
76. Better facilities for non-DEC printers, particularly for graphics

PROfessional Wish List Additions  
Continued

77. One person's IDEAL PRO-300 SERIES MACHINE:
  - CPU would be the 18 mhz J-11 with FPJ-11 floating point
  - RAM would be a minimum of 1 MB expandable to 2 MB without using option slot. Use the PMI (private memory interface) to increase speed.
  - Increase the internal hard disk to the RD53
  - Have additional controllers for option slots to support
    - A) additional 1 or 2 RD53's
    - B) a TK-25 cartridge tape
    - C) a RCQ25 8" removable hard disk
    - D) an internal 1200/2400 baud modem w/auto dial-auto answer besides the TMS unit
  - A more complete and extensive DCL more in line with (RSX11M+ V3.0)
  - Complete EDT V3.0 and support user EDTINI.EDT in users directory
  - Support users LOGIN.COM in users directory
  - Have closer ties with both MicroRSX and RSX11M+ V3.0
  - Have DECUS support the TK25 media for the PRO300 series if option becomes available
  - More support for @COM files and allow full use in LOGIN.COM and ToolKit
  - Upgrade ToolKit to equal of MicroRSX with advanced programmers kit. Closer to RSX11M+ V3.0
  - More 3rd party and DEC applications
  - More 3rd party options and devices
  - A HD64180 option card to replace the Z80/CPM

Thomas R. Hintz

# PROfessional Wish List Answers

PROfessional Wish List Answers  
Continued

During the Spring 1986 DECUS meeting in Dallas, a session on the PROfessional wish list was held. During this session most wish list items were responded to by DEC. This list included all items voted on by the membership in addition to many new requests submitted with the ballots. The new wish list items were made available to DEC just prior to the meeting. Even with such short notice they were able to provide responses to most items. This was appreciated by all.

Representing DEC was Lin Olsen, Senior Product Manager for Micro Systems Development and the DEC counterpart for the PROfessional computer to the PC SIG. Also providing excellent technical support was Tim Martin, who used to be a member of the PROfessional development group.

Their responses to the wish list items were based on the currently released version of P/OS, version 3.0, unless otherwise indicated. Because of the large number of wish list items that needed to be responded to, the session exceeded the 1 hour time allotment. Consequently, responses to the final questions were brief or non-existent.

Lin started the session by stating that the requests covered the whole spectrum of needs. In reply to them she said there is the good news and the bad news, and there's the in-between. There are others that they really sympathize with, but it's just not easy to do. The items would have to get higher on the priority list because they would have to put everything else on the back burner, including bug-fixes.

Here is how DEC responded to the various wish list items:

**ABILITY TO FORMAT DISKETTES:** Unfortunately, what you all want most is the ability to format diskettes on the PRO. And what Field Service will not let me do is release the firmware that will allow you to do that. We have asked and they say they are losing enough money already, and they won't let the diskettes be any more unreliable and you'll have to continue using your friend's Rainbow to format your disks.

**BUS EXPANSION FOR MORE EXPANSION SLOTS:** Bus expansions beyond the five slots... Architecturally, we cannot do that. The architecture was designed for 8 slots, we have 2 virtual slots on the motherboard for the EBO and for the boot, and the other 6 are the expansion slots.

**FPJ11 FLOATING POINT FOR 380:** The FPJ11 floating point for the 380 would require an entire new layout of the motherboard, which at this point in the cycle of the PRO's life is not one of the things we can do. We did it in software.

**REMOVABLE HARD DISK:** A removable hard disk is something I've only seen requested, primarily from military customers. Our storage people have not been able to find one that meets their quality criteria in the entire DEC range. We would not, of course, bring one in only for the PRO, it would have to be in the DEC range.

**AUXILIARY PROCESSOR QUAD BOARD WITH 80186/80181 WITH 768 RAM AND UP TO 256K ROM:** An auxiliary processor that was on the 80186 is actually a processor that's available from third parties; Virtual Microsystems. I don't know if those are the specs for it. They have been working on a new one. We are not talented in that processor in the PRO group anyway, and would not do an auxiliary processor.

**SCREEN IMAGE SIZE ADJUSTMENTS:** I presume that this is referring to getting rid of the black borders that are around the sides of the picture. If you did that, what you saw on the screen would not be what you saw on the printer. In addition, those adjustments are deep inside the high voltage area of the monitor.

**INSTRUCTIONS FOR USING DMA FOR DATA ACQUISITION:** DMA is explained in the technical manuals. Instructions for using it for Data acquisition; none of the data acquisition modules, the RTI, or the ADM-PC are DMA devices. If you wanted to design your own board to do DMA, we have zero-cost license to go put something on the CTI Bus and the description is there in the book. We are not going to expand on those any further.

**HARDCOPY PHOTO INPUT TO GRAPHICS:** Hardcopy photo input: image scanners are in the market. None of the vendors, at this point, have decided to do an interface to the CTI Bus. The software support could be done fairly reasonably, especially in the area such as PROSE Plus, but has not been.

**GRAPHICS TO VIDEOTAPE:** As the old IVIS product manager, I wouldn't want to do this; the quality that the PRO could show would not even show up on a videotape. Again, it would be a third-party board.

**OCR INPUT:** Usually an adjunct to the image input that we talked about before. Again, that would have to be third-party vendor, and we haven't found one yet that DEC is willing to resell.

**A SCSI BOARD TO PERMIT USE OF GENERIC SCSI DISK/TAPE DEVICES:** If a third-party board does it, you could have that, but I have not seen a third-party vendor doing it. The disks are the standard FT506 interface that are available; I know some adventurous people have used those, so it is the standard FT506 interface, as opposed to the SCSI

**Q:** That certainly would answer a lot of questions other people have had. If you were to develop, one time, a SCSI-board for the machine, you would take care of practically all of the outside peripheral kinds of questions that people ask "can I put this" or "can I put that" on the machine. Someone was asking earlier about putting the CD ROM on. That would obviously be an application for that, too. That doesn't seem like a lot of development effort, and it would certainly greatly improve the capabilities of the PRO. I don't see why that's something that should be thrown out of hand.

**DEC:** Of course you realize that is a board that is very hard to get, unless I can cost-justify it. Since it is a way of reducing sales from the storage device people, because we don't sell any SCSI peripherals, I get in the middle.

**Q:** It wouldn't reduce the sales. We'll still buy the RD52's and the RD51's and the whatever to use in the machine. There are a lot of other things that you can't use with the machine, simply because you don't have an interface board for it. You could be able to get any of those others. I don't think you're going to reduce the sales, all you're doing is killing the sales of the PRO because no one can use it with anything.

**DEC:** We will look again at the cost of that, but I find it's been very hard to cost-justify new options for the PRO, given its projected sales. And I understand the argument about it's the chicken following the egg...

**PRO CTI BUS TO Q BUS OR LSI-11 BUS CONVERTER/INTERFACE:** The CTI Bus to Q Bus converter would have performance such that we were not willing to sell it internally. There had been third party people who did it and chose not to market it, because it was not general purpose enough. We felt that the degradation going between the converter was not right.

**32 BIT ADDRESSING:** that's called a MicroVAX.

**CHEAPER UPGRADE FROM P11 TO J11 THAN THE CURRENT KIT:** I wish I could find a way to make it cheaper, but I can't.

**Q:** I have a question about the price of the 380 upgrade. I believe that includes a new cabinet, power supply, possibly even diskettes. In fact it sounds like the whole darn system unit. Would there in fact be any savings by just giving us the mother board for people that are on maintenance and already have the new power supply, have a perfectly good case, have perfectly good floppies, etc.?

**DEC:** The only redundancy is the floppies. The reason we did the floppies is it costs much less to ship the whole thing than to take out another part in inventory two different types of parts. You need the top so you get enough sufficient airflow over the PC board since you now have an infinite variety of PC boards. I'm not sure that many people received updates of their power supply.

**Q:** Mine's blown up and when field service replaces it, they do give you the new power.

**DEC:** Of those 40,000 or so 350's out in the field, I don't believe we have replaced a significant portion of those power supplies. Really, the only redundancy is the floppy disk drives. Administratively, if we tried to find out which of those pieces you already had changed, it just becomes a nightmare. I appreciate your suggestion and we did try to work that way through.

**Q:** Has the plastic case itself changed?

**DEC:** Yes. The amount of venting on the plastic case changed from the 350 to the 380.

**ALLOW FOREIGN RS232 CONNECTORS CURRENTLY NOT ENOUGH ROOM:** Allowing for RS232 connectors was a surprise to me at Anaheim. The issue is that you can't really screw down the EIA connectors because we don't quite give you enough space. I have to apologize for that, but if you know the cost of doing hard-tooling for plastic cases you understand why we're probably not going to do it. I've mentioned it to the engineering people to try to make sure we don't do something like that again.

**2 RTI'S:** 2 RTI's are prevented for two reasons: 1) for the cabling reason - you can't get the cables out of there, and 2) we get real close to all the FCC SPECS with one, and putting two in there would blow us over the FCC limit, and then we couldn't ship it.

**DR11-V COMPATIBLE INTERFACE FOR HIGH SPEED DATA LINES:** The fastest you can go is in fact through the RTI to get a 16 bit parallel output port. There is no plan to do one of these.

**TK50:** One, TK50 is too expensive for a PRO user. Second, we would have to do another custom interface. And the drive doesn't fit in the physical slot.

**TEXT PROCESSING UTILITY FOR P/OS LIKE THE ANNOUNCED BUT NOT YET DELIVERED TEXT EDITOR FOR VMS:** The text processing unit, takes an awful lot of power in order to do it and we just don't have that capability in the PRO.

**ENHANCED CAD SOFTWARE (NOT DESIGN GRAPHICS EXEC):** Again, that is a third party vendor product and we have not been successful at this point in convincing somebody that they want a more powerful product. More powerful than Design Graphics Executive is the Palette software. You have to pay for the power that is in that package.

**A BETTER DEC LANDER:** We gave you chess.

**OUTPUT CORE GRAPHICS TO GIDIS FILES (FROM PRO/BASIC):** PRO/Basic using CGL does not know about GIDIS. That would require a CGL to GIDIS converter, and then an ability to extract and file those things, an ability to get to file services. It's just more difficult than we are willing to try in PRO/Basic.

**GIDIS TO/FROM NAPLPS CONVERSION:** There are architectural differences there that really prevent that from happening.

**EXTEND GRAPHICS FOR PRO/BASIC:** That was not specific enough to know what ones you wanted. I asked the PRO/Basic guys which ones they would add and they didn't know.

**MORE CAPABLE GRAPHICS, MORE CAPABLE BUT EASY:** We do believe that CGL is as easy to use as we can get it, and we're not quite clear what "more capable" meant just as better graphics meant. It's really helpful if the Wish List can be very specific.

**VIDEOTEX CREATION:** Videotex is now NAPLPS, there were some overlaps in these.

**Q:** The videotex on the PRO was brought up because you can produce videotex images with Rainbow, and you have VTX on the VAX. It's nice to have that creation capability on the PRO. I heard there might be one coming out but apparently it's been canned.

**DEC:** PRO does have a display capability but does not have a creation capability.

**BETTER TEK 4010/4014 TERMINAL EMULATOR:** The Tektronix emulator is again a third party and they have shown no inclination.

**PRO/VENIX SUPPORT FOR TMS:** VENIX was not interested in TMS even back when it was very early. With the popularity of most of the features they would just as soon have a DT03 on the communications port. Questions?

**EXTERNAL DISKS AND THE ABILITY TO CONNECT TWO HARD DISKS TO THE SAME BOX:** Both capabilities came in with the expander box. One, you could just take away your hard disk by disconnecting the expander box, and the other allows you to have two hard disks. Yes, you can have your only hard disk in the expander box if you choose to.

**380 MOTHERBOARD MEMORY FOR THE 350 TO FREE UP EXPANSION SLOT:** That has been there for a long time although rumor said it wasn't.

**WPS PLUS FOR THE PRO SERIES:** It's there in terms of document creation. Many of the auxiliary features that are in WPS plus for the VAX are not there and most likely will not be.

**SIMPLE DATABASE SYSTEM:** The SYNERGY database system is, in fact, a simple data manager. It's easy to use and easy to read.

**RELIABLE PASCAL COMPILER:** PASCAL has moved from the PRO group over to the DEC-11 languages group. They're now in the middle of doing an assessment of what needs to be done to PASCAL. You can go to the languages group and tell them what you found as unreliable. The only small consolation I can give you is I hear that 11 PASCAL was worse.

**A DCL INITIALIZED COMMAND TO FORMAT DISKS:** That is in the ToolKit. That initializes hard disks. You can do that both from P/OS or from the ToolKit.

**PRINT QUEUE WITH DCL AND TOOLKIT:** That's in V3.0. However, from DCL you can only get to your default printer, you cannot get to all the other 16 printers that you could put on the server. DCL knows how to get to the default.

**START UP DETECT OF BATTERY BACKUP STATUS:** There's no physical connection from the battery backup to the rest of the PRO. The only thing that P/OS can detect is the date, which is, of course, the thing that's being maintained by the battery backup. We do notify you of illogical dates. We aren't able to tell you if it's an incorrect date.

**VAX SERVER FOR A CLUSTER OF PRO'S:** While that is technically feasible, we would have to stop all development for everything else, find three more consultant engineers in DEC who want to learn P/OS, and work for a good solid year. It doesn't seem reasonable to the entire community of PRO users who wouldn't use this to move all those resources to that particular function.

**PRO/FMS COMPATIBLE WITH VMS/FMS:** It won't fit. It's much more likely that we will get more compatible with the FMS used in RSX. The VAX FMS is a large capacity/capability system.

**ACCESS TO THE DZ DRIVER OR THE ABILITY TO USE THE OTHER TRACK/SECTOR COMBINATIONS SUPPORTED BY THE CONTROLLER:** Just go ahead and do it, we aren't going to make it any easier.

**PRINT SCREEN TO A GIDIS FILE:** In either case there are some connections that are currently not there. Like from printscreen to the file services is not a connection that is currently supported in the operating system. Then there's the issue of creating a file format that would hold that, although you could use the bitmap dump file format that is currently used for natural images. That requires a link both from the terminal firmware and to file services, which is not a link that is currently in the system. Just requires a hook in TFW. But, it's not, right now, on the list of things we're planning to put in P/OS.

**BATCH PROCESSING SUPPORT:** In the ToolKit; that is not a trivial task to put batch processing in there. Since this is mostly seen as a single user system, it's not one of the things likely to get done.

**COMPLETE DOCUMENTATION SET ON LASER DISK, WITH CROSS REF:** I'm not sure that it would sell enough to warrant doing such a laser disk. Since you wouldn't be able to read it from the PRO anyway, I'm not sure it would have a lot of utility.

**LOGICAL SYMBOLS AS IN VMS:** Basically, we have no symbols in DCL, and it isn't an upgrade to DCL that we're looking at at this point.

**TERMINAL DRIVER MORE COMPATIBLE WITH RSX11-M DRIVER:** I presume that's referring to wanting to have CTERM in the terminal driver. That is not a capability that is currently in the stable of things to be done to the terminal driver.

**DEC:** The RSX11-M PLUS terminal driver has a number of features which are not specific to CTERM such as HOST LINK and PASS THROUGH. Rather than having application programs, and those are common features that might be used by common applications, there's an effort to try to keep the terminal drivers in sync, with respect to common features. You'll probably never see CTERM in our full duplex terminal driver, simply because everybody would pay physical memory for feature, and not everybody would be using it, and it's not possible to make that support loadable. We have provided the CTERM functionality rather than within the terminal driver, within an application task. The thing that you don't get if you don't have CTERM support in your terminal driver, is the ability to SET HOST into a PRO. That enters the whole question of multi-terminal, and is multi-terminal appropriate on the PRO, given that many P/OS specific applications do not function correctly because of either the graphics or they did not follow multi-user conventions, will not function correctly in the multi-terminal environment. The ToolKit and RSX type tasks function normally.

**FLX UNDER P/OS TO TRANSFER RT-11 FILES TO P/OS AND FROM P/OS TO RT-11:** It is on one of the SIG tapes, but it is not available from DEC.

**IND SPACE SUPPORT:** At last DECUS we told you that we would look into what it would take to do IND space support. As we mentioned before, the changes are not so heavy on the executive itself, because as most of you know we're using the RSX11-M PLUS EXEC in P/OS. What we do have is a considerable number of modifications to the INSTALL utility, as well as to all of the privileged applications. We don't know how to provide a single, common image, and the logistics of P/OS (unlike RSX), where everything comes preassembled, prelinked, and fully integrated. The logistics in supporting multiple versions, i.e. two versions, associated with each privileged utility, each privileged component such as DECNET, at this moment in the life cycle of the PRO, is not really possible given the resources of the group. I'm not saying it's not a good thing, it's just that it's practically not possible for logistics as well as resources within the group.

**Q:** Perhaps not at the moment. If in fact, the direction of the PRO is going towards 380's, sometime in the future, conceivably, you will say, we are now at the last release of P/OS for a 350. We're certainly at our last version of P/OS for a 325. Then, would future versions after that, say a 4.0 or whatever, which might only be a 380 version, could those conceivably have IND space support, supervisor mode?

**DEC:** I rather doubt it, because the people that layered DEC products, that are privileged that would be effected; those groups have de-staffed their development efforts and gone to maintenance mode.

**Q:** So you wouldn't have anyone to do it.

DEC: You would have to not only boost up the P/OS development group, but also all of the intimately layered products, development groups for P/OS. What I'm saying is that I've tried to think of how one might do this, and that's very difficult. What we did was make sure that we got the fast map mount support in there very quickly, because that can help you out if you don't have IND space available to you, then you're going to have to do a lot of remapping. So we wanted to help you out by doing the fast remap, which gives you a 20X increase in speed, of a remap operation. Software also has a tendency to go after the least common denominator. Most of the systems in the field at the current time are 350-based. That's where the potential market base is, for future PRO products. We wouldn't be talking like this if the first PRO out of the box was a 380. We probably would have gone for IND space right from the beginning, and we would not have had this problem. But then again, you would not have been able to afford it.

Q: Your marketing people, however, are right now in the position of very strongly pushing, at least in our area, to upgrade all the 350's and anything else that people have, to 380's since that is apparently the only supported unit for the future. There may not be any software support for this, is what we're being told.

DEC: The PRO 350 will be fully supported in all software, as far as I know, until the end of the life of the PRO 300 series. We are not abandoning any of the 350. We have not sent out any message to the sales force, that says the 350 is, in any way, being de-committed or de-supported.

Q: I question whether the problem of privileged tasks and drivers and the like, is really that much of a problem in view of the excellent work that you've done with executive vectoring. Much the same problem arose on micro RSX version 3.0, where they had two separate executives, one for IND space and one without, and the DECnet group didn't particularly want to double the size of their distribution kit, so they took advantage of the vectoring. Now one kit fits all. I see no reason that could not be done for the PRO. As far as re-forming development groups for some of the more arcane layered products. I think many 380 owners would find it a reasonable restriction to say that if they wanted to use a 2780 emulator, you might have to use a non-IND space EXEC, which would still run on the 380 perhaps with reduced performance.

DEC: So you'd regroup to run one application versus another?

Q: No. Make them permanently install the Non-IND space EXEC. They're certainly no worse off than they are now.

DEC: There's one thing that you said which probably deserves a little clarification with respect to the vectoring. Many of the privileged components are not vectored. You try to get as much in common as you can, using the vectoring, in fact you still have the logistics of supporting multiple systems. Even if we could vector it such that there was no changes between IND space and non-IND space, there's nobody to do the work.

Q: I'll volunteer!

DEC: We may come down to needing that.

Q: But as far as layered product support, I think it might be a reasonable thing to most users...

DEC: Which layered products would you want to see take advantage of IND space?

Q: ToolKit.

DEC: Where?

Q: IND space Taskbuilder...

DEC: It's got it.

Q: I mean the Taskbuilder itself.

DEC: Has RSX done that?

Q: They give you the capability to do that...

DEC: They give you the ability to build IND space tasks.

Q: And they give you the object library so that someone with the where-with-all can, in fact, build a IND space Taskbuilder.

DEC: At the moment, we don't see a way to provide it. So, we can talk about it later.

SOURCE CODE FOR RX50 FIRMWARE SO YOU CAN MODIFY IT TO DO FORMATTING YOURSELF: No.

DECNET COMMAND TERMINAL, BEING COMPATIBLE WITH VMS 4.X: Obviously that means we've got to keep up with 4. whatever. It's just really not a plausible thing to do.

DEC: The trouble with the DECnet command terminal functionality, in particular left and right arrow, is that VMS implemented it as a system specific operation, as opposed to incorporating it back into the common C-term definition. At such time as when that works its way back into the intersystem command terminal spec, then DECnet can pick it up, but for the moment, it was implemented as a VMS system specific operation. That's why that doesn't work.

BATCH POOLING ON TOOLKIT, FOR COMPILATION AND LINKING: What you in fact can do is spawn the DCL commands to do that sort of function. To actually provide the batch, is not something we're going to do. In fact, it sort of implies a COI support, which is not the way the DCL is implemented in the PRO.

A SEARCH COMMAND SIMILAR TO WHAT EXISTS ON VMS FOR FINDING TEXT STRING IN A FILE OR FILES: We really had not been that aware of the demand. That's available on DECUS tapes, called GREP. Very handy.

A MORE ELABORATE PRO/COMM THAT MAKES FULL USE OF TMS AND VOICEBOX: PRO/comm is a serial data communications package. It is not a voice applications package. To extend it such that you would use some of the conversion capabilities in the TMS, would be burdening that package unnecessarily for the small utility.

FULL WINDOW/MULTITASK SUPPORT FOR USER DEVELOPED APPLICATIONS (e.g. SIDEKICK): It is a third-party product. It is not likely we will put something like that on it. If you wanted windowing, why wouldn't you go into developing applications for a SYNERGY-type environment?

**DEC:** Right. That is one of the things that you can do.

**DCL SOURCES ON TOOLKIT:** That would be an additional cost to the ToolKit. Very small utility, except for one or two people who would have the capability to do something with it. Once it was customized, I'm sure we would get phone calls about the customization, that would not be in keeping with our support capabilities.

**GRAPHICS SUPPORT OVER DECNET:** That really is now in the PRO/comm capabilities that go over DECnet and use LAT functionality. It is not going to be added specifically to DECnet.

**COEXISTENCE OF MULTIPLE OPERATING SYSTEMS ON A SINGLE HARD DISK FOR EACH TO RUN IN NATIVE MODE:** There's just no inherent support for that at this point in our handling of the hard disks.

**MULTIPLE CLI SUPPORT:** The issue is that we have no CLI support. DCL is an application.

**LANGUAGES WITHOUT RMS-ONLY ENVIRONMENT:** We tailored P/OS to utilize the DECnet capabilities. We chose things that were as compatible as possible with VMS and the future directions of the company. We wanted those applications to move in that direction. It's sometimes difficult for people who want to bring old applications over. To add any others is not reasonable.

**Q:** Just a comment on that one. I don't know what they meant by a RMS-only environment. I think at least since version two, you've supplied FCS register too. Is that what people are referring to? So you can, in fact, build FCS applications, if you want to use them.

**DEC:** The trouble they're talking about is the OTS, the higher level languages, requires RMS, as opposed to FCS, or you can go with an RSX system and build it on that, then transport it to a PRO.

**Q:** That makes sense.

**SPEED UP RSX TASK BUILDER:** The taskbuilder from RSX does not support clustered libraries. Clustered libraries is what P/OS uses.

**PROVIDE A MODULA-2 COMPILER:** This is the only request I've ever seen for a modula-2 compiler. If it's on DECUS-tape, people are encouraged to use it. However, we would not do Modula-2 until PDP-11 languages did it also.

**PRO TOOLKIT C COMPILER:** Similar answer for C-compiler, although I know there are about three different C-compiler in the DECUS libraries.

**PRO VERSION OF FIDO USING RE-ENTRANT CODE SO COULD BE RUN IN BACKGROUND SERVING AS MANY LINES (CALLERS) AS WANTED TO CONNECT TO IT:** FIDO is a public domain piece of software. We would not be selling public domain software. We would encourage anybody who wanted to put it on the PRO to go ahead, but we would not be adding such a protocol.

**EXTERNAL LOGIN VIA TMS:** This implies tying communications and the terminal driver together. Those are two very complex pieces of code. To try to put it together would make it even more complex. The hardware is not really designed to handle the terminals.

**CTERM IN TERMINAL DRIVER:** C-term is provided by the host that we SET HOST to. It's provided by the SET HOST utility inside DECnet, not in the terminal driver.

**MINI ROUTER:** We are an end node; we are not a mini-router. I'm sure you would not want to work on a PRO once it was trying to route.

**DISK COMPRESSION UTILITY:** We have not succeeded in doing a disk compression utility that we are satisfied is safe enough to give to you, and be responsible for your disk. Those of you who have been to the RSX sessions know the chance we took when we provided BRU. I believe there may be some of these that are coming out in the third party domain. Every now and then when we really trash disks, we have gone through and very carefully found files to just make enough space to be able to do something. We recommend that you never try it, if you want to stay sane. In fact, BRU will do a lot of this unfragmenting for you, if you backup and then restore, and that is the preferred way of doing it rather than disks.

**MENU SOURCES:** They're not on the fiche. I'm not quite sure why.

**ABILITY TO DIAL INTO THE TMS PORT, AND THE COMM/PORT FROM A REMOTE TERMINAL:** In general, both of these are supported by the com. It is, in fact, true that if you wire DTR high and go in through the Quad SLU or the printer port, you could dial into your PRO. But, these two methods will not work.

**COMPLETE DOCUMENTATION AND LISTINGS OF THE VT102 AND GIDIS (TFW) CODE:** We are making them available.

**WILD CARD SPECIFICATION FOR PFT:** The latest ToolKit does allow wildcard specifications. There is wilddarding on PFT, in the ToolKit right now. There is not file listing, there is wilddarding.

**TERMINAL EMULATION WITH FULL VT24X (e.g. DOWNLOADABLE CHARACTERS):** V3.0 of PRO/COMM working with DECnet, does support this using the LAT Protocol.

**DECNET SUPPORT FOR THE COMM PORT:** It is in V2 of PRO/DECnet.

**ASYNCH DIAL-UP TO DECNET:** Works through the comport, it cannot work through TMS.

**GRAPHICS FROM VAX USING PRO/COMM:** If it's Regis, yes. In fact, we've improved this so if you have a black & white PRO, we will still attempt to do what we can with displaying the graphics. Obviously, we can't display color.

**FULL DECGRAPH/DECSLIDE SUPPORT:** DECgraph and DECslide in VT241 are fully supported.

**FULL VT125 EMULATION:** (VT241, of course, is the follow onto 125) and the abilities to use the colors in the terminal mode ala VT241 is fully supported.

**ABILITY TO USE COLORS IN TERMINAL MODE ALA VT241:** Eight colors through Regis, not just four.

**STANDALONE BACKUP:** BRU will work in the Standalone mode, it will work both on today's systems and the ones that are coming out, i.e. version 2 or it will backup version 2 files or version 3.

MAINTAIN COLOR SETTINGS WHEN GOING BETWEEN MENUS: In general we do. Com going through the window does go into the com color. So, it does change the color. Other than that we maintain the color.

IMAGE BACKUP OF A WINCHESTER DISK: You can do image, you can do volume, you can do partial.

NON MENU VERSION OF P/OS: You can have your PRO come up in DCL. You never have to see those menus if you don't want to. We are not doing a non-menu version, i.e. an RSX version, however.

CARRIAGE RETURN/LINE FEED AT THE END OF A LINE, INSTEAD OF AT BEGINNING OF I/O: We think we do that.

PRINT-SPOOLER THAT WILL ACCEPT ADDITIONAL INPUTS: Look at version 3.

ABILITY TO BYPASS MENUS COMPLETELY, INSTEAD OF HAVING TO USE THEM TO FORMAT AND DELETE: You can use DCL to format, delete, and all those other things. The only thing I know of that you can't do from DCL is run an additional application.

Q: You say you can get any of those menu items from DCL except for additional applications. Well, you always could do that, there were always the applications there that you could run to get the disk services, file services (now I'm talking about version 2) and any of those other things, view status, all those can be run from DCL. In fact, I had command files that did those for me. Doing the additional applications is really the fun part of it. I understand that somebody in Digital has come up with a way of doing the additional applications. Somebody had developed an application runner that went out from the install file and did all the things that were necessary in that. Now, I don't know the details of this, this is just sort of scuttlebutt that I've gotten in through my local gurus. Does anyone know of that and is there any way that this can be provided in the future? If you're in a DCL environment and you want to go out there and run a little bit of datatrieve, up to now I've had to set up my own command file that does all of the logical signs and everything necessary to get the thing to work. That can be kind of annoying.

DEC: You could always run on version 2 as well as version 3. You could run C-tab services applications. They're on LB:ZZSYS. You'll have trouble finding DUTL, or FUTL, because now it's called NewFUTL, in FUTL. Yes, you can still do that. As far as running applications, yeah, you're little guru was right; we have been actively looking into it. Maybe at some future point in time, we'll chip something based on that. Version 3 was particularly difficult for that application, because of the logical main structure, maintaining the context. That particular thing was known as Do application. It wasn't very smart. It was using just some random bit in the TCB. When version 3 came along with fast map support, it blew up rather abruptly. So it's a hack, and it needs considerable more work before it's of product quality, but we are actively looking at it.

UNIX TYPE TOOLS: UNIX type tools are Venix.

REGIS IN THE TERMINAL DRIVER: Regis is in the com driver, not in the terminal driver. Regis to GIDIS is on the graphics floppy in the ToolKit, if that's what people meant instead.

THE REAL MCR INSTEAD OF OR IN ADDITION TO DCL WITH OR WITHOUT TOOLKIT: DCL now supports just about all the MCR functions. The main one that is missing is AVL.

VIRTUAL TERMINAL SUPPORT: We had to do this in order to get the remote DECnet access, so it's there.

SPEED UP POW DISK I/O OPERATION OR POW SW. MANY POW OPERATIONS TAKE TOO LONG, i.e. MENUS APPEARING ON SCREEN: There will be some enhancements to increase speed.

DECNET SUPPORT UNDER RT-11: Has been moved to RT group and put on priority list.

RT-11 EMULATOR EXECUTING UNDER P/OS: No.

SOFTWARE UPDATE NOTIFICATION: Don't have mechanism. Could be put in SIG Newsletter.

HIGH RESOLUTION TEMPST COLOR MONITOR FOR PRO380: No plans.

DUST COVER FOR COLOR MONITOR: There is one.

LONGER CABLE FOR CONSOLE TERMINAL: Don't know if there is one.

HARDWARE UPDATE NOTIFICATION: Could be put in SIG Newsletters.

WHAT VERSION IS CURRENT:

IT AIN'T EASY

\* WARM RESTART FOR P/OS:

\* MENU ITEM TO EXECUTE INFREQUENTLY USED APPLICATIONS FROM DISKETTE SO INSTALL/DEINSTALL IS NOT REQUIRED: Not as easy as it seems. Many applications expect the HD environment. We have looked at it.

\* DISK FORMATTING CAPABILITY: Disk-yes. Diskette-No.

\* MORE COMPATIBILITY BETWEEN FMS SCREEN CONTROL KEYS (FUNCTION KEYS) AND THE P/OS MENU CONTROL KEYS:

\* PRO/SIGHT ROTATION OF FIGURES AND TEXT

\* GIDIS TO REGIS CONVERSION:

\* PRO/SIGHT CONVERT MULTIPLE OBJECTS INTO A SINGLE ONE: Considering.

\* BETTER SOURCE, ABILITY, INSTRUCTIONS FOR MIGRATING RSX APPLICATIONS TO THE PRO: Most RSX applications migrate just with re-link, but some use system specific functions.

\* COMPREHENSIBLE INSTRUCTIONS FOR WRITING RTI DRIVERS: Can be found in documentation for real time interface, part # EK-PCRTI-TM-001.

- \* MANY OF THE PROBLEMS WOULD BE SOLVED BY A PORT OF URSX TO THE PRO: This is a Software Services Project.
- \* PARTITIONED HARD DISK:
- \* ABILITY TO ACCESS ALL FILES AND PROGRAMS FROM A DIAL-IN REMOTE TERMINAL. DIAL-IN TO COMM PORT & RUN ANY PROGRAM AS IF YOU WERE AT THE MAIN TERMINAL:
- \* DCL COMMAND LINE EDITOR SAME AS VMS CLE:
- \* COMPLETE SUPPORT FOR MIXED LANGUAGE INCLUDING USER DEFINED CHARACTER SETS. -SO DOCS CONTAINING MIX OF ENGLISH AND NON-WESTERN LANGUAGES CAN BE EDITED, DISPLAYED, PRINTED, ETC. USER DEFINE CHARACTER SETS NECESSARY: We have UDC, you write the editor.

UNDER CONSIDERATION

- \* GUIDELINES FOR TAILORING P/OS
- \* ABILITY TO SPAWN BASIC COMPILATION
- \* HOST SYNC
- \* LARGE MEMORY EXPANSION (1 MB)
- \* STREAMING TAPE BACKUP
- \* WILDCARD SPECIFICATION FOR MFT AS WELL, WITH QUERY OPTION
- \* MORE COMPLETE DOCUMENTATION ON P/OS FILES (LIKE TO ELIMINATE HELP FUNCTIONS FOR MOST P/OS MENUS)
- \* HELP ON FLOPPY, LESS ON HARD DISK
- \* INSTRUCTIONS FOR DELETING UNUSED APPLICATION OPTIONS TO CONSERVE DISK SPACE
- \* MASTER INDEX TO TOOL KIT DOCUMENTS
- \* LARGER BUFFER FOR DRAWING COMPLEX FILLED FIGURES IN PRO/SIGHT

Thomas R. Hintz

## PRO/SIGHT Graphics Contest

The DECUS PC SIG (PROfessional Working Group) is sponsoring a PRO/SIGHT graphics contest that will take place at the Spring 1987 DECUS meeting in Nashville (27-April-1987 to 1-May-1987).

Now is your chance to show off your talent for generating GIDIS images. Graphics images created for business or pleasure are acceptable. Fancy text, pictures and/or logos can be used. Now you can show others what you have created and possibly win recognition for your design. Don't wait. Look through your library of images and submit your best ones, or begin a new design. You can't win if you don't submit. DO IT NOW.

Submission guidelines and rules:

1. All images must have been generated on a PROfessional 300 using a standard PRO/SIGHT graphics program (must be editable by PRO/SIGHT).
2. Submissions may be copyrighted by author but they will be considered available for public distribution and use at no cost (public domain).
3. Images must be submitted on RX50 formatted diskette (as .GID file) and should be accompanied by a slide, photograph or other hard copy form if possible.
4. Images will be judged by members of the PC SIG Executive Steering Committee. BRIBES WILL BE ACCEPTED IMMEDIATELY AFTER AWARDS HAVE BEEN SENT TO WINNER. All decisions are final.
5. A certificate(s) will be awarded for each category.
6. Multiple submissions per category or categories by an individual is permissible. INDIVIDUALS MAY RECEIVE ONLY ONE AWARD PER CATEGORY.
7. Person making submission does not have to be present to win.
8. All entries must be postmarked by 23 February 1987 and received no later than 2 March 1987.
9. Entries are to be sent to;

Thomas R. Hintz  
University of Florida  
IFAS Computer Network  
Building 120  
Gainesville, FL 32611

## The DECmate Challenge

I use the DECmate for all of my word processing. This newsletter is "typeset" on the DECmate II with an LN03 printer. All of my correspondence is done on this machine. My company even sells a package written in DIBOL under COS-310 on the DECmate. The DECmate is definitely not a dead machine! There are many, many people that still love to use their DECmates! How come I do not hear from any of you? It is ironic those members of the PC Sig that are most likely to be excellent writers (being trained in word processing) are the most silent members.

If you have any ideas that I could implement to encourage more submissions, I would be more than happy to hear them!

I'm looking forward to hearing from you !!!

10. Specify the category desired for each entry. Only one category per item submitted.
11. Person submitting an image must be the original author and owner of the image.
12. The PC SIG does not take responsibility for Diskette(s) and/or files that are damaged or lost in shipping. Please pack them with sufficient protective material and provide adequate postage.
13. Each diskette containing an entry must be labeled with author's complete name and address.
14. Special category (Experimental) entries must meet all the above rules and guidelines except #1. Submitter must provide a brief description of the method used to create the image. Images must be loadable from PRO/SIGHT.

Categories:

Employee Of	Non-DEC	DEC
B&W Still Images	1	7
B&W Action Images	2	8
Color Still Images	3	9
Color Action Images	4	10
Multiple Pictures (PRO/SIGHT Script)	5	11
Experimental	6	12

NOTE: The Contest Entry Form may be found in the Questionnaire section.

PROfessional Working Group

**From the Working Group Chair  
By Lynn Jarrett**

While you are reading this newsletter, some of us will be at the San Francisco DECUS Symposium becoming better educated and informed at the many sessions and meetings that are held at Symposia, seeing old friends and making many new ones.

This is the very first time we are holding a formal session on the Rainbow Wish List with Digital addressing as many of the issues as possible in the allowable time frame. I think it will be a very informative session, and one that I will surely want to report back to you in the next issue of this publication.

There are many positive things going on in the PC area of Digital now and I believe we'll see more than just a new machine. I believe that even though the Rainbow is a mature product, that we'll see some new enhancements to the Rainbow in the very near future that will allow those of us in larger environments to network to meet the needs of the users.

And with the pending announcement of MS-DOS V3.1, Rainbow users will also be happy that some of their requests have been met via some neat new commands in the operating system.

When I was in Atlanta recently and toured the Support Center there, I saw firsthand how the specialists there handle all of our requests. It really was quite interesting, and I do feel that there has been quite an improvement there since the first of the year.

Those of you who would like to call me to discuss Rainbow issues can find my number in the directory of this newsletter. If you'd like to leave me a message on CompuServe, my ID is 76067,3257. I've had many, many interesting letters from our European friends this year. It's surprising just how many Rainbows there really are outside the U.S. Anyway, please write. I like hearing from all of you.



Following is the Rainbow Wish List that was recently submitted to Digital Equipment Corporation by the PC SIG. This list is compiled and prioritized from users submitting their voting forms and/or letters to Lynn Jarrett. The voting forms can be found in the Questionnaire section of this newsletter. Please take the time to mail them with your comments to Lynn. Your input is greatly appreciated. Digital will address many of these issues on the Wish List at the Symposium in San Francisco.

(My apologies for the August Rainbow Wish List. Due to system and communication problems, a few important items were not listed and a few were listed more than once.)

1. MS-DOS V3.1
2. Larger memory upgrades and removable hard disks at reasonable prices.
3. Larger than 20MB hard disks and controllers with full DEC support
4. Update dBase III. (DEC is still not up to latest IBM industry-standard revision.)
5. Nationwide Trump upgrades--update from a 100A to 100B--inexpensively.
6. Ability to share hard disks with several users.
7. Printer drivers for LN03 and more non-DEC printers on all DCS software
8. Ability to format a single-sided IBM PC diskette under MS-DOS.
9. A second COMM port that doesn't require you to disconnect the hard disk controller to put it in.
10. More software packages overall--for business and personal use.
11. Ability to upgrade to the PCXX-IBM PC AT compatible machine at a reasonable price.
12. Rainbow versions of RBase 5000, Framework, Thinktank, and Borland's Sidekick.
13. MS-DOS installable graphics driver similar to GSX-86.

14. Larger print buffer built into printers.
15. Come up with an ANSI.SYS device driver like that of IBM that would give people the ability to redefine the function keys. This could allow users the use of extended sequences for color or monochrome shading that DEC could add as well as give the users the ability to run many IBM programs on their Rainbows.
16. A new ROM upgrade for the Rainbow that would include support for an IBM PC compatible character set. (This would allow Rainbow users to easily run all the programs that take advantage of all the IBM PC graphic characters.)
17. Hardware Reset and Halt keys.
18. Concurrent MS-DOS.
19. Terminal mode to support the additional keys of the LK201 keyboard.
20. Remove copy protection from DCS and DDS software.
21. Monitor connection for CAD products.
22. Software spooler.
23. Rainbow Draw and Paint.
24. DEC hardware and software sold in retail stores.
25. Coordination between local DEC Field Service offices and Atlanta Hotline Support Center.
26. ASSIGN command.
27. Cheaper maintenance prices.
28. Q-Bus for the Rainbow
29. Lap-top or portable Rainbow.
30. Rainbow LAN without the need for a VAX.
31. Direct Ethernet access for the Rainbow; i.e., a board that plugs into the Rainbow that doesn't preclude the use of a hard disk.
32. VT220 and VT240 emulation software.
33. Field Service support for third party wares such as the disk controller and formatter as well as for the clock boards that are on the market.
34. Full featured GW-Basic compiler.
35. Liberal trade-in allowance on Rainbow to PCXX.
36. 80286 "turbo" add-on with 80287.
37. "Open" Winchester utility that allows users to specify disk geometry to take advantage of great third-party disk prices.
38. Tektronic 4010/4014 emulation software.
39. Better basic documentation with purchase of each unit, i.e. BIOS, firmware listing and schematics.
40. Discount prices for CPM & MS-DOS in one package.
41. A formal position by DEC on use of floppy disks with hub ring.
42. Ability to read and write double-sided in PC-DOS format.

DECBS.LST -- List of DEC Rainbow bulletin boards -- 7 August 1986 -- Copyright (c) 1986 by Rob Elliott

Notes: This is in 132 columns. "+" 2400 bps, RE: restricted, DA: daily, WE: weekend, WK: weekday.

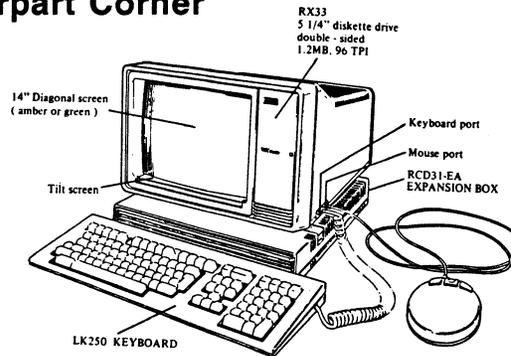
Net/Node	System name	Phone number	Location	Sysop	Flags
=====	=====	=====	=====	=====	=====
TOPS-20	DEC Market	617-467-7437	Marlboro MA	Bernard Eiben	Login: @LOG LCG.KERMIT KERMIT
13/15	Med Tech Fido	+716-897-0504	Buffalo NY	Bill Hliwa	WK:4p-10a
14/610	Omaha Fido	402-348-7603	Omaha NE	Jim Singer	WK:6p-6a
15/1002	UofA CAG	602-621-2097	Tucson AZ	Robert MacArthur	WK:10a-8a
18/13	TABS Fido	601-634-2365	Vicksburg MS	Don Bach	DA:11a-12p
100/16	Mike's Board	+314-726-3448	St. Louis MO	Mike Mellinger	
100/22	PC LUG	+314-576-2743	St. Louis MO	Ken Kaplan	
100/51	DECUS Central	+314-576-4067	St. Louis MO	Ken Kaplan	
101/14	WayStar	+617-481-7147	Marlboro MA	Kevin Porter	
101/27	Dave's Fido	+617-632-1861	Gardner MA	David Rene	
101/44	NECS	617-646-3610	Arlington MA	Dave Mitton	
101/45	Midnite DEC	+617-787-3033	Brighton MA	David Strickler	
101/111	Truk Bord	+617-631-3304	Marblehead MA	Mark Bornstein	
101/125	Davy Jones Locker	+617-865-3290	West Millbury MA	Richard Kenadek	
101/202	DEC Line	617-721-1688	Winchester MA	Bill MacNeil	
101/310	Dave's Annex	617-874-4325	Westminster MA	David Rene	WK:2p-7a
<del>101/267</del>	<del>Delaware Engineer</del>	617-486-2285	Littleton MA	Bruce Gibson	
		617-879-3714	Framingham MA	Herbie Cohen	WK:10p-6a
		+213-204-2996	Culver City CA	Don Brauns	
		+213-618-8454	Torrance CA	Glenn Bowes	DA:10p-4p
		+213-644-1963	Hawthorne CA	Bruce Headley	
		+213-370-4113	Lawndale CA	George Dalhco	
		+213-376-9567	Redondo Beach CA	Dan Tanna	
		+213-305-8303	Los Angeles CA	Jay Rosenberg	
		+805-643-0982	Ventura CA	Scott Johnson	
		+619-488-2116	San Diego CA	Rick Eliopoulos	DA:7a-7p
		+714-537-7355	Garden Grove CA	Mike Hamilton	RE:
		714-964-0454	Huntington Beach CA	Phil St. Erne	
		+714-645-7747	Costa Mesa CA	Rick Ellis	
107/17	DEC-House	+609-429-6630	Cherry Hill NJ	Brian Sietz	DA:12m-5p
107/23	HitchHikers Guide	315-589-7361	Williamson NY	Fritz Howard	DA:12a-6p
107/31	Rainbow Corner	+914-425-2613	Spring Valley NY	Ted Needleman	
107/55	Hubbin's Board	+302-239-3969	Hockessin DE	Van Olmstead	
108/50	Middi Fido	+513-425-3001	Lebanon OH	Jerry Maupin	WK:5p-8a
109/74	The Bear's Den	+703-671-0598	Falls Church VA	Kurt Reisler	
109/483	Wash-A-RUG	703-359-6549	Fairfax VA	Kurt Reisler	
109/601	Beauty Board	+301-725-7510	Laurel MD	John S Raum	
109/625	Catt House	+717-794-5268	Blue Ridge PA	Bob Catt	
114/3	Rainbow BBS	602-952-8520	Phoenix AZ	Jim Koshner	
115/100	Illini Data RB	+312-759-5402	Bolingbrook IL	Rob Elliott	
115/123	Chicago DECUS	312-490-9206	Schaumburg IL	Chuck Garrett	

115/444	Spine Fido	312-908-2583	Chicago IL	Mitchel Bass	WK:9p-5a
124/10	Big D Fido	+214-392-1121	Dallas TX	Dennis Forcier	
129/14	KA3LPS Rainbow	412-247-4488	Penn Hills PA	Tom Wardle	RE:
129/15	DEC-User	412-469-2468	Pleasant Hills PA	John Vukovic	
132/107	M'Cycle Bytes	+603-889-3366	Amherst NH	Robert Nilson	
132/225	SeaCoast Fido	207-439-9367	Kittery ME	Bill Thomas	
132/620	Spaghetti Heaven	603-635-7771	Pelham NH	Victor Coppola	
132/615	Wizard's Castle	+603-883-1596	Windham NH	Paul Gilberti	
134/3	Husky's Board	+403-743-4900	Ft. McMurray AB	Don Thompson	
134/101	Nemesis Fido RB	+403-355-3881	Faust AB	Benoit Guay	
134/103	NotQuiteAFullDEC	+403-791-1486	Ft. McMurray AB	Don Thompson	
138/32	Glacier Peak RB	+206-644-8431	Bellevue WA	Garry Stebbins	WK:12m-5p
138/34	Arctic Net	+206-581-7003	Tacoma WA	Rob Barker	DA:1p-6a
141/320	Surprise Pak	203-795-0339	Orange CT	David Hecht	RE:
141/328	Megabyte Gen Hosp	203-795-3182	Orange CT	Maynard Marquis	WE:10p-10a
141/491	Naugy Net	+203-729-7569	Naugatuck CT	Vince Perriello	
154/600	Tele-Post RB	+414-964-4046	Milwaukee WI	John Spiegel	
161/613	Rainbo Works	+209-832-1002	Manteca CA	Andre Coltrin	

## Counterpart Corner

### VAXmate News

This newsletter issue introduces exciting new personal computing products from Digital: VAXmate, a networked personal computing system, and VAX/VMS services for MS-DOS, the system and server software. I am also including an article listing the promotional literature on these new products and the LA75 Companion Printer that is available from your local Digital sales office.



VAXmate WORKSTATION (PC500, LK250)

### Rainbow News

An update of Rainbow dBASE III (V1.1) will be available as a Digital Classified Software product in early Fall 86.

New features of dBASE III V1.1 as compared to V1.0 include 16 commands (eight are SET parameters), 32 functions, one scope option, two control keys in the word processor, and a History mode for recovering and editing commands issued at the dot prompt and to debug errors as they occur. Some small revisions to existing code—such as the replacement of the IF...ENDIF structure with the new IIF function—make many programs significantly faster.

The order code for Rainbow dBASE III will remain the same (QAA70-C3). For users who have purchased the earlier version (V1.0) and now want the added functionality and speed of V1.1, a Rainbow dBASE III Update Kit (QAA70-H3) will be available. Check with DECdirect (1-800-258-1710) for availability and price.

I have made every effort to ensure that the information in this article, and in the VAXmate/PCSA articles, is accurate as of its publication date; such information is subject to change without notice. Digital Equipment Corporation is not responsible for any inadvertent errors.

## Digital Introduces VAXmate, Its Networked Personal Computer by Digital's Personal Computing Systems Group

VAXmate is Digital's industry-standard personal computer designed specifically for networking -- high-speed information exchange with other personal computers, Digital's VAX and MicroVAX systems, and IBM mainframes using Digital's network gateways.

The VAXmate workstation and specially-designed system and server software, along with Digital's second generation ThinWire Ethernet, DECconnect cabling system, and DECnet networking software, provide a framework for integrating personal computers into an organization's total information system.

### VAXmate's Network Capabilities

The key to VAXmate's network capabilities is VAX/VMS Services for MS-DOS, the software that allows VAX, MicroVAX II or VAXmate systems to act as servers to a number of VAXmates.

Servers allow the VAXmate to utilize selected remote resources, and access information and services from other computers and peripheral equipment on the network. Network topologies can range from small local area networks where a dedicated VAXmate with hard disk acts as the server, to VAX- or MicroVAX II-based work groups or departments where a MicroVAX or VAX acts as the server, to extended corporate wide networks.

### The VAXmate Design Center

VAXmate is operationally compatible with the IBM PC/AT. It also maintains many of Digital's popular desktop characteristics, such as the LK250 keyboard with Digital function key support, Digital graphics (including support for ReGIS graphics software) and a diskette drive capable of handling Digital RX50-format diskettes as well as IBM format diskettes.

The VAXmate base system includes a one-piece system unit/monitor, keyboard and mouse. The system unit contains the microprocessor, memory, video logic, I/O ports, diskette drive, power supply, and network interconnect hardware. The serial printer port, communications port, mouse port and Ethernet connector are located in the system unit, and do not require option slots.

### VAXmate Options

For users who require additional industry-standard options or mass storage, VAXmate also offers an expansion box containing a hard disk, controller, and two option slots.

Other options include an internal 2400-baud modem, 80287 math coprocessor, and 2-Mbyte RAM option. These are added to the

system unit, and do not require the expansion box.

Optional LA75 dot-matrix printer or LN03 PLUS laser printer are also available for use with VAXmate systems.

#### Software

The VAX/VMS Services for MS-DOS, MicroVMS Services for MS-DOS and VAXmate Services for MS-DOS packages provide the system and server software for VAX, MicroVAX II and dedicated VAXmate servers, respectively. Because this system and server software is loaded and maintained on the server system---even though much of the software, including MS-DOS and MS-Windows, actually executes on the client system---it is not necessary to purchase separate system software for networked VAXmate workstations: only a license is required.

For those who want to use VAXmate as a stand-alone personal computer, VAXmate Software for Stand-alone Use (Q6005-A7) is available. This software package includes MS-DOS, MS-Windows, VT220 and VT240 terminal emulators, and the On-line User Information System. A hard disk is required on the VAXmate to run this software.

#### Features

- o First personal computer designed and optimized for a networked environment. The base system comes "network ready" to plug into an existing Digital network or include in any new network installation.
- o Provides industry-standard personal computing and---with VAX/VMS Services for MS-DOS software---transparent access to VAX-based services and capabilities in a single workstation.
- o Advanced ease-of-use features include a standard mouse and MS-Windows, a graphics-based windowing interface.
- o Video supports IBM and Digital graphic modes.
- o Dual-labeled keyboard functions smoothly in IBM PC/AT or Digital environment.
- o Flexible configurations provide for modular, incremental growth.

#### Specifications

- o Intel 80286 CPU running at 8 MHZ
- o 1-Mbyte of RAM standard, expandable to 3 Mbytes
- o 64 KBytes of ROM code for BIOS, diagnostics, and local boot

- o 1 5.25-inch, 96 tpi, half-height RX33 diskette drive that allows read and write access to IBM PC/AT (1.2 Mbyte) and Digital RX50 (400 Kbyte) formatted diskettes, and read access to IBM PC and PC/XT (360 Kbyte) formatted diskettes
- o Integral 10-MHZ thinwire Ethernet transceiver
- o Thinwire Ethernet Kit, including 12 feet of RG58 C/U Coaxial cable, T-connector and terminator
- o One serial printer port using 9-pin, female, D-subminiature MMJ (telephone-style) connector
- o One serial asynchronous communications port with 25-pin, male, D-subminiature (DB25) connector, functionally compatible with RS232-C and electrically compatible with Digital's new RS423 standard; supports modem control
- o Keyboard with Digital function key, WPS-PLUS and IBM PC/AT compatibility
- o Three-button mouse and serial mouse port
- o 14-inch green or amber monochrome monitor
- o Digital graphic modes: 800 X 240, 800 X 250 and 640 X 400 (for Windows)
- o IBM graphics modes: 320/640 X 200
- o Downline-loadable "soft" character fonts for video monitor
- o Convection cooling, no fan for silent operation

Digital believes the information in this article is accurate as of its publication date; such information is subject to change without notice. Digital is not responsible for any inadvertent errors.

**Digital's Personal Computing Systems Architecture**  
by Digital's Personal Computing Systems Group

The Personal Computing Systems Architecture is an extension of Digital's overall architecture that merges the VMS and MS-DOS environments. It transparently integrates the personal and corporate computing environments for direct information access and sharing, organization wide.

Digital recently announced a new set of networked personal computing products that are part of Digital's Personal Computing Systems Architecture (PCSA): VAX/VMS Services for MS-DOS software and the VAXmate workstation. Together with Digital's network products and VAX systems, these new products provide a framework for integrating personal computers into an organization's total information system.

**VAX/VMS Services for MS-DOS**

VAX/VMS Services for MS-DOS software allows groups of VAXmates to utilize selected facilities and services of VAX computers in a DECnet network.

The VAX/VMS Services for MS-DOS package contains cooperative software that executes on both the system providing the services, typically a MicroVAX II or a larger VAX (the server), and on the VAXmate using the services (the client).

The individual components of VAX/VMS Services for MS-DOS software include:

- o MS-DOS V3.10 operating system
- o MS-Windows applications interface
- o Network/Server software, Digital's adaptation of MS-Net layered on DECnet
- o VT220 and VT240 terminal emulators
- o On-Line User Information System

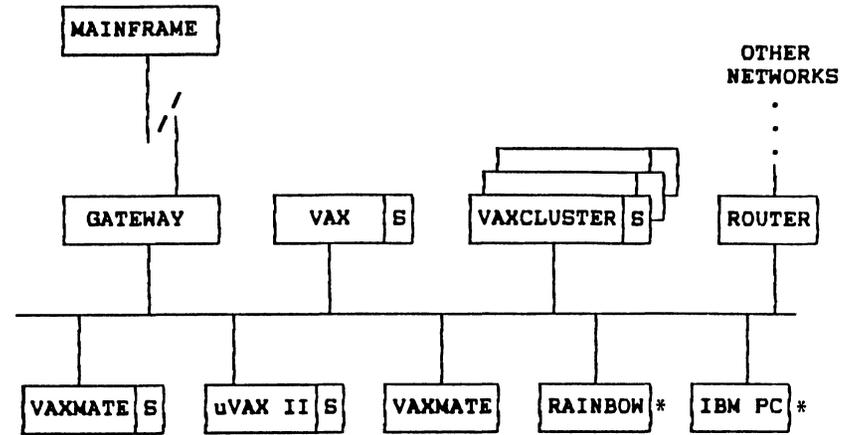
**The Server/Client Relationship**

VAX/VMS Services for MS-DOS is loaded and maintained on the server system, although much of the software (MS-DOS and MS-Windows, for example) actually executes on the client system. For this reason, it is not necessary to purchase system software for VAXmate clients -- only a license is required.

A VAXmate client system requires nothing more than a "key" diskette, which is set up by a system administrator. The key diskette contains the information required to make the network connection between client and server.

Once this network link is established, the user operates the VAXmate from a "virtual" disk drive that is actually located on the server system -- not on the client VAXmate. As far as the

**LOGICAL REPRESENTATION OF A PCSA ENVIRONMENT**



**"S" IN A SYSTEM INDICATES RUNNING SERVER SOFTWARE**

\* Future Capability

user is concerned, it doesn't matter where the server system is located. The remote disk appears as a standard MS-DOS drive (I:, J:, etc.). The server itself could be anywhere on the network.

This capability alone makes one of the most efficient information management strategies possible. Each piece of information in the network need only exist once and can be used in place by every user in the network. Conflicts among various copies of data made on individual PCs and data obsolescence can be vanquished. When users' files are stored on servers instead of individual PC hard disks and floppies, system managers and system administrators are responsible for backup, so that data loss is eliminated.

Another benefit flows from the synthesis of Microsoft's MS-Net and DECnet. Because DECnet supports a number of different data link layers, transparent file access extends over not only the Ethernet in a single facility, but also across leased lines, packet networks and even dial-up, asynchronous connections with the same transparency, making the network truly organization-wide.

### Software Components of VAX/VMS Services for MS-DOS

#### MS-DOS V3.10 Operating System

The MS-DOS V3.10 operating system enables VAXmate users to run industry-standard software applications; assemble, compile, and debug programs; and perform routine computing operations such as file retrieval and storage; editing, copying, renaming, and deleting files; creating and removing subdirectories; formatting disks; checking file directories and disk space; and many other functions.

The VAXmate adaptation of the industry-standard MS-DOS operating system provides several useful and powerful capabilities that are exclusive to Digital users. These include:

- o The ability to read and write both Rainbow (RX50) and IBM-standard diskette types
- o The ability to use VAXmate RAM memory as a pseudo- (RAM) disk
- o Backup and restore facilities for networked VAXmate systems
- o Graphics support for LA75, LA50, and IBM PC graphics-compatible printers
- o Loadable text and graphic fonts
- o Loadable country specific data tables

#### MS-Windows Applications Interface

MS-Windows, a "graphical extension" of the MS-DOS operating system, provides VAXmate users with an easy-to-use, highly-visual interface to the operating system. Pull-down menus, dialogue boxes, and icons are employed instead of the traditional command

line structure used by MS-DOS.

MS-Windows, driven by the Digital mouse included with every VAXmate, can split the display screen into multiple windows and allow several programs to appear on the screen at the same time. The user can switch between windows and transfer data between applications, although only one "active" window can operate at one time.

The user can also invoke the MS-DOS command processor through the Windows interface, to perform any and all operating system commands, such as copying, renaming, and deleting files, for example.

Key MS-Windows features include:

- o Multiple windows with data transfer between windows
- o Support for programs NOT written for a windowed environment
- o Excellent display resolution (640 x 400 x 2 planes)
- o Ability to "point" with a mouse
- o MS-Windows utilities: internal calculator, notepad, clock, paint, cardfile, calendar, and control panel
- o "Clipboard" function allows users to display and store information that is being copied or moved
- o Windows can be moved, sized, and "zoomed" on-screen

In addition to the full VAXmate support built into the MS-Windows software, there are several industry-standard hardware drivers supplied with Windows but not supported by Digital.

These drivers allow the VAXmate to be used with the following third-party hardware:

- o Microsoft Mouse
- o Mouse Systems Mouse
- o Logitech Serial Mouse
- o Kraft Joystick Mouse
- o VisiOn Mouse
- o IBM Color/Graphics Adapter
- o Hercules Graphics Card with monochrome display
- o IBM Enhanced Graphics Adapter with monochrome display,
- o IBM Enhanced Graphics Adapter with enhanced color display (black and white)
- o IBM Enhanced Graphics Adapter with enhanced color display or personal computer color display
- o IBM Enhanced Graphics Adapter (with more than 64K memory) with enhanced color display
- o Intel Aboveboard/AT

Plus, the following printer and plotter drivers are included with Windows but not supported by Digital:

Epson FX-80	C. Itoh 8510
Epson MX-80 Graftaxt	TI 850

IBM Graphics  
IBM Proprinter  
Okidata 192/193 (IBM)  
Okidata 192/193 (Std)  
Okidata 92/93 (IBM)  
Okidata 92/93 (Std)  
Epson LQ-1500  
NEC 3550  
NEC P2/P3

TI 855  
HP Laserjet  
HP 7470A  
HP 7475A  
Toshiba P351  
Star SG-10

VAXmate also provides file transfer services to allow VAXmate users to transfer sequential ASCII and binary files between the VAXmate and any other DECnet Phase IV node.

Files can be transferred in both directions between the server-based MS-DOS file system device and the file systems of other DECnet nodes using the DECnet Network File Transfer (NFT) utility. Wild cards can be used in source file specifications for both local and remote nodes, providing this capability is supported on the remote system.

ASCII text files transferred to the VAXmate system are converted into MS-DOS stream files; when transferred from the VAXmate they are converted into the remote system's normal format. When transferring of binary files to a VAXmate system, file data is preserved, but any record attributes will be lost; record attributes can be restored on such transfers (from the VAXmate to a record file system) through the use of utility switch settings.

Additional facilities offered by file transfer services include file deletion, spooling of files for printing, and submission and/or execution of command files (provided again the remote node supports these functions). Directory listings are also supported.

#### Network Management and Control Services

In addition to network computing functions for VAXmate users, the VAX/VMS Services for MS-DOS provides a complete range of services to allow management and control of the network. These services provide functions such as allowing clients to connect to a server, providing access/control to the system administrator, and returning server resource utilization information.

Access to network file and print resources can be limited by the use of passwords. When a server offers a directory or printer for use, a password can be associated with the directory or printer. Only users who know the password can then access that service.

The VAXmate network software also allows restrictions on the number of simultaneous client (VAXmate) connections to a resource on the server. It can also impose other restrictions on the use of the server, to help meet performance and security goals. The system administrator can monitor and adjust these parameters as necessary.

Additionally, the PCSA's VAX-based server systems can record network events in a file whenever the server is running. This information can log everything from fatal internal errors to notices about network connections being opened and closed. There are also Extended Services which provide date/time service for client (VAXmate) systems.

#### Terminal Emulator Packages

### **Network/Server Software**

#### **Network Services:**

##### Server-based File Services

VAX/VMS Services for MS-DOS provides a remote MS-DOS file system which appears as a transparent extension of the client system's local computing facilities. This server-based file-access system allows users to share MS-DOS files contained on the server's disk, through concurrent as well as sequential usage of the files.

Files can be shared among VAXmate systems with concurrent access made possible through different MS-DOS "file access modes." Users of client systems with open files can specify whether other users can access those open files and what operations they can perform (read and/or write) on the files. Users can also "lock" portions of a file to provide other users with access to the file, but restrict them from accessing certain portions of the file (such as a portion that is being updated).

Certain MS-DOS functions--CHKDSK, FDISK, DISCOPY, DISCOMP, and FORMAT--cannot be executed on remote network devices (servers), but can be performed locally.

##### Server-based Print Services

Print services offered to VAXmate users by PCSA server systems also appear as a transparent extension of the VAXmate's local computing facilities.

Server-based print services allow the printing of output on any printer attached to the server: typically a shared-resource printer such as Digital's LN03 PLUS. Complete information on print queue status is also available upon request to VAXmate users.

##### File Transfer Services

In some instances, VAXmate users may need to transfer files between the VAXmate and a system on the network which is not running the same operating system software as the server system (for example, a PDP-11 or DECSYSTEM-20). For this reason, the

The VAXmate operating environment includes terminal emulation software which allows users to establish terminal sessions with a host computer such as a VAX. Terminal sessions can be established using either the VAXmate's serial communications port or via the Local Area Network port. Two terminal emulators are provided with the VAXmate operating environment: VT220 and VT240 emulators.

The VT220 terminal emulator can only be used with MS-Windows; the VT240 terminal emulator can be used with or without MS-Windows. When the VT240 emulator is invoked within MS-Windows, it takes control of the entire screen, keyboard, and communications ports. The VT240 emulator does not support the Tektronix 4010 and 4014 modes of operation.

#### VT220 Terminal Emulator features:

- o Supports network and serial communications
- o Allows logging characters received from the host into a file
- o Supports MS-Windows Clipboard utility for cutting and pasting of information
- o Characters may be sent to the host from a file instead of from the keyboard

#### VT240 Terminal Emulator features:

- o Supports VT240 ReGIS graphics
- o Supports Digital applications which display information on a VT240 terminal
- o Supports two-video modes: ReGIS color graphics mode and a fast text-only video mode
- o Supports Digital multinational and ISO multilingual character sets through compose sequences
- o Supports network and serial communications
- o Allows logging characters received from the host into a file
- o Supports up to four simultaneous terminal sessions via the Local Area Network Port
- o Characters may be sent to the host from a file instead of from the keyboard

In some instances the VAXmate user will wish to establish a terminal emulation session to a host system which because of CPU type or its location on a DECnet network will be inaccessible to the primary VT220 and VT240 terminal emulation support. For this reason the VAXmate Operating Environment provides a secondary terminal emulation capability (SETHOST).

This gives the VAXmate user the ability to establish a virtual terminal connection to multi-user remote Phase IV DECnet systems which support Digital's Terminal Services Architecture Command Terminal protocol.

#### Key Features

Key features of the VAX/VMS Services for MS-DOS and MicroVAX Services for MS-DOS software packages include:

- o Allows application-, file-, and resource-sharing via network servers. Provides for centralized system management of personal computing resources.
- o Data and application sharing: Both VAXmate and VAX/VMS users can access both MS-DOS and VMS files stored on a VAX or MicroVAX server, without format conversions, because MS-DOS program and data files are stored in RMS stream files in regular VAX/VMS directories.

Note that to be stored on a server and thus shared among multiple VAXmate users, MS-DOS applications must be appropriately licensed.

- o PC applications and data stored on a VAX server are automatically delivered to MS-DOS users in MS-DOS format, with no knowledge of the network required.
- o The server system can be located ANYWHERE on the DECnet network.
- o Access to files is transparent. Most VAXmate users don't even need to know that their files are located on a server system rather than locally.
- o MS-DOS files can be shared concurrently by VAXmate users.
- o Uses VAXmate RAM memory as a virtual (RAM) disk.
- o Server can be used for backup and restore of VAXmates with hard disks.
- o Allows for virtually unlimited file storage when a VAX or MicroVAX acts as a server.
- o Print services allow VAXmate users to share printers attached to the server, from either an MS-DOS or VAX/VMS environment.
- o VAXmate users can use services available to DECnet network users, including: file transfer services, both ASCII and binary files; network management; and control services.
- o Provides VT220 (as a Windows application) and VT240 (full-screen application) terminal emulation.
- o On-Line User Information System provides easy-to-use, MS-Windows-based operating and reference information.

VAXmate Services for MS-DOS software is available to run on a dedicated VAXmate acting as the server---the Expansion Box with a hard disk is required---for a small networked personal computer topology.

Digital believes the information in this article is accurate as of its publication date; such information is subject to change without notice. Digital is not responsible for any inadvertent errors.

## Microsoft Applications for the VAXmate

by Digital's Personal Computing Systems Group

Digital offers the following Microsoft Corporation applications for the VAXmate as part of the Digital Distributed Software (DDS) program: MS Project, Multiplan, MS Chart, MS Pascal, MS FORTRAN, MS COBOL, MS Macro Assembler, MS C Compiler, and Flight Simulator.

### MS Project

A project management tool that allows users a way of performing simple scheduling of a wide range of tasks and efficient handling of work schedules. Users can define start and stop dates, slack time, drop dead dates, interdependencies between tasks and subtasks, resource availability and cost information. MS Project allows a variety of task selection criteria to view information in different ways. Data can be plotted and reported. MS Project supports DIF, SYLK, dBASE (SDF) and ASCII file formats for exchanging information with Multiplan, MS Chart, Lotus 1-2-3, and many other programs.

### Multiplan

Multiplan now supports spreadsheets of 4,095 rows by 255 columns. "Linking" spreadsheets together provides the ability to rollup financial tables into a single summary sheet; adjustments are made automatically on related worksheets whenever changes are made on a primary worksheet. Multiplan also includes a powerful reporting facility and the ability to exchange data with programs in DIF and SYLK formats.

### MS Chart

MS Chart inputs data from such products as Lotus 1-2-3, or dBASE II/III using DIF, SYLK, or ASCII (SDF) formats to develop easily understood, presentation-quality charts. Many variations of pie, scatter, area, bar, column, hi-lo, line, and overlay charts are provided in 45 predesigned formats. Users are given the freedom to design their own format and save it for later use.

Charts can be annotated and edited to suit the user's needs. Text and arrows can be added, line patterns, fill patterns, fonts, and font sizes can be modified. Charts are displayed in a "what you see is what you get" format.

On-line HELP, facilities for analyzing data, and seven built-in statistical functions are provided.

### MS Pascal

This system development language allows programmers to create

highly readable, modular, and transportable code. Based on the proposed ISO and ANSI standards, MS Pascal allows low-level access to assembly language routines and direct memory locations.

The relocatable object modules are compatible with MS FORTRAN and Macro Assembler, so users can combine routines generated in different languages.

MS Pascal supports the optional VAXmate 80287 coprocessor for faster floating point operations or emulation of floating point where floating hardware does not exist.

MS Pascal supports data structures that extend beyond the traditional 64K segment limit, allowing programs to use all of the available memory.

#### **MS FORTRAN**

This FORTRAN compiler combines fast, efficient native code compilation with built-in support for the optional VAXmate 80287 floating point coprocessor. MS FORTRAN is based on the ANSI 77 standard with extensions to provide even greater programming power.

Separate compilation provides support for modular development, and allows linking together program modules to create applications as large as 1 megabyte. MS FORTRAN object modules may be linked with those created by the Macro Assembler or MS Pascal.

#### **MS COBOL**

This COBOL compiler has been certified by the Federal Compiler Testing Center for compliance with the low intermediate level of the ANSI X3.23-1974 standard and many higher level standards. Thousands of existing applications written for larger computers can be adapted and transported to MS COBOL.

The screen section in MS COBOL makes it easy to create forms and menus for interactive, user-friendly programs. Cursor position, field highlighting, prompting and automatic form conversion are among the features provided. Once the form has been defined, it may be displayed or accepted with a single statement.

MS COBOL also provides an interactive, symbolic debugger which lets the programmer step through a program while it is running and review and change selected data items by name.

#### **MS Macro Assembler**

This assembler allows conditional assembly, and a rich set of directives allow full use and power of the microprocessor. MS Macro Assembler produces relocatable object modules capable of being linked with those of any of Microsoft's high level

languages.

SYMDEB, a source line debugger, capable of working with Macro, C, Pascal, and FORTRAN programs at the source level, is provided with MS Macro. Breakpoints, tracing, dumping, and memory display and modification are present.

Also provided on the kit are the Microsoft standard LINKer, CREF cross reference facility, and MAKE for maintaining updates to development files.

#### **MS C Compiler**

This full implementation of C produces optimized native code. Developers may specify type of optimization preferred (speed or size). An extensive library of subroutines that implement UNIX System V functions is included.

Small, medium and large memory models, NEAR and FAR extensions, and mixed-model programming capabilities give you flexibility in selecting the addressing requirements of the software. Capable of developing applications that use memory up to 1 megabyte.

The package includes complete development facilities including the compiler, run time library, linker, and library manager.

#### **MS WORD**

This word processor supports for dot matrix, daisy wheel and laser printers. Character attributes such as bolding, italics, underline, sub/superscripts are displayed in a "what you see is what you get" format.

Advanced editing features include multiple windows, file merge, newspaper-style columns, headers and footers, 80,000-word spelling checker, hyphenation, a glossary of commonly used phrases, and predefined "style" sheets to speed setup of commonly used document formats.

#### **Flight Simulator**

This popular recreational package simulates the experience of flying a Cessna 182. Flight Simulator lets you create up to 30 flight modes. You can take off and land at more than 80 airports. The weather or season may be altered to add other conditions the pilot may face. This is the same version that runs on the IBM PC/AT, and is frequently used as a test of IBM compatibility.

#### **Ordering Information**

Q6X02-CI	MS Chart V2.01 N/S
Q6X03-CI	Multiplan V2.01 N/S
Q6X04-CI	MS Project V2.01 N/S

Q6X06-CI MS FORTRAN Compiler V3.31 N/S  
Q6X07-CI MS Pascal Compiler V3.31 N/S  
Q6X08-CI MS C Compiler V3.0 N/S  
Q6X09-CI MS COBOL V2.1 N/S  
Q6X10-CI MS Macro Assembler V4.0 N/S  
Q6X01-CI MS WORD V3.0 N/S  
Q6X11-CI Flight Simulator V2.12 N/S

These DDS products are available with single-use licenses. Use of these applications in a server environment is restricted to the terms and conditions of the Microsoft license provided with the software.

Lotus 1-2-3 is a trademark of Lotus Development Corporation.  
dBASE II and dBASE III are trademarks of Ashton Tate.  
SDF is Ashton Tate's System Definition Format.  
UNIX is a trademark of Bell Laboratories.  
MS Chart, Multiplan, MS Project, MS FORTRAN Compiler, MS Pascal Compiler, MS COBOL, MS Macro Assembler and Flight Simulator are trademarks of Microsoft Corporation.

NEW LITERATURE FROM DIGITAL  
by Digital's Personal Computing Systems Group

Introducing VAXmate: An Integrated Approach to Personal Computing

VAXmate is Digital's new personal computer designed specifically for networking. VAXmate, along with specially designed system and server software, provides a framework for integrating personal computers into an organization's overall information systems strategy. This capability is made possible by Digital's Personal Computing Systems Architecture, which extends the power and flexibility of Digital's large system networks to the world of industry-standard personal computing.

This brochure not only describes the VAXmate system -- outlining its benefits for both the end user and the system administrator -- but also positions the product into the department's and organization's personal and system-wide computing needs.

This eight-page brochure is directed toward high level, nontechnical executives, from MIS managers to CEOs.  
Order number: EA-29276-55.

VAXmate: Digital's Networked Desktop Computer

This four-page information sheet describes the new VAXmate personal computing system, including its features, benefits and specifications.  
Order Number: ED-29277-55.

VAX/VMS Services for MS-DOS: Integrating Personal Computers into the VAX Environment

VAX/VMS Services MS-DOS, MicroVAX Services for MS-DOS and VAXmate Services for MS-DOS software packages allow VAXmates to utilize facilities and services of VAX, MicroVAX or other VAXmate computers, respectively, in a DECnet network. These VAX/VMS and MicroVMS packages transparently extend the world of personal computing into the VMS environment, allowing resources to be shared among VAX and VAXmate users.

This four-page information sheet outlines these products, how they work, the features and benefits of the computing environment and of the individual components -- MS-DOS, MS-Windows, network/server software, VT220/240 terminal emulators and the On-line User Information System.  
Order Number: ED-29278-55.

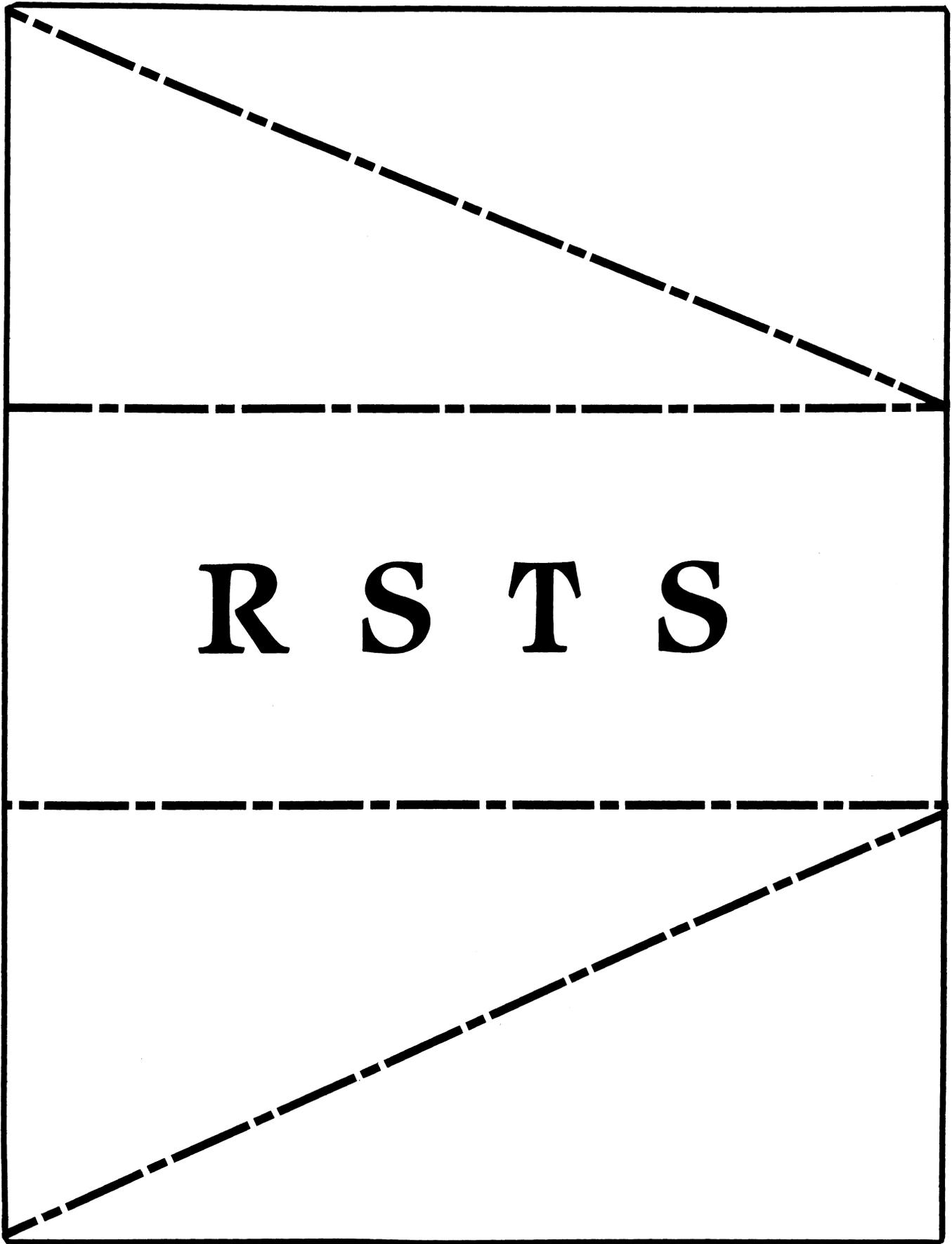
The LA75 Companion Printer

This four-page information sheet describes Digital's LA75 -- the new companion printer for VAXmates, IBM PCs and compatibles, the

VT200-family video terminals, and other popular desktop workstations.

Order Number: ED-28726-56.

This literature is available from Digital sales offices in the U.S. The pieces and order codes may vary in some countries; contact your local sales office for more information.



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## 1 INTRODUCTION

The purpose of this article is to give the reader an understanding of problems involved in converting application software written in the BASIC-PLUS language to VAX BASIC. The anticipated audience would include programmers, analysts, and managers that are currently involved with or seriously considering moving their software from RSTS/E to VMS. If, when reading this article you discover some technical mistakes, please send your corrections to: Randall J. Park, Park Software Inc., P.O. Box 31529, Seattle WA 98103

Many PDP-11 users running the RSTS/E operating systems are considering migrating their application software to VMS. If their applications are written in FORTRAN, COBOL, or DIBOL (RMS) then their task is relatively easy because these languages are pretty much standardized and they do not let the programmer get too close to the operating system features without having to code in assembly language. BASIC-PLUS (BP) and BASIC-PLUS-2 (BP2) are a different story altogether.

Programs written in BP2 that only use RMS files, do not use any SYS calls, pay close attention to the language manuals concerning differences of the various operating systems, and in general follow all of DEC's recommended programming practices, may, and I repeat may, be able to run on VMS without much conversion. Some modifications will still probably have to be made though.

Programs written in BP are without a doubt the most difficult to migrate from RSTS/E to VMS. Many such programs use SYS calls that are unique to the RSTS/E operating system, use statements that perform well under RSTS/E but not under VMS, and use programming techniques that simply do not work in VAX BASIC.

Many people have tried to convert RSTS/E BP programs to VAX BASIC. Some have succeeded. Many have failed. It is not unusual to discover that converted BP programs run slower on a VAX 11/780 than they did on a PDP 11/70. There goes the price/performance ratio down the drain. Using a well known RSTS/E simulator on VMS does result in programs that will usually

work, but nowhere near the expected performance. After all you didn't really buy a VAX just so that you could simulate RSTS/E did you?

After seven years of programming in BP on RSTS/E systems and two years of programming in VAX BASIC on VMS systems, we at Park Software Inc. finally believe that we know how to convert BP programs to VAX BASIC. Sometimes that task is not easy, sometimes it is trivial. Unless you have the experience it is not easy to predict whether a particular program will take 20 minutes to convert or 10 days to convert. Our experience tells us that programs that follow the following rules can be manually converted in an average of 2 hours each:

- . All programs must follow certain coding conventions. The actual conventions that are used are not as important as strict adherence to the chosen conventions.
- . Generous use of standardized routines. The standardized routines have to be the same in every program.
- . Limited use of operating system dependent features. Having these features isolated in functions or external routines greatly enhances the ability to convert the program.

## 2 MOVING SOURCE CODE TO THE VAX

Before you can convert a BP program to VAX BASIC you must first verify that the source code is in a readable format for VAX BASIC and then move it to the VAX.

Many older BP programs are written using the "line-feed" method of line continuation rather than the "ampersand carriage-return" method. All programs that are written in the NOEXTEND mode of BP will be using the "line-feed" method. VAX BASIC does not support the "line-feed" method of line continuation. All programs using this method must be converted to the "ampersand carriage-return" method before the source code is moved to the VAX. The best way to do this is to use the \$TRANS.TSK program that was supplied with the BP2 V1.6 installation kit. If you don't have it then find a site that does. This program is extremely valuable and DEC should have included it in their release of BP2 V2.X.

The main purpose of the \$TRANS.TSK program is to convert BP programs to BP2 programs that will compile under the V1.6 BP2 compiler. This program does a number of things to BP programs. Some of the things that get converted include:

Conversion of "line-feed" continuation to "ampersand carriage-return" continuation.

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- . Insertion of closing quotation marks when a closing quotation mark is missing. Yes, BP lets you do that.
- . Converts the & synonym for PRINT to PRINT.
- . Inserts a comma in various places where BP does not require it yet BP2 and VAX BASIC do require it; PRINT X% and FIELD X% for example.
- . Flags incompatibilities with BP2 on RSX such a MODE and CLUSTERSIZE clauses on an OPEN statement.
- . Flags PRINT USING statements because BP2 and VAX BASIC have more powerful print masks that can theoretically yield different results than in BP.
- . Flags all LSET and RSET statements because they can yield different results in BP2 and VAX BASIC.
- . Inserts spaces between key words and variable names in places where BP2 required them but NOEXTEND mode of BP does not require them.
- . Removes spaces within key words and numeric literals in places where BP ignored them but BP2 sees them as being significant.
- . Replaces CVT\$\$ functions with EDIT\$ functions.
- . Replaces POS functions with CCPOS functions.
- . Converts all DEF functions to DEF\* functions.

Because of all the work that \$TRANS does, we strongly recommend that all BP programs be translated to BP2 with \$TRANS before the source is moved to the VAX system. If a program is already working in BP2 then it is rarely necessary to use \$TRANS.

Moving a text file (source code files are really text files) to a VAX can be done in several ways. The easiest way is to use DECNET after converting the text file to an RMS sequential variable file with PIP. If DECNET is not available then we recommend using PIP (DCL COPY) to copy the source code file to a DOS-11 (not ANSI) labeled tape. This tape can then be read on the VAX system using FLX (VMS Version 3) or EXCHANGE (VMS Version 4). Remember, FLX and EXCHANGE assume account numbers on tape files, also known as project-programmer numbers and UIC's, are octal not decimal. The VMS Version 3 FLX command to read text files from tape is:

```
MCR FLX /RS=MS0:[1,2]FILE.BAS/DOS
```

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### 3 CONVERSION OF SOURCE CODE

#### 3.1 OPENING FILES

File specifications are different on VMS than on RSTS/E. Device names usually include a controller designation. Logical names may be longer than 6 characters. Directories may be alphabetic and may have sub-directories. UIC style directories are octal not decimal. Protection codes may not be specified with a filename. As you can see there are numerous things that are different between RSTS/E and VMS concerning opening files. The items that we look for when migrating programs include:

- . Change device names to VMS style logical names then assign the logical name to the physical name outside the program.
- . Change "SY:" device name to "SYS\$DISK:". Assigning a logical for SY is also acceptable.
- . Eliminate the CLUSTERSIZE clause. Clustersize has a different meaning on VMS.
- . Eliminate the MODE clause. Always use the ACCESS and ALLOW clause to specify how this program is to ACCESS the file and how other users are ALLOWed to access the file.
- . Always include an organization clause on the OPEN statement, with the possible exception of print files.
- . Include an ORGANIZATION VIRTUAL clause for block I/O files and for virtual array files.
- . Eliminate any protection code specification on filenames. VMS does not allow protection codes to be specified with a filename. Use the DCL command SET PROTECTION=(prot)/DEFAULT to set your default protection code. To change the protection code of a file from within a program will require the use of the QIO system service.

#### 3.2 TERMINAL FILES

The opening of a terminal file is something that is done quite often on a RSTS/E system. As a general rule it is not a good idea to open a terminal on a non-zero channel in VAX BASIC. One very good reason is that in batch on VMS there is no terminal, whereas on RSTS/E the batch processor uses pseudo-keyboards, which is treated like a terminal. Items that we change regarding terminal files include:

- . Change "KB:" device name to "SYS\$COMMAND:". Changing it to "TT:" will work for interactive processes but not for batch processes. Assigning a logical for KB is also acceptable.

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- . If special open modes for terminals are used then an appropriate VMS system service will have to be used. To be able to handle echo-control, a feature that we used heavily on RSTS/E, we wrote a set of externally callable routines that simulate echo-control on VMS.

### 3.3 VIRTUAL ARRAY FILES

Virtual array files on RSTS/E are generally used for two important reasons; the arrays are too big to fit in memory, and to pass data from one program to another program. When migrating BP programs to VMS all virtual arrays should be eliminated.

If a BP virtual array file is used because of insufficient memory then the virtual array can be replaced by either eliminating the channel number on the DIM statement along with the length specification on string arrays, or by replacing the DIM with a MAP or COMMON statement.

If a BP virtual array file is used to pass data from program to program then the virtual array can be replaced with a MAP statement where all the arrays are stored in an RMS sequential file and loaded into memory during program initialization and written back out to disk during program termination. This technique is much more efficient than continuing to use virtual arrays.

Please note that strings in virtual arrays are pseudo-dynamic strings. They have a fixed length equal to the length declared or 16 bytes if no length is declared. When data is moved into a virtual array string, null characters are appended to the data to fill out the length of the string. When data is extracted from a virtual array string all trailing nulls are removed from the data. Incore string arrays that are not in a MAP or COMMON are variable in length with no practical limit whereas string arrays in a MAP or COMMON always have a fixed length and are padded on the right with spaces.

### 3.4 BLOCK I/O FILES

Many RSTS/E BP programs use block I/O files. All block I/O files are still using RMS to perform I/O, however they are using a special feature of RMS designed specifically to support RSTS/E style block I/O files. This type of file is still supported under VAX BASIC with some restrictions. These restrictions are as follows:

- . The ORGANIZATION VIRTUAL clause must be used on the OPEN statement.

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- . If the block I/O files are to be shared, ACCESS MODIFY and ALLOW MODIFY, then the RECORDSIZE clause must have a value of 512. In addition, the file organization, as RMS sees it, must be sequential with fixed length records of 512 bytes.
- . If the block I/O files are not to be shared, then a larger recordsize value may be used, but it must be a multiple of 512. All programs that access the file must use the same recordsize clause, and the file organization, as RMS sees it, must be sequential with fixed length records equal to the size declared in the recordsize clause.

These restrictions leave many RSTS/E home-grown file systems that use block I/O, unable to work properly under VAX BASIC. To solve this serious problem, we at Park Software Inc. wrote our own block I/O package, called BIO, to get around these restrictions.

Our BIO package is a set of externally called functions that replace the OPEN, CLOSE, GET, PUT, UNLOCK, and SPEC statements. These functions, QOPEN, QCLOSE, QGET, QPUT, QUNLOCK, and QSPEC, emulate the functionality of their corresponding BP statement. Block locking performs in a manner similar to RSTS/E block locking. Not all open modes are supported as some of them do not make sense on a VMS system. Since errors during I/O operations are fairly common, BIO lets the system manager specify whether error codes, RSTS/E error codes of course, are to be passed back as the value of the function or are to be handled by the program's normal error trapping.

Without these BIO routines we would not be able to achieve the same performance level that we came to expect on our RSTS/E systems.

### 3.5 PRINT FILES

Print files in VAX BASIC are not stream files as in RSTS/E but are instead RMS sequential files with variable length records that have implied carriage control. This is a significant difference that can yield its own set of problems. The items that we inspect or do include:

- . Append an ACCESS clause and an ALLOW clause on the OPEN statement.
- . Specify a NOMARGIN statement after the file is open. If this is not done VAX BASIC limit the size of an output line to 72 characters.
- . If the output line might be greater than 132 characters, including control characters like form-feed, then we include a RECORDSIZE 255 clause on the open statement.

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- . Implied carriage control means that output records do not contain any carriage-return or line-feed characters, but that the operating system, when writing a record to a carriage control device, will append a carriage-return and line-feed character sequence to the line. This means that programs should not write these characters to the output file. Doing so will surely mess up a report format. For example, if five blank lines are desired, then execute a PRINT statement without any arguments five times instead of printing five line-feed characters. EDT is a good program to use to inspect print files for lines that contain unwanted control characters.

### 3.6 SYS FUNCTIONS

Some SYS functions are supported in VAX BASIC while others are not supported. The supported functions are:

- . Cancel Ctrl/O.
- . Enable Echo. Use the ECHO function instead.
- . Disable Echo. Use the NOECHO function instead.
- . Get core common. LIB\$GET\_COMMON allows 252 characters.
- . Put core common. LIB\$PUT\_COMMON allows 252 characters.
- . Cancel type ahead.
- . Exit and clear program.
- . File string scan. Use the FSS\$ function instead.
- . Enable control/C trap. Use the CTRLC function instead.
- . Get error message. Use the ERT\$ function instead.
- . Set priority. Requires ALTPRI privilege.
- . Assign a device.
- . Deassign a device.
- . Deassign all devices.
- . Send/Receive. Requires SYSNAM and PRMMEX privilege. Use mailboxes instead. Please note that Send/Receive uses permanent mailboxes and that mailboxes are much slower than RSTS/E send/receive. We recommend it only for low volume messages only.

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Commonly used unsupported SYS functions and their work around include:

- . Get current job number. There is no such thing as a job number on VMS. The closest thing to it is process ID table index which varies from one to the maximum number of processes allowed on the system. The GETJPI system service is used to get this table index but it is different in version 3 of VMS than in version 4.
- . Get current terminal number. There is no such thing as a terminal number on VMS, however GETJPI can be used to determine the terminal device name which could then be translated to a number.
- . Get current date. On RSTS/E the current date is a 2 byte integer. On VMS the current date is an 8 byte integer and also includes time. The GETTIM system service will return the current date and time. The ASCTIM will convert the 8 byte integer into an ASCII format for printing. Of course the DATE\$(0) and TIME\$(0) functions will also return the current date and time.
- . Detaching. On VMS systems the term DETACH has a slightly different meaning. Processes can be started that are detached, not connected to any terminal, but there is no way to disassociate a running program from the terminal it was started from. On version 4 of VMS a program can be interrupted by the user and then continued in a disconnected state with a DISCONNECT/CONTINUE command if virtual terminals are being used, but this cannot be controlled by the user program.
- . Drop and Regain privileges. On RSTS/E, prior to version 9, a user is either privileged or non-privileged. A program can run privileged for non-privileged users and that program can drop its privileges and regain the dropped privileges. On VMS, each user can have a multitude of privileges, not to mention default privileges, authorized privileges, and current privileges, and any program can be installed with privileges. The question now becomes which privileges do you drop, the users privileges or the programs privileges, and then you have to make sure that you restore only those privileges that you dropped. It can get complicated.
- . Kill a job. On VMS you can either delete a process with the DELPRC system service or you can force a process to exit with the FORCEX system service. It is generally better to force a process to exit first then delete it as this will invoke any exit handlers the process may have declared.
- . Create a job. On VMS the CREPRC system service can be used to create another process.

## 3.7 OTHER CONVERSION ITEMS

There are a number of other items that need to be changed when migrating BP to VAX BASIC. They are:

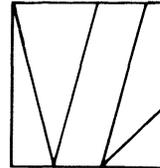
- . Sorting presents a different kind of problem. The solution to sorting is usually solved by calling the VAX SORT routines from the application program. There are two ways to use the VAX SORT routines, the record level interface and the file level interface. In the file level interface, the program will more or less pass a filename to the sort routines and the VAX SORT will sort it. In the record level interface, the program will call the following routines:
  - . SOR\$BEGIN\_SORT. This routine will initialize the sort.
  - . SOR\$RELEASE\_REC. This routine is called for every record to be sorted.
  - . SOR\$SORT\_MERGE. This routine is called once to sort the records that were passed to the sort with SOR\$RELEASE\_REC.
  - . SOR\$RETURN\_REC. This routine is called to retrieve the sorted records. It is called for every record that was sorted.
  - . SOR\$END\_SORT. This routine is called after sorting is completed to perform various cleanup work.
- . Move all DIM statements to the top of the program. Arrays must be dimensioned before they are used.
- . Change all DEF functions to DEF\* functions. DEF functions must have their own error trapping and a program cannot transfer outside of the function.
- . Only line numbers are allowed in column 1.
- . Files have to be closed before they are killed.
- . Program chaining is supported only if the line number clause is not used. If a line number is used then the post chain program must be examined for the various entry points it may have and a mechanism must be devised to pass to the post chain program the line number of the desired entry point. As a general rule excessive program chaining should be eliminated as image activation is very slow on VMS. A potential side affect of converting chains to calls is that a chain will initialize all data fields whereas a call will not always do so.

- . The conversion of FIELD statements to REMAP statements will probably have the greatest impact on CPU performance of any item in this document. FIELD statements in VAX BASIC are very slow and they don't work exactly the same as they do in BP. Some people have converted FIELD statement to REMAP but complain that the REMAP statement has a buffer name associated with it and not a channel number. Since the buffer name is determined at compile time whereas a channel number can be determined at run time, they claim that they have to have a separate REMAP statement for each file they plan on opening. We at Park Software have found a way to solve this problem, but it is too involved to explain here. One side affect of using REMAP is that the location of strings cannot be shifted into and out of the buffer as can be done in BP. This side affect also applies to the FIELD statement in VAX BASIC. Either a string is in the buffer or it is not.
- . Print masks that contain literals in them may yield different results on VMS than the did on RSTS/E. In particular, if an apostrophe character is used in a print mask, then that print mask will have to be changed.
- . CVT functions work the same in VAX BASIC as they did in BP. You can ignore the warning messages the compiler produces when it encounters a CVT function.
- . All programs should be compiled with the /WORD switch. Most BP programs will work properly if compiled with /LONG and they will run faster too, but there are a few isolated instances where /LONG will not work correctly.
- . If your BP programs used the 4 word math package then they should be compiled on VMS with the /DOUBLE switch, otherwise they should be compiled with the /SINGLE switch.
- . Programs should also be compiled with the /CHECK=(NOOVER,BOUNDS) switch. /CHECK=BOUNDS means to signal an error if an array exceeds its bounds, also known as its dimensioned value. /CHECK=NOOVER means to not signal an error if an integer overflow occurs. BP does not check for integer overflows and some programs expect that 32767 + 1 will yield -32768.

We also strongly recommend that you read the release notes that are provided with VAX BASIC. One section of the release notes discusses differences between VAX BASIC and BP2. Topics discussed include but are not limited to:

- . Different error codes are sometimes returned, depending upon the error.
- . A slight difference in print masks can be encountered.

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August 14, 1986

- . Overlapping strings in MAPs and COMMONs that are copied into each other may yield different results.
- . Comparing strings of different lengths may yield different results because BP pads shorter strings with nulls while VAX BASIC pads them with spaces.

### 4 CONCLUSION

In conclusion, we at Park Software Inc. have determined that BASIC-PLUS programs can be converted to VAX BASIC and still yield good performance. Some programs are easy to convert and some programs are not so easy to convert. Some may need only 2 minutes of work while others may need as much as 2 weeks of work. In this type of work, the old cliché "There is no substitute for experience" is valid.

While this article is by no means a definitive treatise on converting BASIC PLUS programs to VAX BASIC, it is a very good start and covers most problem areas one will experience during a conversion.

Charles Mustain  
RSTS/E SIG Newsletter Editor  
Stark County Local School System  
Dept. of Education Service Ctr.  
7800 Columbus Road NE  
Louisville, OH 44641

Dear Editor:

When this patch was first introduced way back in RSTS V7.0 days, our programming staff loved it. In brief, it adds a "G" to the long list of qualifiers which enable users on your system to get a list or files or devices opened on each channel of a job. Over the years, we've only had to modify the patch slightly to accommodate each new version of SYSTAT. With the introduction of V9.0, the changes were no longer minor. It is hoped that newer versions of SYSTAT in the near future will not require major changes of this patch and should remain useful for quite some time. Maybe DEC will make this patch a standard feature with future incarnations of SYSTAT--we can only hope.

Some tips: because the length of this patch is quite long, the likelihood of entering this patch correctly the first time is small. You must enter the patch correctly; entering the uppercase and lowercase letters as given, and avoid confusing zero "0" with the letter O. The recommended way to do this is to build a patch command file on the first attempt by entering "SYSTAT.PAT=KB:/CS:57982" on the line "#[logfile=]KB:/CS:57982<cr>", and then compare its contents with that of the text given in this patch to discover your mistakes. You can abort CPATCH using Ctrl/C, edit the SYSTAT.PAT file to correct the mistake(s) and then re-run the CPATCH utility and enter "KB:=SYSPAT.PAT /CS:57982" to see how it fares subsequent times. Eventually, you will get the checksum 57982 to come out and the patch will be successful. Please note that any line in SYSTAT.PAT that is the result of a "V" (verify) command will have its text converted: tabs become <tab>, and carriage returns become <cr>.

Good luck!

Sincerely,

VL Systems, Inc.

Victor Lindsey  
Principal & Sr. System Programmer

RSTS/E V9.1  
System Utilities Package  
SYSTAT

Seq 10.14.99 F  
1 of 6

#### GET OPEN CHANNEL INFORMATION - SYSTAT FEATURE PATCH

##### PROBLEM:

It is difficult to determine what files are opened on which channels of a given job. Without certain privileges, it becomes next to impossible.

##### SOLUTION:

With the application of this patch, users may now get open channel information with their job status report. To preserve confidentiality, users without either GREAD or WREAD will only be able to get this information about jobs using the same PPN as their own; users with GREAD but without WREAD will be able to get this information about jobs only within their group; and users with WREAD will be able to get this information about all jobs logged in on the system.

All a user then need to do is include a "G" qualifier with a job specification; for example:

\$ SY/3/G

```
3 1,2 Det PBS... 19/64K SL 3:19.4 -8/6 ...RSX
  Chan 1 DR0:[ 0,6 ]PBS .SYS<188>2 of 32 Rd,Wr,Ca,Up
  Chan 15 DR0:[ 0,6 ]PBS .TSK<232>24 of 102 Rd,RR
```

Note that the "G" qualifier sets the "S" qualifier if no specific job, PPN spec, KB spec, "U", or "A" is given. The "G" can be used in conjunction with "U" or "A", for example: "SY/UG" gives channel information about all unattached jobs on your system.

This patch is an updated version of a patch submitted long ago to the RSTS/E SIG about the time that V7 was introduced.

##### PROCEDURE:

1. For purposes of the discussion, we will assume that the required program to be patched is located on the public disk structure. The person performing the patching operation should, if necessary, replace all program references with suitable text according to the requirements of the installation.

Also, for purposes of presenting the patching procedure, we assume that the patching operation will be performed in a privileged account.

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SYSTAT

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2. The source code for SYSTAT should be loaded in the SOURCE\$ directory under the name SYSTAT.BAS. If your installation does not have this code installed, you must remount your system distribution kit and use the "@[0,1]INSTAL SYSTEM\_PROGRAMS SOURCE" command to install it.
3. If your installation chooses not to use BASIC PLUS 2 to generate a SYSTAT.TSK program, you must have BASIC PLUS installed on your system. If your installation does not have it installed, you must remount your system distribution kit and use the "@[0,1]INSTAL SYSTEM\_PROGRAMS BASIC" command to install it. Furthermore, you must add an "install/runtime\_system BASIC" command to your [0,1]START.COM file so that BASIC PLUS is always available.

##### NOTE

Until such time as DIGITAL chooses to fix the CSPCOM compiler, the only supported way to generate SYSTAT.TSK requires you to have installed the layered product BASIC PLUS 2 version 2.3.

4. To apply the patch manually, perform the following RSTS/E system commands.

```
$ RENAME $$SYSTAT.TSK *.OTS<cr>
[1,2]SYSTAT.TSK renamed to SYSTAT.OTS
```

```
$ RUN UPDATE$:CPATCH<cr>
```

```
<CPATCH's header line>
```

```
File to patch - SYSTAT.BAS=SOURCE$:SYSTAT.BAS<cr>
```

```
#[logfile=]KB:/CS:57982<cr>
```

```
*H/! 08/V<cr>
```

```
! 08 DLS 02-JUL-85 Use UU.SYS instead of Peeking through &
```

```
*2AI<cr>
```

```
<tab>! 08.5<tab>VAL<tab>11-Aug-86<tab>Add unsupported /G feature &<cr>
```

```
<esc>*H*/R*V<cr>
```

```
! /R
```

```
Run-Time System Status &
```

```
*0AI<cr>
```

```
<tab>!<tab>/G<tab><tab>File statistics per Job &<cr>
```

```
<esc>*H/!<tab>E$/V<cr>
```

```
! E$
```

```
ERROR MESSAGE HOLDER &
```

```
*0AI<cr>
```

```
!<tab>CHAN.INFO%<tab>>true if /G option &<cr>
```

```
!<tab>CURRENT.PPN%<tab>CURRENT PROJ-PROG NUMBER &<cr>
```

```
!<tab>CURRENT.PROJ%<tab>CURRENT PROJ NUMBER OF CURRENT.PPN% &<cr>
```

```
!<tab>DISK.NAMES%<tab>VALID DISK NAME TABLE &<cr>
```

```
<esc>*H/PRIV.SYSIO%/V<cr>
```

```
! PRIV.SYSIO% user has SYSIO privilege &
```

\*

RSTS/E V9.1  
System Utilities Package  
SYSTAT

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RSTS/E V9.1  
System Utilities Package  
SYSTAT

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```

    @AI<cr>
    I<tab>PRIV.GREAD<tab>user has GREAD privilege &<cr>
<esc>*H/1080<tab>/12AV<cr>
    \ IF (NOT PRIV.WREAD) OR (M2%(29%)=0%) THEN &
*I<cr>
<tab>\ DISK.NAMES$="" &<cr>
<tab>\ DISK.NAMES$=DISK.NAMES$+CVT$(SWAP%(PEEK(I%+M2%(5%))))+CHR$(48%+J%) &<cr>
<tab><tab>FOR J%=0% TO PEEK(I%+M2%(5%)) &<cr>
<tab><tab><tab>FOR I%=0% TO M2%(9%)-2% STEP 2% &<cr>
<esc>*10AI<cr>
<tab>! BUILD DISK NAME TABLE &<cr>
<esc>*H/1100<tab>/V<cr>
1100 08%=08% OR (2% ^ INSTR(1%,"SBD"+O.F$+"FRLMC"+O.W$+"UA", &
*I<cr>
CHAN.INFO% = (FNS%("G")<>0%) &<cr>
<tab>\ <esc>*4AG/<>0%/I/ OR CHAN.INFO%/V<cr>
    ELSE 08%=08% OR 2% IF (08% AND 6144%)<>0% OR CHAN.INFO% &
*H/10130<tab>/V<cr>
10130 PRINT #O%,S$; &
*13AV<cr>
    \ GOTO 10020 &
*I<cr>
<tab>\ GOSUB 14100 IF CHAN.INFO% AND &<cr>
<tab><tab>(PRIV.WREAD OR &<cr>
<tab><tab>(PRIV.GREAD AND (CURRENT.PROJ% = PROJ%)) OR &<cr>
<tab><tab>(JDPPN% = CURRENT.PPN%)) &<cr>
<esc>*6AV<cr>
    I PRINT THE RTS NAME THEN GET OUT &
*G/ NAME/13DV<cr>
    I PRINT THE RTS NAME &
*AI<cr>
<tab>! PRINT OPEN CHANNEL INFORMATION IF PROPER PRIVILEGE AND "/G" REQUESTED &<cr>
<tab>! THEN GET OUT &<cr>
<esc>*H/10635<tab>/16AV<cr>
    S$="" &
*0AI<cr>
<tab>\<tab><tab><tab>GOSUB 10637 \ GOTO 10640<cr>
<esc>*I/10637/JDV<cr>
10637 S$="" &
*H/10640<tab>/0AI<cr>
10639<tab><tab><tab><tab>RETURN<cr>
<esc>*H/15000<tab>/V<cr>
15000 I &
*
```

```

    @AI<cr>
14100<tab>! &<cr>
<tab>&<cr>
<tab>&<cr>
<tab>!<tab>O P E N C H A N N E L I N F O R M A T I O N &<cr>
<tab>&<cr>
<tab>&<cr>
<cr>
14110<tab>IOB%=PEEK(JDB%) &<cr>
<tab>\ FOR CHN%=0% TO 30% STEP 2% &<cr>
<tab><tab>GOTO 14140 IF J2%<0% UNLESS CHN% &<cr>
<tab><tab>WCB%=PEEK(IOB%+CHN%) &<cr>
<tab>\<tab>GOTO 14140 UNLESS WCB%<>0% &<cr>
<tab>\<tab>ST%=PEEK(WCB%) &<cr>
<tab>\<tab>DRV.IDX%=ST% AND 255% &<cr>
<tab><tab>IF DRV.IDX% THEN &<cr>
<tab><tab><tab>F$=CVT$(SWAP%(PEEK(M2%(5%)+M2%(9%)+DRV.IDX%-2%))) &<cr>
<tab>\<tab><tab>U%=SWAP%(PEEK(WCB%+2%)) AND 255% &<cr>
<tab>\<tab><tab>F$=F$+NUM1$(U%) UNLESS F$="NL" OR (F$="KB" AND U%=J2%) &<cr>
<tab>\<tab><tab>F$=F$+":" &<cr>
<tab>\<tab><tab>GOTO 14130 &<cr>
<tab><tab>! NON-DISK DEVICE<cr>
14120<tab><tab>CUR.BLOCK=65536.*(SWAP%(PEEK(WCB%+4%)) AND 255%) &<cr>
<tab><tab><tab>+32768.*(PEEK(WCB%+6%) EQV 32767%) &<cr>
<tab>\<tab>FCB%=PEEK(WCB%+8%)-28% &<cr>
<tab>\<tab>F$=MID(DISK.NAMES$,3%*(PEEK(FCB%+24%) AND 255%)+1%,3%)+":" &<cr>
<tab><tab><tab>+":"+FNN$(3%,SWAP%(PEEK(FCB%+4%)) AND 255%)+"," &<cr>
<tab>\<tab>S$=SPACE$(3%) \ LSET S$=NUM1$(PEEK(FCB%+4%) AND 255%) &<cr>
<tab>\<tab>F$=F$+S$+"|" &<cr>
<tab><tab><tab>F$=F$+RAD$(PEEK(FCB%+6%))+RAD$(PEEK(FCB%+8%)) &<cr>
<tab><tab><tab>+":"+RAD$(PEEK(FCB%+10%)) &<cr>
<tab><tab><tab>+":"+NUM1$(SWAP%(PEEK(FCB%+12%)) AND 255%)+">" &<cr>
<tab><tab><tab><tab>UNLESS (ST% AND 16384%) OR (ST% AND 256%) &<cr>
<tab><tab>FILE.SIZE=65536.*(SWAP%(PEEK(FCB%+24%)) AND 255%) &<cr>
<tab><tab><tab>+32768.*(PEEK(FCB%+26%) EQV 32767%) &<cr>
<tab>\<tab>W.WCB%=PEEK(WCB%+12%) &<cr>
<tab><tab>GOSUB 10637 \ W$=CVT$(LEFT(S$,LEN(S$)-2%),2%) &<cr>
<tab><tab>! DISK DEVICE<cr>
14130<tab><tab>PRINT #O%,TAB(7%);"Chan";CHN%/2%;TAB(16%);F$; &<cr>
<tab>\<tab>PRINT #O%,TAB(44%);RIGHT(" "+NUM1$(CUR.BLOCK),6%);" of "; &<cr>
<tab><tab> NUM1$(FILE.SIZE);TAB(61%);W$; &<cr>
<tab><tab><tab>UNLESS DRV.IDX% &<cr>
<tab>\<tab>PRINT #O%<cr>
14140<tab>NEXT CHN% &<cr>
<tab>\ RETURN &<cr>
<ff>
<esc>*
```

RSTS/E V9.1  
System Utilities Package  
SYSTAT

Seq 10.14.99 F  
5 of 6

```
H/15220<tab>/V<cr>
15220 CHANGE SYS(CHR$(6%)+CHR$(-3%)) TO M% &
*4AV<cr>
\ S0$=SYS(CHR$(6%)+CHR$(-21%)+CHR$(-1%)) &
*I<cr>
<tab>\ CURRENT.PPN% = PEEK(PEEK(PEEK(520%) + 8%) + 24%) &<cr>
<esc>*AI<cr>
<tab>\ PRIV.GREAD% = FNPRIV%("GREAD") &<cr>
<esc>*3AI<cr>
<tab>\ CURRENT.PROJ% = SWAP%(CURRENT.PPN%) AND 255% &<cr>
<esc>*9AV<cr>
I PRIV.SYSIO% -1 User has SYSIO privilege &
*I<cr>
<tab>I PRIV.GREAD%<tab>-1 User has GREAD privilege &<cr>
<tab>I<tab><tab> 0 User does not have GREAD privilege &<cr>
<esc>*EX<cr>
Patch from KB:[p,pn]CPATCH.COMD complete
#^Z
File to patch - ^Z
```

WARNING

Be careful to enter upper and lower case as given; and to enter "0" as zero and "O" as letter O. Failure to do so is the most frequent cause of checksum failure.

5. To re-compile the program under BASIC PLUS and re-enter it into the system library, type the following RSTS/E commands.

```
$ SW BASIC<cr>
Ready
OLD SYSTAT<cr>
Ready
COMPILE $SYSTAT<232><cr>
SYSTAT 12-Aug-86
Ready
UNSAVE SYSTAT<cr>
```

You must then change the line in [0,1]START.COM that creates the SYSTAT CCL to "define/command/system SY-STAT=\$SYSTAT.BAC/line\_number=CCL/privilege". To begin immediately using this command you must also do:

```
$ DELETE/COMMAND/SYSTEM SYSTAT<cr>
$ DEFINE/COMMAND/SYSTEM SY-STAT=$SYSTAT.BAC/LINE=CCL/PRIV<cr>
```

RSTS/E V9.1  
System Utilities Package  
SYSTAT

Seq 10.14.99 F  
6 of 6

6. To re-compile the program as a task (.TSK) and re-enter it into the system library, you must use your BASIC PLUS 2 and type the following RSTS/E commands:

```
$ BP2<cr>
PDP-11 BASIC PLUS 2 V2.3-00
BASIC2
SCALE 0<cr>
Scale factor has been set to 0
BASIC2
OLD SYSTAT.BAS<cr>
BASIC2
COMPILE/WORD/SINGLE/TYPE:REAL/NOWARN/NOFLAG/CHAIN/LINE/VAR:0<cr>
SYSTAT 11:55 AM 12-Aug-86
BASIC2
EXIT<cr>
$ RUN $TKB<cr>
TKB>SYSTAT.TSK=SYSTAT.OBJ, LB:BP2OTS/LB<cr>
TKB>/<cr>
Enter Options:
TKB>UNITS=13<cr>
TKB>ASG=SY:5:6:7:8:9:10:11:12<cr>
TKB>EXTTSK=512<cr>
TKB>LIBR=CSPLIB:RO<cr>
TKB>///<cr>
$ COPY SYSTAT.TSK $SYSTAT.TSK<cr>
[File SYSTAT.TSK copied to [1,2]SYSTAT.TSK]
$ SET PROTECTION=232 $SYSTAT.TSK<cr>
[1,2]SYSTAT.TSK renamed to SYSTAT.TSK<232>
$ DELETE SYSTAT.OBJ,SYSTAT.BAS<cr>
SYSTAT.OBJ deleted
SYSTAT.BAS deleted
```

If you did not do this in [1,2], then you may also wish to delete SYSTAT.TSK in the account you are logged in under.

**RSX**

**MULTI-TASKER**



**RSX**

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The RSX Multi-Tasker  
October, 1986

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## THE EDITOR'S CORNER

Bruce R. Mitchell

This is a rather thin issue, ladies and gentlemen. What we have is of high quality, but look here, folks: I know that there are those of you out there who read this journal, because my submitters get letters regarding their articles. So why don't you please send the poor Multi-Tasker editor something too?

Submit!  
Submit!

In this issue we have three articles. One is a comment on a previous Bag of Tricks which the editor found most enlightening. The next is a really neat command file which saves a lot of running to and from the printer room (if you can scrounge a spare printer for your terminal). And finally, a puzzle for all of the die-hard RSX hackers.

Without further delay, let's drop this month's (guest) editorial bombshell on the heathen.

### ----- Fun Things to Do with Your Spare Time -----

"Spare time" can reasonably be defined as periods when it's not too important if you waste a few hours to a few days doing nothing useful. There are lots of fun things to do in your spare time. Fishing, hacking the Exec, laying out in the sun, tracking down parity errors and other such activities come immediately to mind.

It is good to see that DEC feels the PDP-11 user community has much spare time. They have thoughtfully provided us with an amusing spare time activity: Trying to get support for PDP-11 products.

'What is this,' you say? 'This is not an amusing spare time activity. This is Important Business for me!' Perhaps so. It must not be perceived as Important Business by DEC, however, as their sales force seems to have relegated PDP-11s to a spare time activity.

Viz.: When the sales force is not busy selling VAXes, they

may return your call. They may, from time to time, send you literature. On extraordinary occasions, they may read it themselves. And, if you are a large account, they may stop by occasionally to say 'hello', drop off literature on the newest VAXes, and drink a nice lunch with someone from Purchasing.

Wouldn't it be nice if DEC had one sales person per office who was paid on commission, and who sold nothing but PDP-11 products? Wouldn't it be great if DEC took that spare time activity and made it turn a real profit for them? And wouldn't it be just particularly fine if they took that profit and reinvested it in PDP-11s, where it came from?

Yr obd't servant,  
*Justin L. Hewser*

### ----- Submitting Articles to the Multi-Tasker -----

Please submit machine readable media if possible. RX01/RX02 diskette or 800/1600 BPI 9 channel magtape are best. Any format is acceptable except ROLLIN, PRESRV or VMS backup. BRU and DOS FLX formats are well-liked by the Editor's tape drive.

Submissions which aren't machine readable take longer to get into print. The editor is lazy and types mass quantities only once a month when progress reports are due.

If you preformat a submission in RUNOFF format, please set left margin 10, right margin 75, and when changing margins use incremental changes rather than absolute. The editor will bless you for the consideration.

Send all submissions to:

Bruce R. Mitchell  
Machine Intelligence and Industrial Magic  
PO Box 816  
Byron, MN 55920

### ----- Answer to Last Month's Quiz -----

The quiz was inadvertently left out. Sorry.

### ----- And That's The Way Things Are -----

... this month in Pool Lowbegone, where all the variable typing is strong, all the front panels are good-looking, and all the management is paid above average.

## ***THE BAG OF TRICKS: MACRO-11***

Rob Brown  
G. Michaels Consulting, Ltd.  
Edmonton, Alberta, Canada

*I wasn't quite sure about the veracity of this response when I received this letter. I put it into storage to be investigated "later". We all know how that goes, right?*

*I finally got around to checking it out, and found that the Taskbuilder manual's Appendix B is somewhat misleading about the task header variable part unless you read it carefully. Because this area is loaded dynamically, the "register contents" at task load are correct, and as stated.*

*Herewith follows a (late) response to a previous "Bag of Tricks" on the GTSK\$ directive, and my compliments to Rob for his knowledge of RSX. --- The Editor*

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Controls

Bruce R. Mitchell  
Machine Intelligence and Industrial Magic  
PO Box 601  
Hudson, WI  
USA 54016

Dear Mr. Mitchell

Re: Bag of Tricks Article on GTSK\$

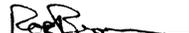
I read, with interest, your article on the usefulness of the Get Task Parameters directive. We, at G. Michaels Consulting Ltd, use it for getting at the task's running and protection UICs.

However, your readers might be interested in knowing that there is a cheaper and easier way to get task name information. On entry, your task's registers are initialized as follows:

R0 Task transfer address if running under ODT  
R1 Task name - first three characters in RAD50  
R2 Task name - last three characters in RAD50  
R3 Task identification - first three characters in RAD50  
R4 Task identification - last three characters in RAD50

I don't know whether or not this is documented anywhere, or if it is subject to change, but it has been true at least for the last six years, and probably longer.

Sincerely yours

  
Rob Brown

## PRINTING FILES ON VT100 ATTACHED PRINTERS

Jim Bostwick  
Cargill, Inc.  
Wayzata, MN

The following command file will print multiple files to the printer port of a VTxxx terminal. It is very handy for printing over a modem setup, which is why VTP was written in the first place.

VTP takes a command of the form: "@VTP file[,file...]", and prints each file thru the printer port of the invoking terminal. A banner page (of sorts) is printed before each file, and formfeeds are inserted as necessary to avoid printing over perfs.

VTP also determines the characteristics of the input file, and adjusts its output to handle the three "normal" types of carriage control: FORTRAN, CRLF, and NONE. The file's record length of is also determined, and the terminal buffer width adjusted to accomodate 132-column files.

Since the printer I use at home is of the "dumb" variety, the subject of dynamic printer setup has not been addressed. It would be easy to add such features, however. For example, if a LA50 is being used, it might be nice to switch between 10dpi and 16.5dpi based on record length.

VTP has gone through several revisions; a classic case of "creeping elegance". In the process, a number of INDIRECT tricks have found their way into the code. So, even if you don't need printer-port support, you may find something of use for your indirect application.

Note: If you keep VTP.COMD in the INDIRECT "default directory" on your system, you won't have to keep multiple copies of it around.

```
.; VTP.COMD - print on VTxxx printer port
.; JMB 20-JUL-1986
.; 7-AUG-1986
.; 8-AUG-1986
.;
.; This command file will kick a VTxxx CRT with printer port into
.; 'printer controller' mode, print the file(s) in PO, separated
.; by a formfeed, then restore CRT mode. It prints sort of a
.; banner page before each file, keeps line count for formfeeds,
.; and handles (mostly) the three carriage-control file types.
.;
.; 20-JUL-1986 JMB - Complete rewrite of earlier version.
```

RSX-5

```
.; 7-AUG-1986 JMB - Determine file type from <FILATR> after
.; opening file.
.; Dispatch proper routine to handle common
.; carriage control types.
.; 8-AUG-1986 JMB - Fix buffer width settings
.;
.;
.; .enable substitution
.; .enable quiet
.; .setn oldwid <TIOUID> ; save input buffer setting
.; .setn lpp 66. ; lines per page
.; .setn escn 33
.; .sets esc "'escn%v'" ; escape char
.; .sets esc "I" ; pseudo-escape char for debug
.; .sets pon esc+"[5i" ; turn printer port on
.; .sets poff esc+"[4i" ; turn printer port off
.; .setn ffn 14
.; .sets ff "'lfn%v'" ; a <ff>
.; .setn lfn 12
.; .sets lf "'lfn%v'" ; a <lf>
.; .setn crn 15
.; .sets cr "'crn%V'" ; a <cr>
.; .sets ftncctl " 01+$" ; FTN carriage control bytes
.;
.; ; If input params (@VTP file(s)), use them, else
.; ; prompt for some.
.;
.; .sets cmd p1
.; .if <strlen> ne 0 .goto gotit
.; .asks cmd "file(s) to print:"
.; .on error .goto finis
.;
.; .gotit:
.;
.; ; Open up TI: and issue the switch-to-printer escape sequence.
.;
.; .open #0 TI:
.; .data #0 'pon'
.;
.; ; Now parse off and process file names.
.;
.; .Floop:
.; .test cmd
.; .if <strlen> eq 0 .goto finis
.; .parse cmd ",", fnam cmd
.; .test cmd "[" ; pick up partial UIC?
.; .if <strlen> eq 0 .goto L10 ; br if no
.; .parse cmd ",", fnam2 cmd ; get rest
.; .sets fnam fnam+fnam2 ; merge full filespec
.;
.; .L10:
.; .testfile 'fnam'
```

RSX-6

```

        .if <FILERR> ne 1 .goto skipit ; no such file - skip it
        .openr #1 '<FILSPC>'          ; open file for read
        .setn lc 0                      ; lc is line count
.;
.; Determine file's carriage control type, and set up 'crproc'
.; to point at appropriate handler.
.;
        .gosub filtyp
.;
.; put out poorman's banner
.;
        .gosub banner
.;
.; now, copy file from unit 1 to unit 0
.;
.inner:
        .read #1 line
        .ift <eof> .goto done
.;
.; Dispatch to carriage control handler. Note - this technique
.; avoids considerable overhead for each print line.
.;
        .goto 'crproc'
.;
.; Process files with FORTRAN style carriage control.
.; The first byte is a carriage control byte, remainder
.; is print line.
.;
.crftn:
        .sets crbyte line[1:1]
        .test line
        .setn len <STRLEN> - 1
        .sets line line[2:LEN]
        .test ftnctl crbyte ; which control char?
        .goto ftn'<strlen>' ; dispatch
.;
.ftn2:
        .; it's a 0 - double space
        .if lpp-lc lt 2 .goto ftn3 ; if no room, do formfeed
        .data #0
        .goto crdone
.;
.ftn3:
        .; its a 1 - formfeed
        .data #0 'ff'
        .setn lc 0 ; reset line count
        .; fall thru
.;
.ftn4:
        .; a "+" - overprint
        .; we really can't handle this - treat as single space

```

```

        .; fall thru
.ftn5:
        .; a "$" - 'prompting'
        .; we can't handle this either - treat as single space
        .; fall thru
.;
.ftn1:
        .; it is a space, we're corpulent after the fashion of a
        .; rodent
        .goto crdone
.;
.; Process files with cr=NONE. This implies imbedded carriage
.; control. Since INDIRECT appends <CR><LF> to each DATA line,
.; we must remove one pair from the file to prevent double-spaced
.; output.
.;
.; Parse out the first <cr> and first <lf> in line.
.; Assume multiple <cr> <lf> are for intentional multiple
.; spacing, and leave them alone.
.;
.crnone:
        .; strip out first <cr>
        .parse line lf L1 L2
        .sets line L1+L2 ; re-assemble line
        .; strip out first <lf>
        .parse line cr L1 L2
        .sets line L1+L2 ; re-assemble line
        .goto crdone
.;
.crCrLf:
        .goto crdone
        .; fd.crlf says put out a CR-LF with each print line -
        .; which is exactly what INDIRECT does naturally!
.;
.; Common return from carriage control processing.
.; Output the line (finally), and bump line counter.
.; Output formfeed when appropriate. Note additional
.; test for embedded formfeeds, which simply reset
.; line counter.
.;
.;
.crdone:
        .data #0 'line'
        .test line ff
        .if <strlen> ne 0 .goto inn20 ; yes - br
        .inc lc ; bump line counter
        .if lc lt lpp .goto inner ; test for end of page
        .data #0 'ff' ; kick out new page

```



## **RSX BRAIN TEASER**

*The following puzzle appeared, as though by magic, on the Editor's desk one day. It contains no less than 60 words, famous names, abbreviations, assembly mnemonics, directives, utility task names and other phrases of interest to RSX users. (No driver names.)*

*The Editor has a list of all of the above that were designed into the puzzle, and also has a little something for the first reader to come up with all of them - or for the best attempt.*

*Results will be published in the Multi-Tasker in two months, along with the official solution and any which may have crept in unnoticed. Any takers? --- The Editor*

L E S S M I L C D E F L Y E A P  
E P E V I T U C E X E O D C R L  
X A V M S O S R E S U L P M S A  
A T L S I H B R O R E J E A D Q  
V G M U L T I T A S K I N G R E  
L I K R A M L D A L E M E I A S  
I S S U C E D A E D P D P C Z T  
S L I N D A O L E B R H O X I M  
T U S E V I T C E R I D D S W R  
S N B E Q R U Z R T N A I R B T  
R S U M S S E M G I B N C D E C

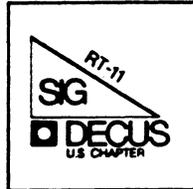
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We DO solicit signed articles for insertion in the Mini-Tasker, on or about bugs, features, nifty things, etc., all about the RT-11 operating system and its environment. Write it up, send it to me (with a note to rewrite if you wish) and I will try and get it in an upcoming issue of the Mini-Tasker.

Trivia

With thanks to Diana Miller, RT-11 Product Manager, DEC put together an interesting DECUS program last year on PDP-11 trivia. Following are some interesting RT-11 facts of life.

1. On what PDP-11 processor(s) will a SWAB not change the overflow bit in the PSW?
2. What does EMACS stand for?
3. What does MINCE stand for?
4. How many toggle switches were on the first PDP-11?
5. DIGITAL opens in Maynard, MA with three employees and 8500 square feet of production in a converted woolen mill. What was the month and year?
6. Where would one visit to "walk the halls" of the PDP-11 birthplace?
7. What does DSM stand for?

November Issue Submittal Deadline Advanced

Judy Arsenaull of the DECUS U. S. Activities staff has announced that her printers deadline for the November issue is September 23. Therefore I need your submissions by FRIDAY, SEPTEMBER 19th at the latest.

Physical Address of FORTRAN Virtual Arrays

Jack Crowell has an interesting article on how to determine the physical address of FORTRAN virtual arrays, and a few important reminders. The software supplied is in the public domain, but the author assumes no responsibility for the use or reliability of this software on equipment which is not supplied by someone.

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-----

Trivia

With thanks to Diana Miller, RT-11 Product Manager, DEC put together an interesting DECUS program last year on PDP-11 trivia. Following are some interesting RT-11 facts of life.

1. What was the name of the FIRST RT-11 SIG Newsletter?
2. Who was the first editor of the Mini-Tasker?
3. When was the first Mini-Tasker published?
4. How many orders for the PDP-11 were received during the first week of its introduction?
5. What were the first two O/S available for PDP-11's?
6. What letters do not appear in the Digital alphabet?
7. What were the official names of the pink and purple colors of the PDP-11s?

-----

More on "Commercialism"

John Bullock has written an interesting and informative "Letter to the Editor" on what he likes and dislikes about an article that appeared in a recent Mini-Tasker. We would appreciate your comments and/or rebuttals. -- p.s. John, I appreciate your letter, please write again.

-----

The King is dead, long live the King!

As you read this, the Fall 1986 DECUS symposia in San Francisco will be behind us, and we will be working on the Spring 1987 DECUS Symposium in Nashville. We hope all of you that attended talk up how much you learned, and invite your friends and co-workers to return with you to Nashville.

DECUS is a "WE CAN DO IT" group, and we are always looking for volunteers. If you are not active in your LUG, be active. If you do not have an RT-11 sub-group in your LUG, start one. This helps to maintain interest between symposia. See if the RT-11 people can have a higher percentage of members going to Nashville that your VAX members in each LUG.

Best of all, support DECUS with your employer. Remind your boss of what you learned, and that your attendance at local, regional, and national meetings makes money for your company. -- Good luck!!

-----

-----

Trivia - Answers

1. The Mini-Tasker.
2. Tom Provost.
3. March 1975.
4. 150.
5. PTS and DOS.
6. G, I, O, Q.
7. Rose and Magenta.

-----

And finally, I am always looking for something to print.

Please send your submissions to The Mini-Tasker (RX-01, RX-50, or pieces of paper) to me at:

Bill Leroy  
 The Software House, Inc.  
 2964 Peachtree Road, NW #320  
 P. O. Box 52661  
 Atlanta, GA 30355-0661  
 404/231-1484 or DCS (LEROY)

Mr. John Bullock  
7622 Kedvale  
Skokie, Illinois 60076

Mr. Bill Leroy  
The Software House, Inc.

- 2 -

August 11, 1986

August 12, 1986

Mr. Bill Leroy  
The Software House, Inc.  
2964 Peachtree Road, N.W. #320  
P.O. Box 52661  
Atlanta, GA 30555-0661

*MS*  
Dear Leroy:

Yee Gads! Wendy Whiner and her hubby must reside in the DECUS halls of old MASS. What, to my surprise when I picked up the August, 1986, SIG Newsletter late last Thursday evening, quickly paged through the "garbage" to the tab with RT on it, I began to read that blatant commercialism had crept into the pages of the Minitasker. After I stopped laughing, I decided to write a short letter.

What was wrong with the article? It describes a useful extension to Q-Bus PDP-11's and offers a way to get around the 32K address limit that is much cleaner than "overlay city." Who better to tell about such a system than RT users on 11's, the original hackers (O.K., so it's a little strong). Everyone in RT land has been dreaming about an RT/VAX system for the MVII, while DEC rams MicroVMS down our throats. Just thumb to the back of the SIG Newsletter where the tab says "VAX", pages and pages of people trying to fix the damn thing. Like the Baron said, "Well, there are just too many notes" (Amadeus).

Why doesn't DEC strip down the MVII processor and build a nice little 32 bitter for about \$2,500 (for the CPU card) to run with RT/VAX. I've been told that some people at DEC would like to, but others (namely management) are holding up the task. Why not do it? Here are three possible reasons why it hasn't occurred so far: (1) it's too obvious, (2) a lot of users want it, and (3) the day it is announced, sales of micro 11's would virtually stop and only three more would be sold. These three would probably go to a small system integrator south of Des Moines to run an accounting package (for a skinless hot dog vendor)--who cares. I want to crunch big numbers (science) quickly and draw a nice picture (graphics) as fast as possible (but cheaply). Although the price of VAX stations are coming down (thanks to Sun and Apollo), they are still beyond normal "little guy" budgets.

ModulaWare trys to fix the only real problem with RT and FORTRAN on a Q-Bus 11, no address space. It does require one to learn another language, Modula-II, what PASCAL should have been. (But PASCAL was originally intended to teach programming, wasn't it?) I recently took the bait and have invested in learning and using Modula-II from ModulaWare with their graphics processor. Not because of the DECUS article; I discovered it last year from an ad in the DEC Professional. The system is up and running, and it gives the Q-Bus 11/23 and 11/73 a new lease on life.

So get with it RT guys and dolls. It's time to move on. I love the old FORTRAN as much as the next guy, but maybe it's time for a new kid on the block.

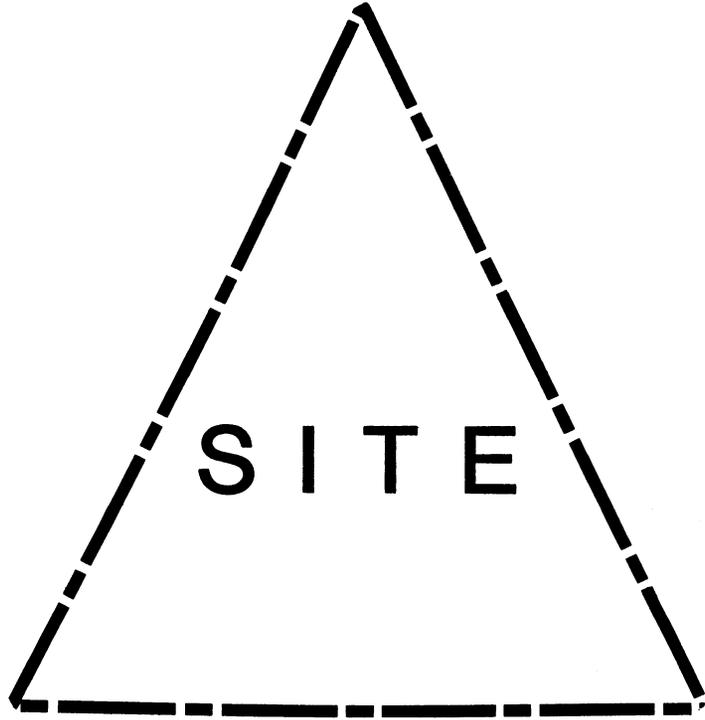
Cordially yours,

*John D. Bullock*

John D. Bullock

JDB:DG

P.S. Someone mentioned that the "Minitasker" would like to get out of the monthly SIG pack. I do find it interesting to see what others are doing, but usually do not read much other than MT. Most of the other SIG's deal with systems and aspects of computers I will probably never use. I suspect I am like most RT users--application programmers with RT on a small Q-Bus system. MT separate would be "O.K." with me.



---

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---

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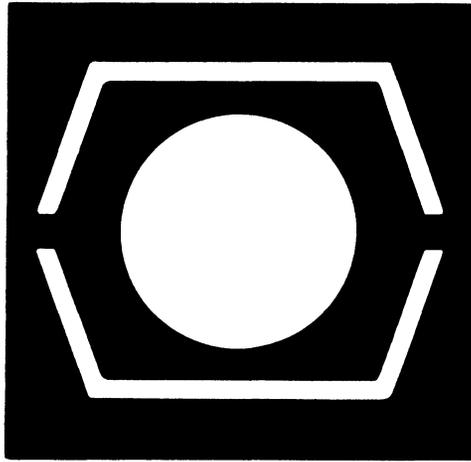
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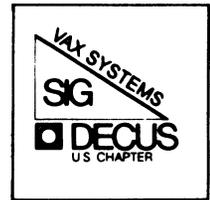
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603-884-5702  
decvax!maclean

# NEWSLETTER OF THE VAX SYSTEMS SIG



# Pageswapper

*Our Mascot*



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### Forms at the End

INPUT/OUTPUT Submission Form . . . . .	QU-17
System Improvement Request Submission Form . . . . .	QU-19

General material for publication in the Pageswapper should be sent (US mail only -- no "express" services please) to:

Larry Kilgallen, PAGESWAPPER Editor  
Box 81, MIT Station  
Cambridge, MA 02139-0901  
USA

Preference is given to material submitted as machine-readable text (best is Runoff source). Line length should not exceed 64 characters and the number of text lines per page should not exceed 48 (these limits are particularly important for sample commands, etc. where simple text justification will not produce a meaningful result).

Please do not submit program source, as that is better distributed on the VAX SIG tape.

Please do not submit "slides" from DECUS Symposia presentations (or other meetings) as they are generally a very incomplete treatment for those readers of the Pageswapper who are not so fortunate as to be able to travel to Symposia. Please DO write articles based on such slides to get the content across to a wider audience than is able to attend.

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Marlborough, MA 01752  
USA

Only if discrepancies of the mailing system are reported can they be analyzed and corrected.

## Editor's Workfile

by Larry Kilgallen, Pageswapper Editor

Those Symposium audio tapes are great -

Some have technical troubles in the recording. Some have troubles with our fellow DECUS members not speaking into the microphone ("Everybody can hear me without this, can't they?"). But for "attending" two sessions at once, the audio tapes are fantastic. Sometimes I pay good money for a session that seemed like it would be interesting and it turns out to be a waste. But I would rather be bored back home in Massachusetts while driving than be bored at Symposia while fretting as to whether that "other" session across the building is really the interesting one I should have chosen.

The real payoff is when I hear some tidbit which must be in some documentation somewhere, but who has time to read it all. For instance:

Logical name enhancement for VMS V4.4 -

As explained in a DEC presentation on RMS filespec parsing in Dallas, effective with V4.4 RMS no longer treats CONCEALED logical names as implicitly TERMINAL. Thus the concealed equivalence name can contain a logical name for a device rather than being constrained to contain a physical device name. This is a great step forward, allowing the translation of a concealed logical name to be displayed in meaningful terms like DISK\$CRASH DUMPS:[APRIL.] rather than \$137\$DJA23:[APRIL.]. Thanks to the RMS developers for the change and thanks to Art McClinton who pushed so hard to get the recording of Symposia sessions started.

Just like the Twilight Zone -

I feel like I got the very last copy of MicroVMS V4.4. Oh, of course there will be others sent to people who order it specifically or have new software services contracts go into effect. But for a contract that was in effect when V4.4 went to SDC, I feel it took too long to reach me. I realize TK50s take longer but it just arrived today, August 28, 1986.

## DECUS France Publications

by Nom D. Plume  
Pageswapper Linguist

The French VAX SIG has been sending "The Pageswapper" copies of DECUS France proceedings and publications for some time. They've been arriving many months after issuance, so none of the news is current. But no matter. Little, if any, of the technical information in them is new to American readers of "The Pageswapper".

The French have named their newsletter "Siglamene", a pun. "Cyclamen" is the name of a flower (as the editor, J.P. Bordet, explains in the first issue with that name, the cyclamen "is a plant of the Alps and the Jura, with pink blossoms, of which certain varieties with large blossoms are cultivated" -- with a reference to the Larousse encyclopedia in three volumes!); and their motto "Ce que DIGITAL n'apporte pas, le SIG L'AMENE" means "What DIGITAL does not supply, the SIG PROVIDES IT".

What is both startling and familiar about the newsletter and other French DECUS publications is how similar in tone they are to their American counterparts. The contents are similar, the concerns are similar, the sense of humor is similar, and the attitude toward Digital is similar. This is more interesting in light of the lack of a serious tradition of hacking in Europe; technical jobs, even with computers, have (at least until recently) been just another kind of white-collar occupation. No plastic pocket protectors, no very informal dress, no late-night Chinese meals.

But that seems to be changing, perhaps in part because France has been sending groups of participants to DECUS symposia here for several years. They combine their trips with other business; a typical trip (they're reported on in SIGLAMENE; this one was to last December's DECUS meeting in Anaheim) included several nondisclosure presentations in Maynard, a tour of the semiconductor factory in Hudson, a meal in Hudson (low ratings for that), a visit to the RDC in Colorado, and then the DECUS symposium. Of all their activities, Disneyland seems to have gotten the highest rating for participation.

Representative technical topics covered in the most recent issues received:

- Terminal Data Management System
- SIRS
- array processors attachable to MicroVAXes
- the VMS V4 terminal driver
- Eunice
- how Ultrix-32 handles SYSV compatibility

However, they also have some "Petites Annonces": little advertisements, to sell hardware. In one issue one finds for sale a PDP-11/34 (RK05F, RK05J, Plessey PMDD-11, and LA180); four Rainbow 100B (256K, amber screens, hard disk); a CI750 with cabinet, etc.

All in all, a very homelike experience reading these. We expect that if future issues contain interesting technical information that hasn't been published here yet, we'll reproduce it in some form.

## Letters

The South Australian Institute  
of Technology  
The Levels  
P.O. Box 1, Ingle Farm 5098  
Australia

Larry Kilgallen,  
PAGESWAPPER Editor,  
Box 81, MIT Station,  
CAMBRIDGE, MA 02139-0901

5th August, 1986

Dear Larry,

In the July Pageswapper, I complained that Pageswappers arrive here an average of 10 weeks after the first of the month of issue. One result was that the Spring SIR Ballot arrived 7 weeks AFTER the deadline for voting.

I am now pleased to report that the delay in Pageswapper delivery has been greatly reduced. The June and July issues actually arrived IN the month of issue. The Fall SIR Ballot arrived before the voting deadline. I don't know who to thank for this improvement, but thank you, whoever you are!  
Yours sincerely,

ROLLO ROSS  
Network Manager

cc:  
Gary L. Grebus  
Battelle Columbus Division  
Room 11-6011  
505 King Avenue  
Columbus, OH 43201

DECUS Australia  
P.O. Box 384  
Chatswood, NSW 2067

City of New York  
Parks and Recreation  
830 Fifth Avenue - Room 200  
New York, New York 10021

August 13, 1986

Larry Kilgallen  
Pageswapper Editor  
Box 81, MIT Station  
Cambridge, MA 02139-0901

Dear Editors:

I have been an avid reader of your publication for a short while now and have enjoyed it tremendously. I currently manage a VAX 11/750 installation at the Department of Parks and Recreation in New York City. I have a minor problem and was wondering whether you or anyone in your staff could offer some assistance.

The problem is that we have a great number of users (127 to date) and sometimes the users would log on in the morning and "reserve" a place on the system so that they would be able to work and not risk having to wait when our login limit of 25 is exceeded. It has gotten so bad that some users leave their process on overnight to ensure a space the following day. The only way to ensure that everyone gets equal time on the system is to devise a way to automatically stop a user's process when their terminal has been in a state of inaction for more than 15 minutes, with messages at regular intervals. I know it's done on IBM installations because I've been kicked off many a terminal in my college days.

Any suggestions or any references you can offer in this matter would be appreciated.

Thank you,

Harold Edouard  
Borough System Manager

Pageswapper editor's response-

As we write, there are also user processes being knocked off VMS machines around the world due to inactivity. The departure from what I presume to be the IBM environment you describe is that under VMS the programs which do the enforcement do not come from DEC but from other sources (usually without charge). There are several different programs of this type on VAX Systems SIG Symposium Tapes over the past couple of years. What most sites do is choose one they like, and modify it. A major reason why DEC has not provided such a program is the number of different enforcement and warning policies desired at various sites. Obviously a major criterion in choosing which program to use is how closely its feature set matches your ideal. Another major criterion is how easy it will be for you to modify the program to make it EXACTLY perfect for your installation (in most cases this means considering what language was used to implement the program). There are several pitfalls in this whole area, such as how to handle subprocesses, how to detect jobs waiting for operator response, and how action a program takes in intercepting a warning you broadcast should not be mistaken for renewed use of the machine. The best way to resolve this situation is to talk with somebody who has done it before, for example someone at your Local User's Group meeting. Contact the DECUS office in Marlboro, Massachusetts to find the LUG nearest to you.

## INPUT/OUTPUT

### A SIG Information Interchange

A form for INPUT/OUTPUT submissions is available at the back of the issue.

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(617) 262-6830

(in the United States) using a 1200 baud modem and log in with the username PAGESWAPPER.

```
=====
Note 326.1 3 Wires on DMF32 Port 0 and 1 - Reply to I/O # 291 1
"Gus Altobello" 6 lines 10-AUG-1986 01:50
-< Ok, but don't forget to $WAIT >-
-----
```

This is what I thought would work, since it had worked by hand, but when I tried it in the SYSTARTUP command file -- no go. Turns out you need a short delay, so I put a \$WAIT command between the \$SET TERM /MODEM and the \$SET TERM/NOMODEM. 1 second wasn't sufficient, but 2 was.

Gus Altobello  
PO Box 11274  
Hauppauge, NY 11788  
516/435-7036

=====  
Note 429.1                   WPS-PLUS/Graphics                   1 of 1  
"Bob Hassinger"               7 lines    1-AUG-1986 09:32  
    -< LN03 resolution limited & look at DECpage >-  
-----

The LN03 has some built in limitations that restrict the resolution you can get. 300 dpi can not be done for general graphics. Typically you can only get 150 dpi. The available software to integrate with WPS-PLUS at this level is DECpage.

DEC says the new LN03 Plus has full 300 dpi graphics resolution in its 4014 emulation mode but I do not think DECpage can use it.

Bob Hassinger  
Liberty Mutual Research Center  
71 Frankland Road  
Hopkinton, MA 01748  
617-435-9061

=====  
Note 451.1                   SNOBOL for VMS                   1 of 1  
"Bruce Bowler"               2 lines    19-AUG-1986 11:34  
    -< SIG tape source >-  
-----

There was a SNOBOL on one of the SIG tapes in 84 or 85 ( i don't recall which one)

Bruce Bowler  
General Electric  
1 River Road  
Bldg 2 Room 609  
Schenectady, NY 12345

=====  
Note 487.2                   RX02 Drive Errors                   2 of 2  
"JOHN W JOHNSTONE"           36 lines   8-AUG-1986 19:03  
    -< RX02 DISKETTE FORMATS >-  
-----

The problem with diskette initializing has to do with the way DEC has implemented double density recording on RX02's. When a diskette is initialized to double density on an RX02, this is done by setting a bit in each sector header on the disk. This indicates that the data portion of that sector is to be written or read in double density format. The header portion of each sector always remains in single density format. This is done so that the RX02 can read diskettes created by RX01's (a single density drive) since sector headers are always single density.

Non-DEC diskettes formatted for double density have all the sector information, both header and data, recorded in double density format.

When a diskette "fresh from the wrapper" is used successfully without formatting, it is because the diskette was formatted to single density by the diskette manufacturer. When formatted to non-DEC double density format by either the diskette manufacturer or some non-DEC drive, the diskette cannot be read by an RX02 since the RX02 is trying to read the sector headers in single density format.

A diskette that has been non-DEC double density formatted cannot be reformatted to a DEC format by an RX02 because the RX02 doesn't actually re-write the sector headers when it "formats". Strictly speaking, the RX02 doesn't really format a diskette in the same sense that a non-DEC drive does, since an RX02 doesn't write the entire sector when formatting. This also means that an RX02 cannot reformat a diskette that has been deguassed or one that has errors in the sector headers. This would require hardware such as the DSD drive with its "hyperdiagnostics" mode (true hardware formatting).

JOHN W JOHNSTONE  
AUTODYNAMICS INC  
300 HALLS MILL RD  
FREEHOLD NJ 07728  
201-462-9600 X243

=====  
Note 510.0 CAMAC Driver for VAXELN No replies  
"Offline Submission" 10 lines 4-AUG-1986 12:34  
-----

We would appreciate comments from anyone utilizing CAMAC under VAXELN. We are particularly interested in a driver for a Kinetic Systems Serial Highway interfaced to a MicroVAX II.

Kevin Kearney and Mark Pronko  
Naval Research Lab  
Code 4730  
Washington, DC 20375  
Telephone: (202) 767-3681

=====  
Note 511.0 Access to USENET from VMS system 1 reply  
"Joshua Simons" 17 lines 6-AUG-1986 16:54  
-----

I am looking for public domain software that will let me access USENET from my VMS system. Any pointers will be much appreciated.

Joshua Simons  
Children's Hospital Med Center  
Dept of Neuroscience/EndersM13  
300 Longwood Avenue  
Boston, MA 02115  
Telephone: (617) 735-6568

=====  
Note 511.1 Access to USENET from VMS system 1 of 1  
"Jamie Hanrahan" 8 lines 25-AUG-1986 13:45  
-< Re: Usenet access from VMS >-  
-----

There is now a working group within the VAX SIG of DECUS to build just that -- public-domain software to allow VMS systems to talk to Usenet. Nothing exists at present to our knowledge. Come to our working group meeting at the San Francisco Symposium and let us know what you need, and whether or not you'd like to help (among other types of help, we'll need sites to run some very preliminary versions of our stuff...).

Jamie Hanrahan  
Simpact Associates  
c/o PO Box 261687  
San Diego, CA 92126  
619-565-1865

=====  
Note 512.0 Beware of VMS V4.4 /RECLAIM corruption No replies  
"Larry Kilgallen" 12 lines 9-AUG-1986 16:40  
-----

I have a reproducible problem where the VMSmail command PURGE/RECLAIM will corrupt a previously uncorrupted MAIL.MAI file (corruption being measured by using the command ANALYZE/RMS\_FILE). I presume this requires my particular combination of unreclaimed space in the file, but presumably that can be achieved with prolog 3 files by programs besides VMSmail.

Running the reproducible example I constructed to send along with the SPR on a VMS V4.2 system (albeit at a different client site) does NOT cause the corruption.

Larry Kilgallen  
Box 81, MIT Station  
Cambridge, MA 02139-0901

=====  
Note 513.0 DECnet on 68000 Personal Computers 1 reply  
"Offline Submission" 15 lines 12-AUG-1986 22:04  
-----

Does anyone out there have any material which would be of help in implementing DECnet on an Atari 1040ST (or Amiga or MAC)? I hear rumours that some MAC implementations exist. Any hints, code, documentation, contact names or suggested places to look would be of help.

Alex Yovanovich  
System Manager  
Prince Rupert Grain Limited  
Suite 2020, 200 Granville Street  
Vancouver, BC V6C 1S4  
(604) 669-2020

August 6, 1986

```
=====
Note 513.1      DECnet on 68000 Personal Computers      1 of 1
"Bob Hassinger"      8 lines 13-AUG-1986 09:54
                    -< Ethernet interfaces? >>
-----
```

Related question - has anyone heard of an Ethernet interface for any of these systems?

Bob Hassinger  
Liberty Mutual Research Center  
71 Frankland Road  
Hopkinton, MA 01748  
617-435-9061

```
=====
Note 514.0     SMG - Using SMG$SNAPSHOT to print a screen  1 reply
"Thomas W. Garby"      22 lines 18-AUG-1986 18:52
-----
```

#### Help on SMG SMG\$SNAPSHOT

I am rewriting my QIO screen function to use SMG. Everything is going well except for my ^P function (print screen to output device). The book says that the SNAPSHOT call is supposed to print the contents of the pastebuffer to the specified device. What I want to do is create a pastebuffer to the printer or a disk file and print the contents of the terminal on that device. I do the following command:

Create pastebuffer

Save Physical screen from the terminal

Restore Physical screen to the output Pastebuffer

Issue the Snapshot call

What I get as output is a file that is 66 by 132 spaces. If I paste the virtual display to the output pastebuffer, rather than the Save and Sestore Physical screen, I get the proper output. The only problem is that I may have 30 Virtual displays on the terminal, and I would have to redo them all in sequence on the output pasteboard. Has anyone done this before???

Thomas W. Garby  
Commercial Computer Services, Inc.  
3000 Dundee Rd Suite 402  
Northbrook, IL 60062  
(312) 480-9880

```
=====
Note 514.1     SMG - Using SMG$SNAPSHOT to print a screen  1 of 1
"Bruce Bowler"      2 lines 19-AUG-1986 11:39
                    -< smg$put_pasteboard >-
-----
```

Have you looked at SMG\$PUT\_PASTEBOARD?? That is what I use when I wanted to dump a pasteboard to a file, it worked just fine.

Bruce Bowler  
General Electric  
1 River Road  
Bldg 2 Room 609  
Schenectady, NY 12345

```
=====
Note 515.0     Controlling HP laserjet's              No replies
"Bruce Bowler"      8 lines 19-AUG-1986 12:56
-----
```

I am interested in hearing from anyone who has done anything exciting with the HP laserjet printer, I have several of them hooked up and would like to use them for more than just dumb printers. Specifically I was thinking of two-up page printing and not having it spit out so many blank pages do to setup and reset entries from the device control libraries.

Thanks.

Bruce Bowler  
General Electric  
1 River Road  
Bldg 2 Room 609  
Schenectady, NY 12345

```
=====
Note 516.0      Autodialing a HAYES modem?      3 replies
"Bruce Bowler"      7 lines  19-AUG-1986 12:59
-----
```

I would be interested in hearing from anyone who has hooked up a Hayes 1200 modem as a dial-out modem using either the SET HOST/DTE interface or some home-grown autodialing/port-control package. This particular modem is also used for incoming calls but security is not really an issue.

Thanks.

Bruce Bowler  
General Electric  
1 River Road  
Bldg 2 Room 609  
Schenectady, NY 12345

```
=====
Note 516.1      Autodialing a HAYES modem?      1 of 3
"Larry Kilgallen" 12 lines  20-AUG-1986 00:28
-< I just type dialing directives manually >-
-----
```

Perhaps my tastes are different, but I just steel myself to learning new modem commands for each different model bought by various client sites. So on a Hayes, I type my ATs and my ATDTs and make the call. It seems so much easier than writing a module to do the dialing for me, especially when you consider the non-robust nature of these things called modems (I find that neither Hayes nor Vadic give any indication that they can tell when they are not connected to a phone line. With that level of non-communicative behaviour, I figure we need me in the loop as a decision-maker on each call.)

Larry Kilgallen  
Box 81, MIT Station  
Cambridge, MA 02139-0901

```
=====
Note 516.2      Autodialing a HAYES modem?      2 of 3
"Dave Close"      5 lines  22-AUG-1986 13:39
-< one example >-
-----
```

I use an Anchor Secure 12 as an outbound modem and also for incoming calls. It emulates Hayes. I use both Kermit with manual ATs and VAXNET (from the SIG tape) with its autodialer. Works fine. Feel free to call me to discuss this further.

Dave Close  
Anadex/Printronic  
1080 Avenida Acaso  
Camarillo, CA 93010  
805/987-9660

```
=====
Note 516.3      Autodialing a HAYES modem?      3 of 3
"Joshua Simons"  15 lines  27-AUG-1986 14:29
-< Smartmodem for outgoing calls >-
-----
```

I am using a Smartmodem for outbound calls. I am using a little program that I wrote for the purpose. The program supports some simple features like recording the incoming stream (used for ASCII file capture) and symbolic names for phone numbers (e.g. I type DIAL PAGESWAP to login here). The program is written mostly in C with a few routines in FORTRAN (!).

I am not in a position to distribute this to a large number of people, but if the author of this note is interested, give me a call at 617-735-6568.

Josh Simons

Joshua Simons  
Children's Hospital Med Center  
Dept of Neuroscience/EndersM13  
300 Longwood Avenue  
Boston, MA 02115

=====  
Note 517.0                   DECserver management                   1 reply  
"Bruce Bowler"                   8 lines 19-AUG-1986 13:02  
-----

I am looking for someone who has written or wants to write a program that will allow local control of remote DECserver-100's (200's also?) with a somewhat friendlier interface than the native DECserver operating system and NCP. Alternatly, if someone could direct me to a good source that talks about talking MOP to MOM, that would be a big help.

Thanks

Bruce Bowler  
General Electric  
1 River Road  
Bldg 2 Room 609  
Schenectady, NY 12345

=====  
Note 517.1                   DECserver management                   1 of 1  
"Larry Kilgallen"                   13 lines 20-AUG-1986 00:21  
                  -< Your goal sounds attainable >-  
-----

If you have not, be sure to look at the MOP spec (AA-X436A-TK) and other relevant DECnet specifications in that series. There are certain host-related LAT-plus functions which to the best of my knowledge are not accessed via a documented protocol, but rather by brute-forcing it in kernel mode.

A certain amount of reverse-engineering will probably be required considering that for LAT-plus (Version 2, Version 1.2, or whatever) DEC has removed the microfiche from the VMS documentation set, presumably to prevent others from using it for their own hardware boxes. (Also note that in this week's Digital Review one PC-interconnect software vendor has announced their use of LAT protocols).

Larry Kilgallen  
Box 81, MIT Station  
Cambridge, MA 02139-0901

=====  
Note 518.0                   \$SET HOST/DTE in command procedure?                   2 replies  
"Bernard Klatt"                   9 lines 19-AUG-1986 18:08  
-----

\$SET HOST/DTE in command procedure?

Is there a way to use \$SET HOST/DTE TXan: command lines in a typical command procedure? Seems like it can only be used in 'interactive' mode. If not, is there any other way to perform an equivalent result?

Bernard Klatt  
Microtronix  
1556 Halford Ave #184  
Santa Clara ca 95051  
408 991-5149 (@ Sigenetics, Santa Clara, CA)

=====  
Note 518.1                   \$SET HOST/DTE in command procedure?                   1 of 2  
"Larry Kilgallen"                   21 lines 19-AUG-1986 23:58  
                  -< Not if you want to run in Batch >-  
-----

Presuming your goal is interactive access to an outgoing line preceded and followed by some non-interactive other activity (DCL loops to find a free line, checks to see whether the time-of-day allows cheaper long distance, etc.), I presume your problem is related to the message:

%REM-F-NOTERM, command device is not a terminal

This can be cured with the command:

DEFINE/USER SYS\$INPUT SYS\$COMMAND

in your command file on the line before you issue the SET HOST/DTE command.

If, on the other hand, you really want access an outgoing line in BATCH, I would argue that you don't want SET HOST/DTE at all, but rather a series of READ and WRITE statements custom coded for the situation (good luck on handling busy signals in a batch job).

Larry Kilgallen  
Box 81, MIT Station  
Cambridge, MA 02139-0901

=====  
Note 518.2       \$SET HOST/DTE in command procedure?       2 of 2  
"Bob Hassinger"                                           4 lines 20-AUG-1986 09:16  
                                                          -< VAXNET is good >-  
-----

Take a look at VAXNET on the SIG tapes. It is on most of them but the latest (Spring 86) is always the best. It can do a lot for you. It has some support for making calls in batch mode among other things.

Bob Hassinger  
Liberty Mutual Research Center  
71 Frankland Road  
Hopkinton, MA 01748  
617-435-9061

=====  
Note 519.0   HSC Software Distribution System Change   No replies  
"Larry Kilgallen"                                       28 lines 20-AUG-1986 06:33  
-----

Bruce Gordon who deals with Tape Storage Systems for DEC was one of two speakers at the Boston VAX LUG last week. At the time he was unable to give any further information on how the transition to SDC distribution of HSC software would be accomplished (although TAXX drives run on HSC controllers, his responsibilities do not extend to the controllers themselves). He got back to me this week, however, after contacting the HSC product manager, and here is the story:

When the HSC version 300 software is sent out from the SDC (perhaps by the time these words hit paper - there was a delay which is now lifted) it will be distributed automatically via software distribution channels to customers currently signed up for HARDWARE service on their HSC. With the software will be a letter explaining that the customer has been given an automatic update subscription service which will terminate at the end of their current HARDWARE service contract period. At that time, the customer will have the option of adding HSC distribution to their SOFTWARE product services subscription contract. The

second possibility is NOT to sign up for subscription service and simply buy the update kits on an individual basis as they come out (much as with software). Of course the third option (which DEC pointed out) is to do nothing and run with the then-current version of HSC software forever (I bet that means being locked into some maximum level of VMS as well).

Larry Kilgallen  
Box 81, MIT Station  
Cambridge, MA 02139-0901

=====  
Note 520.0   DEC Patch to VMS V4.4 RTL for COBOL       No replies  
"Larry Kilgallen"                                       13 lines 21-AUG-1986 09:08  
-----

DEC is shipping "mandatory update" kits for the VMS and MicroVMS V4.4 Cobol Run-Time Libraries to correct a bug in handling of the Cobol ACCEPT statement with the CONVERSION phrase (digits following any zeros to the right of the decimal point get truncated).

The algorithm for distributing this patch seems to be to send it out to the people who are on update service for the Cobol compiler. Anyone with a machine at V4.4 which runs Cobol programs (using this feature) without having the Cobol compiler would presumably also need to apply this patch.

Larry Kilgallen  
Box 81, MIT Station  
Cambridge, MA 02139-0901

=====  
Note 521.0   Concord 2400baud modem, SET HOST dialer available No  
"M. Erik Husby"                                       12 lines 26-AUG-1986 13:18  
-----

We have written an autodial program for the CONCORD 2400 baud modem which can be used with SET HOST/DTE/DIAL

Contact:

Erik Husby Project Software & Development, Inc. 14 Story St.  
Cambridge, Ma. 02138 617-661-1666

We will try to put it on this fall's decus tape.

M. Erik Husby  
Project Software & Development  
14 Story St.  
Cambridge, MA. 02138  
(617)-661-1666

=====  
Note 522.0 A DCL "TELL node command" procedure No replies  
"M. Erik Husby" 14 lines 26-AUG-1986 13:23  
-----

I have a simple command procedure which can be used in a DECnet environment to TELL a remote node to do something such as print a file, submit a batch job, define a logical name, or whatever. All output of the remote command is directed back to the local SYS\$OUTPUT.

It works similar to the NCP TELL command.

M. Erik Husby  
Project Software & Development  
14 Story St.  
Cambridge, MA. 02138  
(617)-661-1666

=====  
Note 523.0 VAXNET to EasyLink No replies  
"Dave Close" 4 lines 28-AUG-1986 12:19  
-----

I use VAXNET 9.21 regularly, including auto-dial, and mostly it works fine. I have trouble with auto-connect to EasyLink. It seems the 300 bps garbage Tymnet send confuses VAXNET. Does anybody have any suggestions?

Dave Close  
Anadex/Printronic  
1080 Avenida Acaso  
Camarillo, CA 93010  
805/987-9660

=====  
Note 524.0 Hardware Switching Between VAXs No replies  
"Offline Submission" 11 lines 28-AUG-1986 18:19  
-----

I am interested in methods to dynamically switch parallel interface hardware (DR11B) between VAX computers under software control. Does anyone have experience with hardware devices which perform this function but do not switch the entire Unibus?

C.Niersbach  
Box 90555  
World Way Postal Center  
Los Angeles, CA 90009

August 20, 1986

\*  
\*

## Using a RAMDISK under VMS V4.2 or later

Andrew W. Potter  
Rochester Institute of Technology  
Information Systems and Computing  
1 Lomb Memorial Drive  
Rochester NY, 14623

One of the interesting discoveries of VMS V4.2 was the inclusion of a ramdisk device driver distributed with the system. The intent for this driver seems to be to support the ability to boot standalone BACKUP (and hence a subset of VMS) from tape devices. The device driver still works in VMS 4.4 as well. The standalone backup function is only functional from MICROVAX systems, although it would be VERY nice to have on all VAXes as well.

Before one attempts to use this device, they must be warned that it is undocumented by VMS, and hence unsupported for any function other than DEC's original intention of using it for Standalone backup. I would recommend playing with this when you have the system standalone.

Other noteables about this device are:

- 1) The Device driver allocates physical pages from Non-paged pool. If pool is too small, VMS will expand towards NPAGEVIR. Pages allocated in this manner can be returned to pool, but will never be deallocated from pool to the free list. (at least until you reboot)
- 2) Make sure NPAGEVIR is big enough to handle a RAMDISK in addition to normal pool allocations.
- 3) You cannot serve it to the cluster via MSCP

To use the device:

- 1) You need CMKRNL to load the driver and PHYIO to "format" pages to it.

- 2) Assemble and link this MACRO program.
- 3) Load the driver with SYSGEN

```
$ run sys$system:sysgen  
SYSGEN> connect pda0:/noadapter/driver=ppdriver
```

- 4) Run the "format" program. This program calls sys\$qio with a function code of IO\$FORMAT and the P1 parameter as the number of pages of pool to allocate to the device.
- 5) Init and Mount the device. "PDA0:"

If you wish to reclaim the pool pages:

- 1) Dismount the device. (PDA0:)
- 2) Run the format program. Specify 0 as the number of blocks to format. This will deallocate the pages to pool.

### NOTE

It is important to DISMOUNT any file system you have mounted BEFORE you free its pages to pool!

It is also important to allocate pages to the device BEFORE you INIT and MOUNT a file system. (INIT will fail with a divide by zero error.)

```
.title format_ramdisk  
;  
;  
; Author: Andrew W. Potter  
; Rochester Institute of Technology  
;  
; This program accesses a RAMDISK and allocates a initial  
; size in blocks for the memory device. This size equals  
; the amount of pages taken from Non-paged pool. (ie..If you  
; play with this, make sure your NPAGEVIR is set to a big value  
;  
;  
;
```

```

; to use you must connect the pseudo disk driver
;
;           $ run sys$system:sysgen
;           SYSGEN> CONNECT PDA0:/NOADAPTER/DRIVER=PPDRIVER
;           SYSGEN> EXIT
;
;
$IODEF
.psect data, NOSHR,PIC,NOEXE,WRT

;
; prompt for device
;
prompt: .ascid /RAMDISK Device Name : /
;
; prompt for blocks
;
sizepr: .ascid /Size in Blocks      : /
;
; ascii block count (input)
;
s_blk:  .ascid /      /
;
; ascii device name (input)
;
devnam: .ascid /      /
;
; longword specifying size.
;
blocks: .blk1 1
;
; status block for QIO
;
istat:  .blk1 2
;
; Channel for QIO
;
chan:   .blkw 1
;
.psect code, SHR,PIC,EXE,NOWRT
;
.entry main ^M<>
pushaw devnam ; Push Address of length of DEVNAM
pushaq prompt ; Push address of prompt Descriptor
pushaq devnam ; Push address of Device descriptor
calls #3,g^lib$get_input ; get the input
    
```

```

blbs r0,ok_1 ; Ok? Continue.
ret ; Otherwise return with status
ok_1:
pushal devnam ; Uppcase the response
pushal devnam
calls #2,g^str$upcase
;
pushaw s_blk ; Get the size in blocks
pushaq sizepr ; same way as above
pushaq s_blk
calls #3,g^lib$get_input ; get it.
blbs r0,ok_2 ; I survived?...great
ret ; nope? later gang
ok_2:
pushal blocks ; Convert text size to
pushaq s_blk ; an unsigned longword.
calls #2,g^ots$cv_tu_1 ;
blbs r0,ok_3
ret
ok_3:
$assign s = ; Get the channel
chan = chan, -
devnam = devnam
blbs r0,ok_4
ret
ok_4:
; Call QIOW directly because we want the
; P1 parameter to go by value, not by reference.
;
pushl #0 ; P6
pushl #0 ; P5
pushl #0 ; P4
pushl #0 ; P3
pushl #0 ; P2
pushl blocks ; P1 = size of ramdisk
pushl #0 ; ASTPRM
pushl #0 ; ASTADR
pushal istat ; IO status block
pushl #IO$FORMAT ; Function code. (format the thing)
movzwl chan,-(sp) ; Channel
pushl #0 ; EFN (not used)
calls #12,sys$qiow ; Whew...call it
blbs r0, end_ok ; Call was ok?
ret ; no: later.
end_ok:
movl istat,r0 ; Yep: leave IO status in r0 for cli
ret
    
```

.end main

## VAX/VMS Security

First in a Series - August, 1986

by

Ray Kaplan  
PIVOTAL, Inc.  
P.O. Box 32647  
Tucson, Arizona 85751-32647

August 22, 1986

Since I teach the 3 day VAX/VMS VAX/VMS Security Features Seminar for DIGITAL'S Educational Services and have interest in this area, it occurs to me to do some writing in it. Perhaps this could become a regular thing. What do you think?  
Starting at the Beginning

The best place to start with any problem is by examining what you are up against. VAX/VMS security is hardly the exception. In addition, they say that "what goes around, comes around", so here goes.

Lest I get accused of not doing the job right, I must insist that you begin by reading the Guide to VAX/VMS Security in the VAX/VMS manual set. If you have not read it, you will find that it leads you on a nice soup-to-nuts tour of computer security, how to decide how much you need, what VAX/VMS has to offer, how to turn on what it is that you need, and most importantly, how to manage it once it is turned on. If you own a MicroVAX, your MicroVMS manual set does not contain this manual. Go buy it! If you have one on your shelf, make sure that you have read and understand it.

### Hackers

Facing the common perceptions, VAX/VMS system managers are concerned with "hackers". Who are these folks? Well I am not sure, except to think that I might be one. After all, I hack at coding, my associates say that I hack at VAXing and my significant other says that I hack at our relationship. Therefore, I must be one. Of course, the contemporary definition appears to be something of a heavy handed computer

"criminal". I remember when "He's just a hack" was an acceptable way to describe someone that "swashbuckled" their way through coding here and there. Sigh.

Well, at least we need to explore "where we came from" and "where we are". To that end, I have some suggested reading for you. Pardon me if my list seems either somewhat dated or somewhat incomplete. I continue to be surprised that a large number of folks have not read:

Hackers, Heroes of the Computer Revolution  
Steven Levy, Anchor Press/Doubleday  
New York, New York 1984  
ISBN 0-385-19195-2

Out of the Inner Circle, A Hacker's Guide to Computer Security  
Bill "The Cracker" Landreth, Microsoft Press  
Bellevue, Washington 1985  
ISBN 0-914845-36-5

Silent Witness  
Ed Yourdon, Yourdon Press  
New York, New York 1982  
ISBN 0-917072-28-6

Hackers does a reasonable job of exploring what a contemporary "hacker" is, and Out of the Inner Circle explores the what and why of our concern for them here in VAXland. Silent Witness is a novel that details an bit of interesting computer sleuthing. If they aren't already there, put them on your book shelf.

#### Organizationally Speaking

For only \$12 a year you can subscribe to a "hackers newsletter" called 2600. The title has to do with it's "phone phreaking" lineage. Back issues are available. Perhaps the motivation to subscribe comes from the July, 1986 issue where "Violating A VAX" is the lead article. If you are not familiar with simple password grabbers, simple Trojan horses, and viruses, you might want to read it. 2600 is available from:

2600 Enterprises  
P.O. Box 752  
Middle Island, NY 11953-0752

2600's "Private Sector" BBS is available at (201) 366-4431 (300/1200 baud).

For the hefty price of \$28.00, you can purchase the First Annual Statistical Report of the National Center for Computer Crime Data called Computer Crime, Computer Security, and Computer Ethics. The best thing about it is a complete resource guide that contains the names and addresses of groups and publications that are concerned with computer security, computer ethics and computer crime. If you don't want to invest in it, the bibliography was published in a back issue of 2600, but I think that you should support the center in their work by buying the publication. I would say that the best terse summary of the report is: "if you are going to do it - think big!". They also have other interesting titles like "Introduction to Computer Crime". They are available at:

National Center For Computer Crime Data  
2700 N. Cahuenga Blvd., Suite 2113  
Los Angeles, Ca. 90068

There is the Computer Security Institute. They have the a Computer Security Conference every year, and publish a bi-monthly newsletter and a semi-annual Computer Security Journal. You can contact them at:

Computer Security Institute  
360 Church St.  
Northborough, MA 01532

Last, but not least, is a conglomeration that I have yet to sort out. "The National Security Agency, The National Computer Security Center and The National Bureau of Standards and Technology are partners in the development and dissemination of information and technology to improve the security of Federal Government Computer Systems." You can bet that most of it leaks out to us taxpayers that pay for it. I have yet to find out exactly where to poke it all, but I have a good start. You can find some of them at:

National Computer Security Center  
9800 Savage Rd.  
Fort George G. Meade, MD 20755-6000

The NBS has a BBS for the Microcomputer Electronic Information Exchange at (301) 948-5718 (300/1200 baud). You will find a lot of interesting stuff there, including an opportunity to post messages to ongoing security discussions AND quite a bit of cogent information about some of the proposed and passed laws that you might be surprised at.

So?

So, what's an article without a little "meat" in it? I pulled off some interesting stuff from the NBS BBS that I thought you might find it interesting.

Welcome to the NBS/ICST  
 Microcomputer Electronic Information  
 Exchange (MEIE)

NATIONAL BUREAU OF STANDARDS  
 INSTITUTE FOR COMPUTER SCIENCES AND TECHNOLOGY  
 DIAL-UP ACCESS PROTECTION:  
 HARDWARE DEVICES -- PRODUCT LIST  
 11/27/85

TABLE 1  
 PORT PROTECTION DEVICES

PRODUCT	VENDOR	NO. PORTS/LINES PROTECTED
GATEWAY	Adalogic 1522 Wistaria Lane Los Altos, CA 94022 (408) 996-8559	1
CODEM	Adaptive Systems Inc. 2527 N. Ridge Ave. Arlington Hts., IL 60004 (312) 253-8429	1
NET/GUARD	Avant-Garde Computing 800 Commerce Parkway Mt. Laurel, NJ 08054 (609) 778-7000	32 TO 4096

DIALSAFE SL		1
DIALSAFE 3 & 3 PLUS	Backus Data Systems Inc. 1440 Koll Circle, #110 San Jose, CA 95112 (408) 279-8711	3 TO 6
DIALSAFE 18		6 TO 18
TERMINAL SECURITY DEVICE	Black Box Catalog P.O. Box 12800 Pittsburgh, PA 15241 (412) 746-5500	1
SLEUTH (FORMERLY SHERLOCK,ESQ)	C. H. Systems 8533 W. Sunset Blvd #106 Los Angeles, CA 90069 (213) 854-3536	1
SECURITY MODEM (also a secu- rity modem)	Cermetek Microelect. P.O. Box 3565 Sunnyvale, CA 94088	1
DEFENDER IIS		16
DEFENDER II	Digital Pathways Inc. 1060 E. Meadow Circle Palo Alto, CA 94303 (415) 493-5544	48 STD. (OPTIONAL TO 384)
GATEKEEPER	Hall-Comsec Ltd. 1024 Wakerobin Lane Fort Collins, CO 80526 (303) 223-8039	TO 16

SECURITY MODEM (also a security modem)	Inmac 2465 Augustine Drive Santa Clara, CA 95054 (800) 547-5444	1
ENTERCEPT	Integrated Applic. Inc. 8600 Harvard Avenue Cleveland, OH 44105 (216) 341-6700	1
BARRIER	International Anasazi 2914 E. Katella Avenue Orange, CA 92667 (714) 771-7250	1
TRAQ-NET 2000 Series	LeeMah Datacom Scty Co. 3948 Trust Way Hayward, CA 94545 94133 (415) 786-0790	8 TO 128
DATA SENTRY	Lockheed-GETEX Co. 1100 Circle, 75 Parkway Atlanta, GA 30339 (404) 951-0878	1
DL 125/225	Optimum Electronics Inc. P.O. Box 250 North Haven, CT 06473 (203) 239-6098	1
DL 1000 (also a tml authenticator with DC 1125)		12 STD.
SERIES 200 (for IBM-PC to mainframe)	Protocol Computers Inc. 6150 Canoga Ave. Woodland Hills, CA 91367 (800) 423-5904	MULT.
PRIVECODE (mainly for voice phones)	Sutton Designs Inc. 111 S. Cayuga #200 Ithaca, NY 14850 (607) 277-4301	1

MICRO SENTRY		1
COMPUTER SENTRY	TACT Technology (formerly IMM Corp.) 100 N. 20th Street Philadelphia, PA 19103 (215) 569-1300	1
MULTI SENTRY		16 STD. (OPTIONAL TO 128)
SECURITY ACCESS UNIT	Terminal Data Corp. 15733 Crabbs Branch Way Rockville, MD 20855 (301) 921-8282	1
OZ GUARDIAN	Tri-Data Inc. 505 E. Middlefield Road Mountain View, CA 94039 (415) 969-3700	1
INTERGUARD	Wall Data Inc. 14828 NE 95th Street Redmond, WA 98052 (800) 433-3388	1
LINEGUARD 2001		1
LINEGUARD 3000	Western Datacom 5083 Market Street Youngstown, OH 44512 (216) 788-6583	2
LINEGUARD 3060		15 STD. (OPTIONAL TO 60)

TABLE 2 SECURITY MODEMS AND RELATED DEVICES	
PRODUCT	VENDOR
1212 AD-2 MODEM	Anderson-Jacobson, Inc. 521 Charcot Avenue San Jose, CA 95131 (408) 263-8520
DIALMUX  (security multiplexer)	
LINEMUX  (security multiplexer)	Backus Data Systems Inc. 1440 Koll Circle, #110 San Jose, CA 95112 (408) 279-8711
DIAL- CONTENDER (port conten- der and PPD)	
SECURITY MODEM  (also a PPD)	Cermetek Microelect. P.O. Box 3565 Sunnyvale, CA 94088
CHECKPOINT SWITCH (port conten- der/expander)	Giltronix Inc. 3780 Fabian Way Palo Alto, CA 94303
SECURITY MODEM  (also a PPD)	Inmac 2465 Augustine Drive Santa Clara, CA 95054 (800) 547-5444
8213 REV.5 MODEM	Penril DataComm 207 Perry Parkway Gaithersburg, MD 20877 (301) 921-8600

MAXWELL 2400PA MODEM	Racal-Vadic 1525 McCarthy Blvd. Milpitas, CA 95035 (408) 946-2227
MD212-7E SECURITY- PLUS MODEM	Ven-Tel Inc. 2342 Walsh Ave. Santa Clara, CA 95051 (408) 727-5721
TABLE 3 USER AUTHENTICATION DEVICES	
PRODUCT	VENDOR
CONFIDANTE (hand-held, keyed in challenge)	Atalla Corp.
CODERCARD (smart card inserted into terminal box)	Codercard Inc. 2902 Redhill #160 Costa Mesa, CA 92626 (714) 662-7689
DEFENDER IID (PPD with hand-held user authen.)	Digital Pathways Inc. 1060 E. Meadow Circle Palo Alto, CA 94303 (415) 493-5544
SAFE-WORD (hand-held, keyed in challenge)	Enigma Logic Inc. 2151 Salvio St. #301 Concord, CA 94520 (415) 827-5707
GORDIAN (hand-held, reads screen challenge)	Gordian Systems Inc. 3512 West Bayshore Rd. Palo Alto, CA 94303 (415) 494-8414
MAGNAKEY  (uses magcard with DataKey)	MicroFrame Inc. 205 Livingston Ave. New Brunswick, NJ 08901 (201) 828-4499

CAPS-1 (hand-held, keyed in challenge)	Secure Data Assoc. 9500 South 500 W. #209 Sandy, UT 84070
SECUR-ID (hand-held, time-based response)	Security Dynamics 15 Dwight St. Boston, MA 02118 (617) 542-0976
PFX PASSPORT (hand-held, keyed in challenge)	Sytek Inc. 1225 Charleston Rd. Mountain View, CA 94039 (415) 966-7300
LAZERLOCK (hand-held, reads screen challenge)	United Software Security 6867 Elm St. #100 McLean, VA 22101 (703) 556-0007

DL 1000 WITH DK 1125 (also is PPD)	Optimum Electronics Inc. P.O. Box 250 North Haven, CT 06473 (203) 239-6098
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Note: The National Bureau of Standards (NBS) endorses NO commercial products. All devices of the types specified known to the author at the time of publication have been included in these tables. No endorsement, approval or recommendation of them by NBS is implied by their inclusion.

The above list was put onto the BBS by Eugene F. Troy on 11/27/85.

If I missed your favorite source of security information, please drop me a line so I can put it in the next iteration. Until next time, do you know who's using your VAX? Happy Securing!

TABLE 4  
 TERMINAL AUTHENTICATION DEVICES

PRODUCT	VENDOR
ARBITER (also an encryptor)	Computer Security Sys. 1 Huntington Quad. #1C07 Melville, NY 11747 (516) 752-7790
DATA ACCESS SECURITY SYSTEM	Exide Electronics 2 Penn Center Plaza Philadelphia, PA 19102 (215) 422-4000
SITE AUTHEN- TICATION DEVICE	Icable Manufacturing 4800 Dundas St. West Toronto, ONT M9A1B1 (416) 236-1604
DATA LOCK & KEY	MicroFrame Inc. 205 Livingston Ave. New Brunswick, NJ 08901 (201) 828-4499

## VAX Systems SIG Committee List

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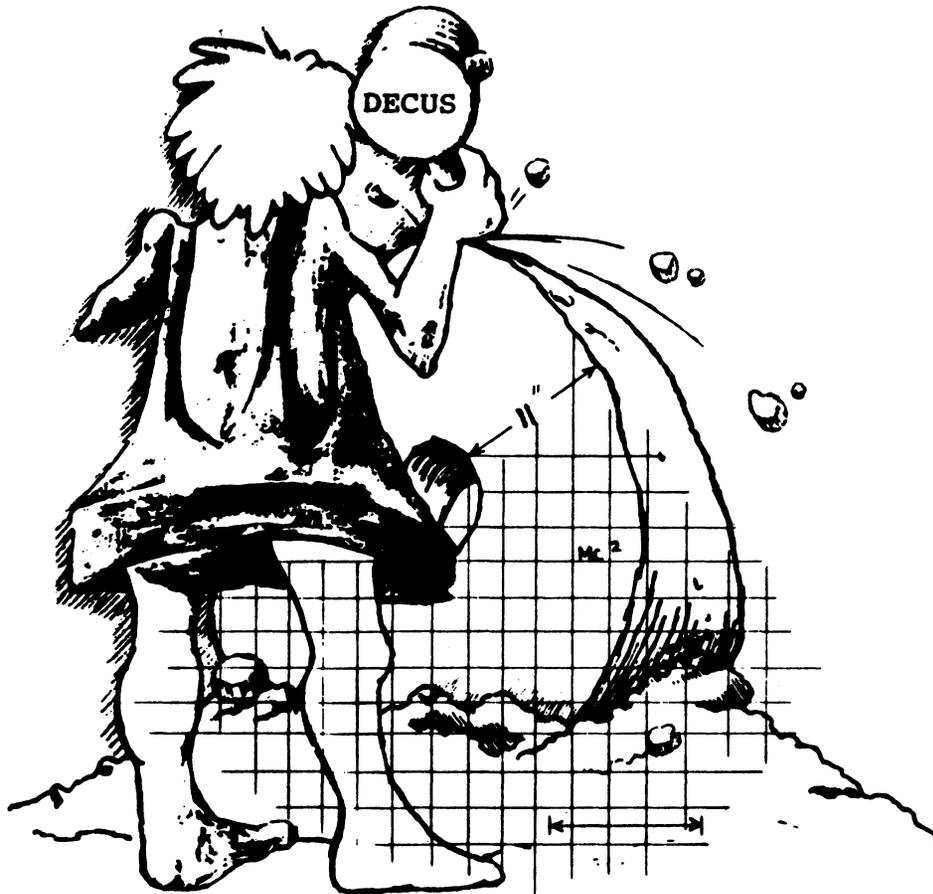
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# LIBRARY



# DECUS PROGRAM LIBRARY

## NEW LIBRARY PROGRAMS AVAILABLE FOR THE PDP-11 COMPUTER FAMILY

**DECUS NO:** 11-SP-92 **Title:** Symposium Tape from the RSX SIG, Spring 1986, Dallas **Version:** V1, July 1986

**Submitted by:** Glenn Everhart, Ph.D. **Operating System:** VAX/VMS, RSX-11M-PLUS, RSX-11M, RSX-11D, IAS **Source Language:** MACRO-11 & Various, FORTRAN IV-PLUS, FORTRAN IV, FOCAL, C, BASIC-PLUS2 **Keywords:** Business Applications, Scientific Applications, Symposia Tapes - RSX-11, Utilities - RSX-11

**Abstract:** Numerous DECUS C utilities. DECUS Australia has contributed a revision of the C preprocessor, DCL and MCR command line editors, BASIC2-PLUS using FCS, and MUCH more, plus various updates to the compiler. Updates to BRUDIR (directory of BRU tapes) from two contributors. VMS native mode replacement for BIGTPC. FORTRAN callable performance optimizers and virtual disk I/O. LISTRs multicolumn lister update, FOCAL update for RSX and PRO. AnalytiCalc spreadsheet (src, doc, tasks) much improved over earlier ones. Also relational DBMS archive. DECnet access for DECUS C and remote print and remote execute via DECnet (which amounts to approximately RSX clusters). FRG (disk fragmentation report) for PRO. Remote DECnet file access (transparent). Remote RMS (from DECUS Australia), allows RMS routines to be in a separate task from their callers (solving the perennial address space problems of RMS). VMS mail-like RSX mail. Revised RSX KMSKIT routines with KMS accounting, mail, utilities, current CCL (concise command language) and more for RSX11M V4.1. Connect time accounting. Revised Cookie files. DH11 characteristics setter. Sixel file generator. TEM terminal emulator. Super heap for PRO PASCAL. FIGURE calculator. KERMIT-11 update. TED text editor. Virtual terminal logger to file. Second command line editor. Also a few utilities for Commodore Amiga and a few other odds and ends (including an archive of a public domain optimizing C compiler for 68000).

The tape is available in BRU or VMS/BACKUP formats. To obtain the VMS/BACKUP version, order DECUS No. V-SP-55. Area 300.1 contains the initial documentation files and should be examined first for index info on what's on the tape. See RSX-86ATPE.DOC and BEGIN86A.DOC first.

No guarantees are made as to the completeness, usability or quality of the programs on the tape and the material has not been checked or reviewed.

**Notes:** Most programs have sources. Some submissions don't. What's available is here.

**Complete sources not included.**

**Media (Service Charge Code):** 2400' Magnetic Tape (PS) Format: BRU

**DECUS NO:** 11-842 **Title:** FNDFIL **Version:** May 1986

**Submitted by:** Barry Zion, Federal Reserve Bank of New York, New York, NY **Operating System:** RSX-11M-PLUS V2.0 **Source Language:** MACRO-11 **Keywords:** File Management

**Abstract:** FNDFIL is a program that associates Logical Block Numbers to files. This is useful when the error log indicates LBN errors as it identifies the files owning the offending blocks. Multi-header files are supported. FNDFIL reports various file identification information including the virtual block number in the file. It also checks for multiple allocation of logical blocks.

**Media (Service Charge Code):** 600' Magnetic Tape (MA) Format: FILES-11

## NEW LIBRARY PROGRAMS AVAILABLE FOR THE VAX/VMS FAMILY OF COMPUTERS

**DECUS NO:** V-SP-54 **Title:** PC-8088 Collection 10 **Version:** V1, June 1986

**Submitted by:** Glenn Everhart, Ph.D. **Operating System:** MS/DOS, CP/M, VAX/VMS **Source Language:** VARIOUS, FORTRAN 77, FORTRAN IV, C, BASIC **Keywords:** Business Applications, Spreadsheet, Utilities - MS/DOS

**Abstract:** This collection contains a number of programs from PC-SIG disks in the range 454 to 510, KERMITTED to a VAX in FILE TYPE BINARY mode, plus various other odds and ends from miscellaneous sources. Included are versions of MS/DOS and VMS KERMITs plus some CP/M utilities, database managers, editors, etc. Also present are revisions of some of the older disks, notably pc-write, pc-file, and pc-calc.

Also present is a new update of DTC, the Desktop Calendar, with some enhancements by C. Garman for VMS. A number of new features and fixes have been added.

Such items as PC-OUTLINE, DOSAMATIC (multitasker), pro-comm, VTKERMIT (which also knows menus, XMODEM and KERMIT protocols, and scripts), various hard disk utilities, updates to FANSI Console, an update to pc-AnalytiCalc, plus various VMS handy utilities. Where feasible, BASIC programs (e.g. for mailing lists etc.) have been saved in ASCII formats for easy use.

**Complete sources not included.**

**Media (Service Charge Code):** 2400' Magnetic Tape (PC) Format: VAX/VMS

**DECUS NO:** V-SP-55 **Title:** Symposium Tape from the RSX SIG, Spring 1986, Dallas, in VMS/BACKUP **Version:** V1, July 1986

**Submitted by:** Glenn Everhart, Ph.D. **Operating System:** VAX/VMS, RSX-11M-PLUS, RSX-11M, RSX-11D, IAS **Source Language:** MACRO-11 & Various, FORTRAN IV-PLUS, FORTRAN IV, FOCAL, C, BASIC-PLUS2 **Keywords:** Business Applications, Mathematical, Scientific Applications, Symposia Tapes - VMS, Utilities - VMS

**Abstract:** This tape was produced from contributions at the 1986 Dallas Symposium. The contents are as follows:

Numerous DECUS C utilities. DECUS Australia has contributed a revision of the C preprocessor, DCL and MCR command line editors, BASIC-PLUS2 using FCS and MUCH more, plus various updates to the compiler. Updates to BRUDIR (directory of BRU tapes) from two contributors. VMS native mode replacement for BIGTPC. FORTRAN callable performance optimizers and virtual disk I/O. LISTRs multicolumn lister update, FOCAL update for RSX and PRO. AnalytiCalc spreadsheet (src, doc, tasks) much improved over earlier ones. Also relational DBMS archive. DECnet access for DECUS C and remote print and remote execute via DECnet (which amounts to approximately RSX clusters). FRG (disk fragmentation report) for PRO. Remote DECnet file access (transparent). Remote RMS (from DECUS Australia), allows RMS routines to be in a separate task from their callers (solving the perennial address space problems of RMS). VMS mail-like RSX mail. Revised RSX KMSKIT routines with KMS accounting, mail, utilities, current CCL (concise command language) and more for RSX11M V4.1. Connect time accounting. Revised Cookie files. DH11 characteristics setter. Sixel file generator. TEM terminal emulator. Super heap for PRO PASCAL. FIGURE calculator. KERMIT-11 update. TED text editor. Virtual terminal logger to file. Second command line editor. Also, a few utilities for Commodore Amiga and a few other odds and ends (including an archive of a public domain optimizing C compiler for 68000).

The tape is available in BRU or VMS/BACKUP Formats. To obtain the BRU version, order DECUS No. 11-SP-92. Area 300.1 contains the initial documentation files and should be examined first for index info on what's on the tape. See RSX-86ATPE.DOC and BEGIN86A.DOC first.

No guarantees are made as to the completeness, usability, or quality of the programs on the tape and the material has not been checked or reviewed.

**Notes:** Most programs have sources. Some submissions don't. What's available is here.

**Complete sources not included.**

**Media (Service Charge Code):** 2400' Magnetic Tape (PS) Format: VMS/BACKUP

## NEW LIBRARY PROGRAMS AVAILABLE FOR THE VAX/VMS FAMILY OF COMPUTERS

**DECUS NO:** VAX-172 **Title:** SMARTMAILER For VMS **Version:** V1.1, July 1986

**Submitted by:** Digital Equipment Corporation **Operating System:** VAX/VMS V4.0 **Source Language:** BASIC-PLUS2 **Keywords:** Business Applications, Mail

**Abstract:** SMARTMAILER for VMS software is an application used to create and maintain lists of names and addresses, and generate address labels.

**Mailing List Contents:**

- . Mailing lists contain packed addresses with up to 327 characters, each composed of a name, three address lines, city/town, state/country, zip code, two separate identifiers, a counter, a comment and up to six user-defined categories.
- . Category information is user-defined and can be different for each mailing list.
- . Each mailing list can have associated sublists.
- . Each mailing list can be set up differently.

**Major Functions:**

- . Update - mailing lists can be created and maintained by adding, removing, and changing individual address entries.
- . Display - any or all addresses, category definition, or sublist definitions can be displayed on a video screen.
- . Listings - full addresses, category definitions, and sublist definitions can be printed (or written to a disk file).
- . Labels - any mailing list or sublist can be printed on a variety of labels.
- . List Processing Interface - a standard list document file can be generated for use with Digital Equipment Corporation word processing systems to produce personalized letters.

**Features:**

- . User Interface - all user interaction is menu or form driven.
- . Label Printing - various parameters for label printing can be defined to meet specific needs.
- . Category Information - up to six categories of related information can be stored for each mailing list.
- . Sublists - addresses can be selected from mailing lists by defining requirements on specific address fields.
- . Sorting - all lists may be sorted by any address field (except comments) before being printed as listings or labels.
- . Presort - SMARTMAILER for VMS can presort U.S. addresses to take advantage of U.S. Postal rules in effect in July 1979), which allow a reduced postage rate on First Class Mail.

**Media (Service Charge Code):** 600' Magnetic Tape (MA) Format: VMS/BACKUP

**DECUS NO:** VAX-173 **Title:** SMARTMAILER for VMS Binary **Version:** V1.1, July 1986

**Submitted by:** Digital Equipment Corporation **Operating System:** VAX/VMS V4.0 **Source Language:** BASIC-PLUS2 **Keywords:** Business Applications, Mail

**Abstract:** SMARTMAILER for VMS Software is an application used to create and maintain mailing lists of names and addresses, and generate address labels.

This version of the program contains binary code only. Refer to DECUS No. VAX-172 for a description of the program.

**Sources not included.**

**Media (Service Charge Code):** 600' Magnetic Tape (MA) Format: VMS/BACKUP

**DECUS NO: VAX-174 Title: PLA TOOLS Version: November 1984**

**Submitted by:** Digital Equipment Corporation **Operating System:** VAX/VMS V4.3 or later **Source Language:** RATFOR, C **Memory Required:** 3MB **Software Required:** C Compiler, RATFOR **Keywords:** Programmable Logic Arrays

**Abstract:** The Berkeley PLA TOOLS are a set of tools designed for performing logical and topological optimization of programmable logic arrays (PLAs). The tools form a system encompassing the design of PLAs from the specification of algebraic equations through logic minimization and folding, to final physical layout. These tools also support the optimization of finite-state machines (FSMs) when the machine is implemented as a programmable logic array.

The programs are described here in the order the designer would normally use them. Also included is a list of references for each program.

- EQNTOTT is a program which accepts as input an algebraic description of Boolean equations, and produces a two-level (flattened) representation of these equations.
- SIMPLE is truly a simple program for simulation of a PLA. It accepts binary vectors as input, and computes the PLAs response to the input patterns.
- ESPRESSO performs logical optimization of a PLA (i.e., two-level Boolean logic minimization).
- PLEASURE2 performs topological optimization of a PLA (i.e., simple and multiple folding of rows and columns to minimize the area occupied by the PLA).
- PANDA/TPACK is a program which maps the simple or multiply folded output of PLEASURE into its actual implementation. The output of PANDA is a CIF-format mask description of the PLA.

All of the above programs are written in the C-language, except for PLEASURE which is written in RATFOR (rational FORTRAN). These programs run on Digital Equipment Corporation VAX computers under the Berkeley UNIX (4.2BSD) operating system. It is expected that the programs can be made to run without a major effort under other versions of UNIX, or on a Digital Equipment Corporation VAX under VMS (reasonable attempts have been made to make each program machine independent). However, we cannot afford to distribute or support versions for different machines.

Assoc. Documentation: 1) R.K. Brayton, G.D. Hatchel, C.T. McMullen, and A.L. Sangiovanni-Vincentelli, "Logic Minimization Algorithms for VLSI Synthesis", Kluwer Academic Publishers, Carl W. Harris, 190 Old Derby Street, Hingham, MA 02043. 2) G. DeMicheli and A. Sangiovanni-Vincentelli, "PLEASURE: A Computer Program for Simple/Multiple Constrained/Unconstrained Folding of Programmable Logic Arrays", UCB Electronics Research Laboratory, Memorandum No. M82/57, August 1982. 3) G. DeMicheli,

"Computer-Aided Synthesis of PLA-Based Systems", UCB Electronics Research Laboratory, Memorandum No. M84/31, April 1984. 4) G.H. Mah, "PANDA: A PLA Generator for Multiply Folded PLAs", UCB Electronics Research Laboratory, Memorandum No. M84/95, April 1984. The following address is

for numbers two through four: U.C. Berkeley, ILP Office 467 Cory Hall, Berkeley, CA 94720.

**Restrictions:** This is the VMS version of the PLA tools tape. The tape is in VMS/BACKUP format, and contains the directories for the programs Eqntott, Espresso, Panda, Platypus, Pleasure, Simple, Tpack, and for the PLA test suite PLA. When Eqntott and Espresso were compiled and tested under the VMS operating system, Eqntott ran without much difficulty, however, Espresso caused some problems. Using VMS C Compiler number 2.0-003, Espresso will execute properly if the module "reduce c" was compiled without compiler optimization (i.e., cc/noopt). In order to use Eqntott, one must define "sys\$input" to be the name of the input file, and "sys\$output" to be the name of the output file (This is in contrast to the manual pages for this program which state that Eqntott will accept filename arguments on the command line). Also, on a UNIX system, the user's input file is "piped" through the C preprocessors. This feature was removed from the VMS version in order to get the program running. Whoever receives this tape is warned of the above changes in Eqntott, and that no attempt has been made to compile and test Panda, Platypus, Pleasure, Simple, or Tpack under the VMS operating system.

**Documentation available in hardcopy only.**

**Media (Service Charge Code):** User's Manual (EB), 600' Magnetic Tape (MA) Format: VMS/BACKUP

**DECUS NO: VAX-179 Title: DEPROC: LaTeX for the DECUS Proceedings Version: V.99, May 1986 Submitted by:** Barbara N. Beeton, American Mathematical Society, Providence, RI **Operating System:** TOPS-20 release 6.1, VAX/VMS V4.2 **Source Language:** TeX (LaTeX) **Software Required:** TeX with LaTeX macro package. **Hardware Required:** Laser printer or typesetter with TeX interface. **Keywords:** Text Formatting

**Abstract:** The DECUS Proceedings have traditionally been published from copy supplied by the authors, prepared according to rules devised for typewritten material. The power of the computer typesetting language TeX, through the macro package LaTeX, has been applied to this task. The macros contained in the file DEPROC.STY are intended for use by authors who have access to a working TeX/LaTeX system. (An earlier library submission, VAX-155 performed this function for plain TeX.) Included in this submission is a paper, prepared using DEPROC, which both describes its use and serves as a model. No prior knowledge of TeX or LaTeX is required, but authors using DEPROC will be expected to learn some rudiments, especially if their papers contain special notations or formats such as tables.

**Assoc. Documentation:** Manual - LaTeX: A Document Preparation System

**Media (Service Charge Code):** 600' Magnetic Tape (MA) Format: VMS/BACKUP

**DECUS NO: VAX-181 Title: VT200 TOOLKIT Version: July 1986**

**Submitted by:** Messrs. Tabik & DiGiantomasso, Professional Software Associates, Inc., Santa Ana, CA **Operating System:** VAX/VMS **Source Language:** C, BASIC-PLUS2, VAX-11 BASIC **Hardware Required:** VT220, VT240 Series Terminals **Keywords:** Graphics, VT200 Routines

**Abstract:** The VT200 TOOLKIT is a series of programs written in BASIC and C to promote the advanced features of the VT200 family of terminals. A few of the programs are written in VAX-BASIC for VMS. Where possible, other programs are written in ANSI-BASIC and C so they would be portable across systems.

The programs are:

- An example of font editing and font loading
- Loading keys with User Defined character sequences.
- Setting ReGIS graphics color display for non-graphics mode on a VT241.
- An example of the use of Dithering to provide more than four colors on a VT241.
- Character set files which can be loaded into a VT220.

Digital Equipment Corporation provided the funding to develop this program.

**Media (Service Charge Code):** 600' Magnetic Tape (MA) Format: VAX/ANSI

#### NEW LIBRARY PROGRAMS AVAILABLE FOR THE DECSYSTEM-20 FAMILY OF COMPUTERS

**DECUS NO: 20-185 Title: XMIT - Computer Communications via RS-232 Version: V1.3(31), March 1986**

**Submitted by:** Douglas Bigelow, Wesleyan University, Middletown, CT **Operating System:** VAX/VMS V4.1, TOPS-20 release 5.1 **Source Language:** MACRO-32 (VAX), MACRO-10 (DEC-20) **Memory Required:** 6 Pages **Keywords:** Networking

**Abstract:** The XMIT file transfer system was designed to provide automatic two-way file transfers via an RS-232 connection between two DEC-20's, two VAXen, or one of each. Each system in an XMIT link requires an "inbox" and an "outbox". Copying or renaming a file into the "outbox" means that it will soon disappear and reappear in the "inbox" on the system on the other end of the link. Files placed in "outbox" on the other system appear in "inbox" on your system. Average trip time for small files is about two minutes or less. No special hardware or software is required.

**Media (Service Charge Code):** 600' Magnetic Tape (MA)

#### NEW LIBRARY PROGRAMS AVAILABLE FOR THE PROFESSIONAL-300 SERIES OF COMPUTERS

**DECUS NO: PRO-156 Title: FORTRANUM Version: V1, September 1985**

**Submitted by:** Jorg Buchner, D-5064 Rosrath, West Germany **Operating System:** P/OS V2.0 **Source Language:** MACRO-11, FORTRAN 77 **Keywords:** FORTRAN, Tools - Applications Development

**Abstract:** FORTRANUM rennumbers statement-numbers (labels) in the source-code of FORTRAN programs. It is designed for programmers who in the process of building a program want to alter or reorganize part or all of the program's statement-numbers. The complete DEC-FORTRAN-77 statement- (command-) set can be processed. The old program version is saved.

The user denotes a program section by specifying:

- the first statement-number which shall be changed (and its new value)
- the last statement-number which shall be changed

Within this program-section, all statement-numbers are changed in ascending order. The increment between two consecutive statement-numbers is also variable.

Although the author has no experience with the program RENUM by E. Morton, (DECUS Library No. PRO-112), FORTRANUM's new features seem to be only its operating system (P/OS) and the FORTRAN-77 capability.

**Restrictions:** Mentioned in the documentation.

**Media (Service Charge Code):** One RX50 Diskette (JA) Format: FLES-11

#### NEW LIBRARY PROGRAMS AVAILABLE FOR THE PROFESSIONAL-300 SERIES OF COMPUTERS

**DECUS NO: PRO-157 Title: NBS PASCAL Version: May 1986**

**Submitted by:** Earl Chew **Operating System:** RT-11 V5 **Source Language:** PASCAL **Memory Required:** 128KB **Keywords:** Compilers, PASCAL

**Abstract:** A much modified version of the NBS PASCAL compiler V1.6i is provided. This is basically a runtime distribution only, the aim being to provide an executable PASCAL compiler on one floppy. A fuller kit should be available soon on 8" media.

This kit provides PRO/RT users with a PASCAL compiler. Documentation is included which details the changes made to the original. A string handling package is included as well as a program demonstrating its usage. A cross reference and a profiler are also included.

**Restrictions:** Compiler sources not included.

**Complete sources not included.**

**Media (Service Charge Code):** One RX50 Diskette (JA) Format: RT-11

#### NEW LIBRARY PROGRAMS AVAILABLE FOR THE RAINBOW SERIES OF COMPUTERS

**DECUS NO: RB-112 Title: FANCY FONTS Version: V2.0, April 1986**

**Author:** A. Christopher Hall **Operating System:** MS/DOS **Hardware Required:** LA type printer **Keywords:** Text Formatting

**Abstract** This a text formatter which makes use of an LA printer to achieve text in a variety of fonts.

This offering comes with:

- A text formatter, providing centering of text, paragraphing and tab control, left and right justification, plus more.
- A range of fonts, allowing you to generate text in a variety of ways.
- A font editor, allowing you to make up your own fonts. Using this feature, you are not just limited to the use of characters!

Fancy Fonts is excellent for the creation of presentation material, such as overhead transparencies, signs or fancy letters.

**Sources not included.**

**Media (Service Charge Code):** One RX50 Diskette (JA) Format MS/DOS

#### NEW LIBRARY PROGRAMS AVAILABLE FOR THE RAINBOW SERIES OF COMPUTERS

**DECUS NO:** RB-113 **Title:** ADDRESS BOOK **Version:** V4, May 1986

**Submitted by:** Bruce W. Roedel **Operating System:** MS/DOS V2.11 **Source Language:** FORTRAN 77 **Memory Required:** 256 K **Keywords:** Business Applications

**Abstract:** The ADDRESS BOOK program is designed to allow a user to store the names, addresses and phone numbers of any individual. It contains a full-screen editor for the updating of any entries in the master file, as well as various means of printing the data for hardcopy storage. The file structure is designed such that integration of other software is easy. Each entry in the master file contains a "Structure ID". This is a unique number dedicated to each entry. If a software package was designed to keep track of family member names, for instance, all that would be required is to store the Structure ID along with the list of family member names in the new file. These names could then be indexed back to other data using the Structure ID.

This program also utilizes the MS/DOS MDRIVE for the on-line help screens. The help document is expected to reside in drive E:. For floppy based systems, the MDRIVE feature boots up as drive E:. If you have a hard disk which has an MS/DOS partition as E:, you will need to copy the help document to your hard disk (or modify the software and recompile). A batch file containing the link run string for Microsoft FORTRAN is included.

**Restrictions:** Private library functions are not included, but the object module required during link is supplied.

**Complete sources not included.**

**Media (Service Charge Code):** One RX50 Diskette (JA) Format MS/DOS

**DECUS NO:** RB-114 **Title:** TURBOCOMM—VT2xx Emulation for the Rainbow **Version:** April 1986

**Author:** Digital Equipment Corporation

**Operating System:** MS/DOS **Source Language:** PASCAL **Keywords:** VT200 Routines

**Abstract:** This program provides partial VT2xx and VT125 emulation for the Digital Equipment Corporation Rainbow. With Turbo PASCAL sources included, it provides:

- Text file send and receive, and terminal logging.
- VT200 functions, excluding UDKs and selective erase.
- ReGIS terminal emulation (if POLYREGIS is present).
- Support for A-to-Z's video graphics requirements.
- Good example of the use of the MS/DOS communication library.
- Correct response to printer control and status inquiries.
- Support for printer control keystrokes.

**Notes:** V2.05 or later of MS/DOS is required.

**Media (Service Charge Code):** One RX50 Diskette (JA) Format MS/DOS

#### REVISIONS TO LIBRARY PROGRAMS

**DECUS NO:** 11-731 **Title:** KERMIT-11 **Version:** V3.50, April 1986

**Submitted by:** Brian Nelson, University of Toledo, Toledo, OH **Operating System:** PRO/RT-11 V5.2, P/OS 2.0, RT-11, V5.1, 5.2, RSX-11M-PLUS V2.1, 3.0, RSX-11M V4.1, RSTS/E V9.1, 9.2, IAS V3.1 **Source Language:** MACRO-11 **Memory Required:** 20 KW to 40 KW **Hardware Required:** Extra DL1 or a DZ, DH, DHV or DHU Port **Keywords:** Data Communications, KERMIT, Utilities - RSTS/E, Utilities - RSX-11, Utilities - RT-11

**Abstract:** KERMIT is a protocol originally developed at Columbia University which has been used to implement error free packet file transfer and communications between computer systems, both mainframe to mainframe and micro to mainframe. This KERMIT-11 was developed by the author for RSTS/E, RSX-11M-PLUS, RSX-11M and RT-11.

KERMIT-11 will run on RSX-11M version 4.0 and RSTS/E version 7.2 as long as the task was built without RMSRES. To be able to build KERMIT on RSTS/E version 7.2 or RSX-11 version 4.0, you will have to get RMLSLIB OLB and MAC TSK and RSX-11M V4.1 or RSTS/E V8.0. The need for version 2 of RMLSLIB is due to the use of \$SEARCH, \$PARSE, \$RENAME and \$DELETE. The need for the newest MAC TSK is due to the use of new directives such as .SAVE, .RESTORE and .INCLUDE FILENAME/.

**Notes:** The magtape distribution contains sources, however, the floppy diskette distribution contains binaries only.

**Changes and Improvements:** Many, edits in KLLCMD.MAC **Assoc. Documentation:** Recommended from Columbia University

**Restrictions:** See Installation Notes regarding the version required. (Installation Notes are part of the User's Manual). Runs on IAS to some degree.

**Media (Service Charge Code):** User's Manual (EB), Three RX01 Diskettes (KC) Format RT-11, 2400' Magnetic Tape (PA) Format DOS-11

**DECUS NO:** 11-829 **Title:** KERMIT-11 for P/OS and Micro/RSX **Version:** 3.50, April 1986

**Submitted by:** Brian Nelson, University of Toledo, Toledo, OH **Operating System:** RSX-11M V4, RSX-11M PLUS V2.1, 3, P/OS V2 **Source Language:** MACRO-11 **Memory Required:** 24 KW **Keywords:** Data Communications, KERMIT, Utilities - P/OS, Utilities - RSX-11

**Abstract:** KERMIT-11 for P/OS and Micro/RSX on the Micro-PDP-11 allow for a standard form of file transfer from these systems to about 120 other implementations of KERMIT on other systems, including the PDP-11, VAX and DECSYSTEM-10/20.

The P/OS version uses the XK: driver on the Pro-350 and is normally run from DCL. On Micro/RSX the standard terminal driver is used. Also, the image K11.POS.TSK is linked to RMSRES, which insures named directory support for both P/OS and Micro/RSX.

Documentation is in K11.INS.DOC and in the online help file, K11.HLP.HLP. The distribution is on a P/OS format RX50, easily readable on both P/OS and Micro/RSX. The full distribution is DECUS No. 11-731 which is available on magtape.

**Changes and Improvements:** Many, edits in KLLCMD.MAC

**Assoc. Documentation:** For Installation Notes and User Guide order DECUS No. 11-731 (EB). Users are encouraged to order this manual.

**Sources not included.**

**Media (Service Charge Code):** One RX50 Diskette (JA) Format FILES-11

**DECUS NO:** 11-830 **Title:** KERMIT-11 for Micro/RSTS/E and RT-11 **Version:** V3.50, April 1986

**Submitted by:** Brian Nelson, University of Toledo, Toledo, OH **Operating System:** PRO/RT-11 V5.X, RSTS/E V9.X, RT-11 V5 **Source Language:** MACRO-11 **Memory Required:** 20-40 KW **Keywords:** Data Communications, KERMIT, Utilities - RSTS/E, Utilities - RT-11

**Abstract:** KERMIT-11 for RSTS/E and RT-11 on the Micro-PDP-11 allow for a standard form of file transfer from these systems to about 120 other implementations of KERMIT on other systems, including the PDP-11, VAX and DECSYSTEM-10/20.

The RT-11 version can use the XC: handler on PRO/RT11, the XL: handler on the MicroPDP-11 and also multiple terminal service on the MicroPDP-11 for connecting out to other systems. The RSTS/E version uses the standard terminal driver, and runs on both V8 and V9 of RSTS/E.

Documentation is K11.INS.DOC and in the online help file, K11.HLP.HLP. The distribution is on a RT-11 format RX50, easily readable on RT-11 with copy and on RSTS/E with FIT. The complete KERMIT-11 distribution is DECUS No. 11-731 which is available on magtape.

**Changes and Improvements:** Many, Dial command, see User Guide, also 11-731

**Assoc. Documentation:** Installation Guide and Users Manual, DECUS Program No. 11-731 (EB). Users are encouraged to order this manual.

**Restrictions:** XM for RT only. FB won't fit.

**Sources not included.**

**Media (Service Charge Code):** One RX50 Diskette (JA) Format RT-11

**DECUS NO:** V-SP-40 **Title:** PRAXIS: An Alternative to Ada **Version:** V7.7, May 1986

**Submitted by:** Frederick Holloway, Lawrence Livermore National Laboratory, Livermore, CA **Operating System:** RSX-11M, VAX/VMS V4.2 **Source Language:** PRAXIS **Keywords:** Programming Languages, Tools - Applications Development

**Abstract:** PRAXIS is a modern block structured controls-oriented language similar to Ada (registered DoD) for distributed control system applications on VAX/VMS, PDP-11/RSX, LSI-11/RSX, and LSI-11 stand-alone computers. It is also useful as a training aid and steppingstone to Ada.

PRAXIS was developed for and used extensively on the Nova High Energy Laser Project at the Lawrence Livermore National Laboratory by Bolt, Beranek and Newman, Inc. It has been extensively improved recently at LLNL in collaboration with other users. Features include: separate compilation of modules, strong type-checking, user defined types, encapsulation, guard and exception blocks for error control, segment control, clean interface to other languages, and ROM-able output code. In addition to the compilers, the release contains test suites, runtime support, text I/O routines (terminal and file), documentation sources (RUNOFF), and other support utilities. The compiler runs under VMS and can generate code for any of the above combinations.

Version 7.7 adds support for the VMS symbolic debugger, runtime library, extensive enhancements to the compiler including optimized rangechecking, and a test suite of over 400 example programs.

Direct contact with the submitter is encouraged for further information and assistance.

**Notes:** Sources of example programs and run-time support are included.

**Changes and Improvements:** Support VMS symbol debugger, VMS RTL, rangechecking, over 400 example programs, extensive enhancements.

**Complete sources not included.**

**Media (Service Charge Code):** 2400' Magnetic Tape (PC) Format VMS/BACKUP

**DECUS NO:** VAX-131 **Title:** Orthotron Testing and Data Storage Program **Version:** V2.0, May 1986

**Author:** Thomas J. Tenhor, Hope College, Holland, MI

**Operating System:** VAX/VMS V4.2 **Source Language:** VAX COBOL V3.2 - 4.2 **Memory Required:** 4,096,000 Bytes **Software Required:** SPSS-X 2.1 **Hardware Required:** VT101 or VT220 **Terminal Keywords:** Sports

**Abstract:** This program has been designed for use with the Orthotron II R (manufactured by Lumex Inc). It allows the user to store test and daily exercise data for individual subjects using the machine. Subject groups have been divided into three sections:

- . Health Enhancement Program Subjects - pre and post test data storage; allows for before and after program comparison.
- . Pre-season Athletes - allows the user to enter up to three sets of test data for up to three sports for any one particular athlete.
- . Rehabilitation Subjects - allows the user to enter exercise sessions for any individual performing rehabilitation on the machine. Table and graphs are used to allow the user to compare exercise sessions.

The Health Enhancement Program and Pre-season screening sections of the program compute testing statistics for each subject. Computed statistics include comparison ratios, per cent weaker ratios, and strength to body weight ratios. In addition, support programs have been included to allow the user to do statistical analysis using the SPSS-X statistical software package. Statistical analysis includes codescriptive data on sample groups, comparison of pre and post test data, and frequency tables.

The system comes with its own self-starting login file. It is recommended that this file be automatically executed by the user for each use of the system.

**Changes and Improvements:** Replaced unsupported library functions: LIB\$PUT\_SCREEN, LIB\$SET\_CURSOR, SCR\$SET\_CURSOR, SCR\$ERASE\_LINE and SCR\$ERASE\_PAGE.

**Media (Service Charge Code):** User's Manual (EB), 600' Magnetic Tape (MA) **Format:** VMS/BACKUP, or order VAX-LIB-4

#### **DECUS PROGRAM LIBRARY CHANGES:**

**DECUS NO:** PRO-146 **Title:** PRO/Smart Mailer Binary Version, **Version:** August 1985, as listed in the 1986/1987 Software Catalog, is no longer available.

**DECUS NO:** RB-105 **Title:** SEDT:EDT/WPS Screen Editor for MS/DOS, **Version:** V2.0, February 1986, as listed in the 1986/1987 Software Catalog, is no longer available.

**DECUS NO:** 10-364 **Title:** CRYPT.PSWCHK, PODTYP, MONRPT/RESP, **Version:** V.2(2), December 1984, as listed in the 1986/1987 Software Catalog, will be included in 10-LIB-12.

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-----  
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The purpose of the HMS SIG Newsletter is to serve as a forum to share information related to DEC hardware with the members of the SIG. As such, the existence of the newsletter is entirely dependent on your contributions. If you have an HHK item, a better or safer way to do something, product news, a tutorial article of general interest, etc., we are interested in publishing it in the newsletter. It is intended that the HMS SIG Newsletter be published at least four times a year.

There are several ways to submit material for the newsletter:

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- o You can send me camera-ready hard-copy (this saves me a lot of typing).
- o I will accept submissions on floppys. I can handle RX50's or 8" diskettes (either density, single or double sided). I prefer RT-11 format, if possible, but I can probably handle RSX or VMS stuff somehow. I will return your diskette(s), of course.
- o Those of you that have access to DCS can send things to username WALKER. I check DCS daily.
- o I am also on CompuServe as "Bill Walker 71066,24".

In any event, if you have anything to submit, send it! If it is a mess, but I can read it, I will get it in the newsletter somehow. Finally, if you have any question about submitting material, call me. My telephone number is listed below.

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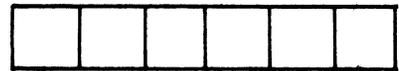
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Philip A. Naecker  
Consulting Engineer  
3011 N. Mount Curve Ave  
Altadena, CA 91001

Name: \_\_\_\_\_ DECUS Membership No. \_\_\_\_\_

Affiliation: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Telephone Number: \_\_\_\_\_

Statement of Problem: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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\_\_\_\_\_

Please following the following guidelines when submitting support material:

1. If you are trying to demonstrate a method or a concept, please simplify the procedures, records, and other information to the shortest form possible.
2. Annotate your attachments. Simple comments or hand-written notes ("Everything worked until I added this statement.") go a long way toward identifying the problem.
3. Keep an exact copy of what you send. And number the pages on both copies. But send everything that is related to your question, even remotely.
4. If you would like a direct response or would like your materials returned, please don't forget to include a stamped, self-addressed envelope large enough to hold the materials you send.

DATATRIEVE/4GL SIG  
Product Improvement Request Submission Form

Submittor:  
Address:

DECUS Membership Number:  
Firm:

Phone:

Product or Products:

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How to write a PIR

A PIR should be directed at a specific product or group of products. Be sure to give the full name of the product(s) and version numbers if applicable. Describe the functionality you would like to see in as complete terms as possible. Don't assume that the PIR editors or software developers know how it is done in some other software product - state specifically how you want the software to function. Provide justification of your request and give an example of its use. If you can, suggest a possible implementation of your request.

---

Abstract: (Please limit to one or two short sentences.)

---

Description and Examples: (Use additional pages as necessary.)

[Put my name and address on reverse side, thus:]

PIR Editor, Philip A. Naecker  
Consulting Software Engineer  
3011 North Mount Curve Avenue  
Altadena, CA 91001  
USA

IAS SIG MEMBERSHIP SURVEY

Name: \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Telephone: \_\_\_\_\_

Current Hardware: (Include number and type of processors, mass storage devices, communication devices, etc.)

IAS Release: (Indicate release of IAS under which these systems are running)

Software: (Indicate software running on these systems, i.e., DECNET, Decus C, etc.)

Application: (Indicate the type of application running on the system.)

Contacts: Would you be willing to be placed on a list of contacts? If so, what areas?

Features: Do you have any features which you would like IAS to include?

Any further comments?

IAS SIG MEMBERSHIP SURVEY

fold

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Frank R. Borger  
Michael Reese Medical Center  
Dept of Radiation Therapy  
Lake Shore Drive at 31st Street  
Chicago Il 60616

---

IAS WHIMS

WHAT: (Describe your WHIM) (Please print or type)

WHY: (Describe the reason for the WHIM)

HOW: (Make any suggestions for a possible implementation)

Name: \_\_\_\_\_

Company: \_\_\_\_\_

Address: \_\_\_\_\_

Phone: \_\_\_\_\_

Please mail to:

Kathleen M. Anderson  
EATON Information Management  
Systems Division  
2017 Cunningham Drive  
Suite 208  
Hampton, Virginia 23666

Phone: (804) 326-1941

# DATAGRAM

DATAGRAMs are short messages, comments, requests, or answers that are published in NETwords. Please fill in the sections below and send the DATAGRAM to:

**Vickie Hancock  
NETWords Editor  
2510 Limestone Ln.  
Garland, Tx. 75040**

**Title:** \_\_\_\_\_

**Message:** \_\_\_\_\_

\_\_\_\_\_  
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**Your Name:** \_\_\_\_\_

**Address:** \_\_\_\_\_

**Telephone:** \_\_\_\_\_

**If this is a reply to a previous DATAGRAM, what #? \_**

**Signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Place  
Stamp  
Here**

**Vickie Hancock  
NETWords Editor  
2510 Limestone Ln.  
Garland, Tx. 75040**

---

**Fold Here**

# Rainbow Wish List Ballot

Use this ballot to show which items on the Rainbow Wish List are most important to you. Put the number of the most important item on the list in space 1, the next most in space 2, etc.

1. _____	10. _____	19. _____	28. _____	37. _____
2. _____	11. _____	20. _____	29. _____	38. _____
3. _____	12. _____	21. _____	30. _____	39. _____
4. _____	13. _____	22. _____	31. _____	40. _____
5. _____	14. _____	23. _____	32. _____	41. _____
6. _____	15. _____	24. _____	33. _____	42. _____
7. _____	16. _____	25. _____	34. _____	
8. _____	17. _____	26. _____	35. _____	
9. _____	18. _____	27. _____	36. _____	

Please add the following to the wish list:

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Comments:

Name: \_\_\_\_\_

Company: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

Work Phone: \_\_\_\_\_

Home Phone: \_\_\_\_\_

Return Ballot to:

**Lynn Jarrett**  
**DECUS Rainbow Working Group Chairman**  
**Union Tribune Publishing Co.**  
**Post Office Box 191**  
**San Diego, CA 92108**

**(619) 299-3131**

# PRO/SIGHT GRAPHICS CONTEST

SPRING 1987 DECUS

## << ENTRY FORM >>

Name \_\_\_\_\_

Address \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone ( \_\_\_\_\_ ) \_\_\_\_\_

Image/Script Title \_\_\_\_\_

Category Number \_\_\_\_\_ File Name \_\_\_\_\_

\*\*\*\*\*

**NOTE:** If diskette(s) are to be returned to the author, please send entries with self-addressed AND stamped envelope. Provide sufficient postage and packing material. The PC SIG will not be responsible for damage to diskette or entries not returned because of insufficient postage. Returned diskette will contain some .GID files from the contest if requested, so ORIGINAL IMAGE MAY BE DELETED to provide space.

If multiple entries are submitted, xerox and fill out an entry form for each submission. Multiple entries may be sent on a single diskette.

**PC POSTSCRIPT**

PC Postscripts are short requests, comments and responses to be published in the *Postscript Section* of the PC SIG Newsletter. Please respond to the following:

Y/N This is a reply to a previous Postscript.   Issue No.  No.

**Title:** \_\_\_\_\_

**Message:** \_\_\_\_\_  
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\_\_\_\_\_

**Name:** \_\_\_\_\_

**Address:** \_\_\_\_\_  
\_\_\_\_\_

**Phone:** (\_\_\_\_\_) \_\_\_\_\_ - \_\_\_\_\_

**Signature:** \_\_\_\_\_ **Date** \_\_\_\_\_

## INPUT/OUTPUT Submission Form

A SIG Information Interchange

Please reprint in the next issue of the Pageswapper

If this is a reply to a previous I/O, which number? \_\_\_\_\_

Caption: \_\_\_\_\_

Message: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Contact:

Name \_\_\_\_\_

Address \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Telephone \_\_\_\_\_

Signature \_\_\_\_\_ Date \_\_\_\_\_

Mail this form to: Larry Kilgallen, PAGESWAPPER Editor  
Box 81, MIT Station, Cambridge, MA 02139-0901, USA

For information about on-line submission, dial (in the United States): (617) 262-6830 and log in with the username PAGESWAPPER.

PAGESWAPPER - October 1986 - Volume 8 Number 3  
INPUT/OUTPUT Submission Form

Tear out or photocopy reverse to submit an I/O item

Larry Kilgallen, PAGESWAPPER Editor  
Box 81, MIT Station  
Cambridge, MA 02139-0901  
USA

## System Improvement Request Submission Form

Page 1 of \_\_\_\_\_

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Submittor: \_\_\_\_\_ Firm: \_\_\_\_\_

Address: \_\_\_\_\_ Phone: \_\_\_\_\_

---

**How to write an SIR:**

Describe the capability you would like to see available on VAX systems. Be as specific as possible. Please don't assume we know how it's done on the XYZ system. Justify why the capability would be useful and give an example of its use. If you wish, suggest a possible implementation of your request.

---

**Abstract (Please limit to four lines):**

---

**Description and examples (use additional pages if required)**

PAGESWAPPER - October 1986 - Volume 8 Number 3  
System Improvement Request Submission Form

Tear out or photocopy reverse to submit an SIR

Mark D. Oakley  
Battelle Columbus Division  
Room 11-6-008  
505 King Avenue  
Columbus, Ohio 43201-2369  
USA

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DECserver	RSX-11	VAX-11
DECsystem	RT-11	VAX 8600
DECUS	RX50 (et al)	VAX-11/750 (et al)
FMS	TOPS-10	VMS
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LN03	VAX	WPS/PLUS/VMS

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 Please Delete My Membership Record  
(I Do Not Wish To Remain A Member)

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Company: \_\_\_\_\_

Address: \_\_\_\_\_

State/Country: \_\_\_\_\_

Zip/Postal Code: \_\_\_\_\_

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