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NEWSLETTER

JANUARY
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SUBSCRIPTION AND MEMBERSHIP FORMS

Dear DECUS Member,

The other day a friend of mine from one of the SIGs dropped by, and we got to discussing how computers have changed over the years. Being a wise old bird, he said that minis and micros had revolutionized the field. I didn't agree, and told him I thought there were too many computers and too many different systems out there, and that every time someone like Steve Jobs comes out with another mini or micro, I groan, "Oh no, not again!"
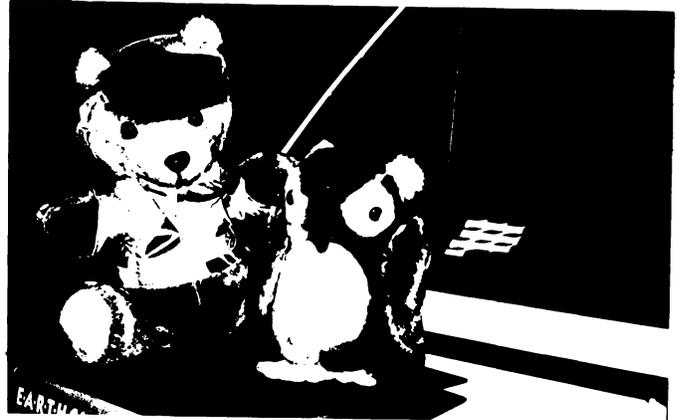
I don't know about his place, but minis and micros are multiplying like rabbits in out department. The terminal I am using to write this has an RS232 switch box connected to it. I can select either the PDP11/44 running RSX/IAS, the small PDP11 in my office running RT, or The VAX down the hall running VMS. That's 3 different operating systems, and three significantly different file structures, one a flat, single user structure, one almost a 2-deep tree structure, and the third a full tree structure.

That small PDP11 in my office also has a VT05 and an LA34 connected to it. I'll occasionally be running DEC diagnostics on it, using it to trouble shoot boards removed from the other PDP11 computers that we service in our department. Total, 4 systems, and another file structure.

Next to my terminal is a PC clone that's doing remote monitoring of an x-ray machine downstairs. That PC makes running that therapy machine easier, and it really helps with some service problems, but when I switch to the PC I again have to swith mental gears, and deal with another file system. (Anybody that designs a full tree sturcture file system and then leaves out version numbers should be shot, but that's for another editorial.) Total, 5 systems and still another file structure.

To make matters worse, on the bench behind me are a couple of different micro based systems. One of the boxes will soon interface our new therapy machine to or VAX computers for computer verification of proper patient treatment. The other is a single board system with built in basic and digital and A/D capabilities which I am incorporating into a special dosimetry system. For each system, I again have to change mental gears. Total, 7 systems, but at least these micros don't have a file system to learn.

As soon as I get the time, I'll go down the hall and get the Apple IIe system to do development on our computer assisted diagnostic X-ray unit. Yet another language and system, and another different file structure. Total, 8 systems.

To make matters worse, my boss just informed me that in about a year, we will be doing some major development on a new projects involving RISC and Unix based work stations. That will bring the total up to 9 different systems.

An aquaintance once described the condition perfectly, he called it the tower of YABL, (for Yet Another Bloody Language.) Forget about Ken O's idea of "one system from the micro to the mainframe" at our place. I swear we have more systems than CPU's!

Actually, it isn't the major system differences that bug me, it's the little ones. A command of "DIR filename" on our PDP systems will include wildcarding on file type and version number, on the VAX and RT systems it does not. Our humble diagnostic system lets you do DIR ABC???.*, our advanced PDP11 and VAX systems don't. If I had a nickle for every time I couldn't find a file because I was using the wrong DIR command, I could retire today. When I go to the Apple II, I have to remember that its "CATALOG" not "DIR", with no wild card fanciness. And UNIX systems picked the perfectly logical "LS" command instead.

It gets worse! Does this system want RENAME or MOVE? Do you ERASE, DELETE, or UNSAVE a file. Do you COPY, PIP, or DUMP it? What command do you need to make a file read only, or to make it undeletable? (I remember one memorable time sharing system where you could not make a file read only, but you could make it WRITE ONLY!)

And then you have to edit your source! Do you use KED, EDT, TECO, EDI, or whatever to edit the file? No matter what your favorite editor, it won't be on all the systems. Computernicks haven't even decided yet wether the "DELETE" key should erase the character to the left of the cursor, or the character under the cursor!

Oh lord, preserve us from the wrath of the Command Line Interperter! Does anybody out there from Languages and Tools have a reverse Rosetta stone lying around? I sure could use it.

Frank "Ringmaster" Borger
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Machine readable input is highly desirable and machine–to–machine transfer of material is preferred, but most anything legible will be considered for publication.

Please send contributions, of for further information please contact either:

Editorials and letters to the editor within the Wombat Examiner and 4GL Dispatch are solely the opinion of the author and do not necessarily reflect the views of Digital Equipment Computer Users Society, Digital Equipment Corporation, or the author's employer. All editorials are marked as "An Editorial"; letters to the editor always begin "Dear Editor."

About the Authors...

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DTR/4GL SIG Calendar of Events for New Orleans

Some of the meetings sponsored by the DTR/4GL SIG do not appear on the standard meeting schedule. Check the Calendar of Events below and the Meeting Schedule for sessions, meetings, and social events of interest to you. The DTR/4GL SIG Suite will be located in the Hilton Hotel; check the sign in the lobby for the room number.The DTR/4GL SIG Campground will be located in the convention center; check the signs or a copy of Update.Daily for the room number.

May 6 – Sunday
14:00–15:30	"Session Chair Packet" Stuffing Party	(Suite – Hilton)
17:00–18:00	Volunteer Session Chair "Meeting"	(Suite – Hilton)
18:00–20:00	Open Steering Committee Meeting	(Suite – Hilton)

May 7 – Monday
9:00– 9:30	Opening (roadmap) session	(Room 41)
17:30–19:00	4GL Working Group Chairs & Counterparts	(Suite – Hilton)

May 8 – Tuesday
9:00–10:30	**PowerHouse** Working Group	(Salon B – Hilton)
10:30–11:30	**FOCUS** Working Group	(Salon B – Hilton)
11:00–12:30	**PowerHouse** Clinic	(Campground)
14:30–15:30	**Smartstar** Working Group	(Salon B – Hilton)
15:30–16:30	**Ingres** Working Group	(Salon B – Hilton)
16:00–18:00	**RALLY** Clinic	(Suite – Hilton)
17:00–18:00	**DATATRIEVE** Working Group	(Salon A – Hilton)

May 9 – Wednesday
10:00–11:00	Problem Solving Comparison Session	(Room 36)
15:00–16:00	**Accent R** Town Meeting	(Salon B – Hilton)
16:00–17:00	**Cortex** Working Group	(Salon B – Hilton)
16:00–17:00	**ORACLE** Working Group	(Campground)
17:00–19:00	**ORACLE** Clinic	(Campground)
17:00–19:00	**DATATRIEVE** Clinic	(Suite – Hilton)

May 10 – Thursday
15:00–16:00	**RALLY** Working Group	(Salon C – Hilton)
20:00–22:00	Wombat Magic	(Room 41)

May 11 – Friday
12:30–14:00	Open Steering Committee Meeting	(Suite – Hilton)
	New Orleans Post Mortem & Las Vegas Planning	
18:00–17:00	Executive Steering Committee	(to be announced)

Volunteers Needed at Symposia

Harry J. Miller, Volunteer Coordinator, Ontario, CA

Enhance your enjoyment of the New Orleans Symposium by participating in volunteer SIG Activities. Session chairs and suite hosts/hostesses are need to assist with SIG activities. Volunteers receive an appreciation gift. To participate, attend a drop-in meeting of volunteers between 5:00 and 6:00PM on Sunday, May 6, in the DTR/4GL SIG Suite in the Hilton Hotel (check in the lobby for the room number) or see Harry Miller, Volunteer Coordinator, at the Sunday evening Welcoming Reception (9:00 to 10:00PM). You may also contact Harry Miller by phone at 714–988–6481 extension 7798 at the Ontario California Police Department during the week before the Symposia if you would like to reserve a particular session chair.

Session chairs have the best sear in the room – right up front! They introduce the speaker, control the question and answer session at the end of the talk, evaluate the presentation, enforce the DECUS commercialism policy, and assist the speak with the lights and audio–visuals.

Suite hosts/hostesses welcome attendees, help direct attendees to Digital engineers and experienced users to get their questions answered, and make sure the hardware doesn't sprout legs.

In addition to the appreciation gift, the SIG will also send a "thank you" letter to the volunteer's boss if the volunteer requests it.

SMARTSTAR Working Group

Charles R. Gross, Working Group Chair

SMARTSTAR users will see a significantly increased presence at New Orleans. In addition to the 4GL comparison panel there will be 6 sessions – two on each of Tuesday, Thursday, and Friday. See the Symposium Schedule and the SIG Calendar for the specific topics and times. Along with the sessions will be the Working Group meeting Tuesday afternoon.

We will be discussing the formation of several local user groups, so if you are interested in additional support, please attend. Experienced users and company representatives will be available in the campground. Watch UPDATE.DAILY for the specific times.

PowerHouse Working Group

C. Cecil Hawkins, Jr., PowerHouse Associate Newsletter Editor

There was quite a turnout for the PowerHouse Working Group meeting at the Anaheim Symposium. The Working Group chair, David Hatfield, continues to serve; a Vice–Chair, Doug Brantley, and a newsletter editor, yours truly, Cecil Hawkins, have signed on to help lead the group. While we don't have much experience, we'll make up for it with enthusiasm. Since the Working Group itself is a relatively new entity, we will all get better at this as time goes by.

There are four PowerHouse sessions scheduled for New

Orleans, plus a Working Group meeting and a clinic. All PowerHouse users are invited to the Working Group meeting and the other sessions; we appreciate all the new faces and suggestions. Newsletter articles, ideas and/or suggestions can be mailed directly to me at the address given in the back of the newsletter. I'm also on DECUServe, for those of you who participate.

See you in New Orleans!

FOCUS Working Group

Lesley A. Hulse, Working Group Chair

The FOCUS–oriented sessions at the New Orleans Symposium this spring will range from coding techniques to presentations on windowing and communication with IBM machines. In addition, there is a scheduled two–hour clinic with developers.

This spring, there will be a VAXStation running FOCUS

located in the campground. Users who would like assistance or consulting with their applications should find this useful. In addition, prospective users interested in evaluating FOCUS in an informal, hands–on environment will be able to meet with developers and experienced users in a live environment.

ORACLE Working Group

Mark Keller, Working Group Chair

The ORACLE Working Group has scheduled a variety of activities for the Spring Symposium. ORACLE users won't want to miss the Working Group Meeting and Clinic held in the Campground on Wednesday as shown on the Calendar of Events. This is your chance to meet ORACLE!

During the Working Group meeting the wish list from Anaheim will be discussed. At the clinic you will have the opportunity to find the answers to those problems you just can't

seem to figure out and perhaps find that you may have answers for others as well!

The ORACLE Working Group will also participate in the 4GL Panel on Wednesday. Plan on coming and hearing how one user solved the problem using ORACLE and later stopping by the Campground to see the application on line.

See you in New Orleans.

Special Notice of DATATRIEVE–11 Bug and Fix

The following letter was sent to all DATATRIEVE–11 Version 3.3 customers in late 1989.

"Digital Equipment Corporation, developers of DATATRIEVE–11, request that customers do not install the DATATRIEVE–11 Version 3.3 kits recently distributed by Digital. A software error has been detected which – under certain circumstances – will cause incorrect arithmetic results. Digital will provide a fix to the error as soon as possible. In the meantime, please do not install DATATRIEVE–11 Version 3.3. We request that you retain the media and documentation kit for future use.

The specific error that has been uncovered is: For calculations using variables which have been declared for USAGE REAL, the results are improperly scaled, such that the result is reported with an improperly placed decimal point. The magnitude of the error is dependent on the scale of both the REAL variable and the other factors in the calculation.

If you are not sure what version of DATATRIEVE–11 is on your system, please check the image identification by running the DATATRIEVE–11 task.

If the Image Identification Information section display shows:

```
DATATRIEVE-11 DEC Query and Report
System
Version: V03.03-05, 15-Jun-89
```

```
Type HELP for help
DTR>
```

or

```
DATATRIEVE-11 DEC Query and Report
System
Version: V03.03-06, 10-Oct-89
Type HELP for help
DTR>
```

then your system has the version of DATATRIEVE–11 with the error. If your system has Version 3.3, please re–install the previous release of DATATRIEVE–11 Version 3.2.

Digital regrets any inconvenience caused by this error. We are committed to a high–quality DATATRIEVE–11 product, and will correct the error described above and provide you with a resolution as soon as possible.

Should you have any questions, contact your Digital Service Representative."

SOFTWARE PRODUCT SERVICES AND
DATATRIEVE–11 PRODUCT MANAGEMENT

FOLLOW–UP ACTION

The software was corrected and the new kits shipped from the U.S. distribution center on February 9, 1990.

Analysis of Special RALLY PIR Ballots

T. Chris Wool, PIR Coordinator, E.I. duPont, Newark, DE

Product Improvement Requests (PIRs) are the process by which users give feed–back to Digital regarding improvements in products. Usually PIRs are generated and submitted by the users. Last fall, however, RALLY Engineering submitted 30 PIRs for a special balloting. The descriptions of these PIRs and a ballot were published in the October 1989 issue of the Newsletter (Volume 5, Number 2). A large number

of ballots were received. Several things were significant about the these ballots. First, there were 71 ballots received. This is almost twice the number received in previous PIR ballots. Second, of the 71 ballots received, only 28 were from users in the United States. The remainder were from other countries, with Australia leading the list at 38 ballots.

The statistical analysis of all ballots follows. The PIRs are ordered by decreasing total points. Also listed are the percent of ballots with positive points, the percent of ballots with negative points, the average points, and the standard deviation of points. See the article in the October 1989 newsletter for a description of how points could be balloted for or against a particular PIR.

PIR No.	PIR Description	Total Pts	Pct of Ballots Pos Pts	Pct of Ballots Neg Pts	Avg Pts Given	Std Dev of Pts
16	Ability for ADL to move the cursor to a given field	266	70.4	0.0	5.3	2.8
15	Provide more action sites	230	59.2	0.0	5.5	3.1
28	Extend RALLY UPDATE to handle renaming of database fields	202	54.9	0.0	5.2	2.9
26	Run-time variables from DML	178	47.9	0.0	5.2	2.8
30	Provide LOV "Starts With" for definition time	162	54.9	0.0	4.2	2.4
12	Display menu choices according to authorized access	159	56.3	0.0	4.0	2.2
2	Require confirmation before delete	158	45.1	1.4	4.8	3.3
25	LSE for editing ADL	157	39.4	4.2	5.1	4.4
1	Provide 'Undelete record' command	152	43.7	1.4	4.8	3.8
23	DCL object	145	56.3	1.4	3.5	2.3
13	Enhance autocommit features in parent-child situations	140	39.4	0.0	5.0	2.7
14	Highlight current field	130	47.9	1.4	3.7	2.2
24	Ability to turn off Integrity Checking	125	28.2	4.2	5.4	4.4
8	Character string formatting	124	42.3	1.4	4.0	2.5
4	Allow 'next/previous record' to cross group boundaries	109	29.6	2.8	4.7	4.5
5	Display current mode	103	42.3	4.2	3.1	2.9
7	Adjust size of form/report to current environment	98	36.6	0.0	3.8	2.7
17	Ability to set keypad to numeric or "application" mode	89	33.8	0.0	3.7	2.7
9	Set terminal width from RALLY	86	38.0	0.0	3.2	2.3
22	Ability to vary the text of the working message	77	32.4	4.2	3.0	3.1
21	Trap broadcast messages	75	35.2	2.8	2.8	2.4
18	Multiple legends for a field	69	23.9	1.4	3.8	3.3
19	Option to make fields required in query mode	59	29.6	0.0	2.8	1.6
3	Remember previous query criteria	52	22.5	0.0	3.3	3.0
29	Extend use of CDD/Plus	50	22.5	4.2	2.6	4.5
10	Don't start parent record on a separate page from children	41	23.9	0.0	2.4	1.5
6	Step-by-step queries	20	14.1	2.8	1.7	2.2
20	Option to suppress LOV validation in query mode	20	12.7	1.4	2.0	1.8
27	Option for the definer to turn on/off legends	15	14.1	5.6	1.1	3.0
11	Extend Menu Builder to include All-in-1 style menus	8	11.3	11.3	0.5	5.1

Ballots were statistically analyzed for preference by user's location (U.S.A., Non–U.S.A., Australia) and by application type (Business EDP/MIS, Education, Office Automation, Software Development, Engineering/Science, Service Bu-

reau). The complete analysis has been presented to the RAL-LY Engineering Group. A comparison of how the groups ranked the PIRs follows:

Ranking	All Users	USA Users	Non USA Users	Austr Users	EDP Type	Edu Type	OA Type	Dev Type	Engg Type	Serv Type
Responses	71	28	43	38	46	16	29	50	20	7
1	16	28	15	15	16	15	15	16	16	1
2	15	16	16	16	15	25	28	15	2	2
3	28	25	1	26	28	16	16	25	1	4
4	26	24	2	2	2	26	25	28	25	16
5	30	30	12	1	30	8	23	26	15	12
6	12	15	26	12	13	4	8	2	13	8
7	2	26	4	4	12	12	30	13	26	7
8	25	14	8	8	26	30	26	24	4	9
9	1	13	23	23	23	22	12	12	5	15
10	23	22	13	5	1	17	1	30	14	5
11	13	23	5	13	24	21	13	14	30	25
12	14	9	7	14	5	13	4	1	8	30
13	24	12	28	30	4	1	7	4	28	14
14	8	21	30	7	8	23	5	8	23	17
15	4	17	14	28	25	28	21	23	12	26
16	5	2	18	18	17	7	14	9	9	28
17	7	7	25	17	18	14	24	17	7	23
18	17	5	17	25	14	19	2	22	17	6
19	9	3	19	19	7	3	17	21	19	19
20	22	29	9	9	29	27	9	5	10	21
21	21	8	29	21	19	2	18	7	3	3
22	18	18	10	10	21	6	22	19	21	10
23	19	19	21	3	22	9	11	18	18	11
24	3	1	24	22	9	20	3	10	22	13
25	29	11	3	29	3	10	29	3	24	18
26	10	6	22	24	10	11	27	29	11	20
27	6	10	20	20	20	5	10	27	29	22
28	20	27	6	6	6	29	19	6	27	24
29	27	4	27	27	27	18	6	11	6	27
30	11	20	11	11	11	24	20	20	20	29

```
All Users       - All Users
USA Users       - Users located in U.S.A.
Non USA Users   - Users located outside of U.S.A.
Austr Users     - Users located in Australia
EDP Type        - Business EDP/MIS Application Type
Edu Type        - Education Application Type
OA Type         - Office Automation Application Type
Dev Type        - Software Development Application Type
Engg Type       - Engineering/Scientific Application Type
Serv Type       - Service Bureau Application Type
```

Digital's Response to DECUS PIR Input

Lew Lasher, VAX RALLY Project Leader, DEC, Nashua, NH

Digital has recently announced plans for VAX RALLY to provide increased levels of integration with CASE, Rdb/VMS, and TP. Although integration with other Digital products is central to the recently–announced capabilities, Digital is also presently testing a number of enhancements to VAX RALLY itself. In planning these enhancements, the VAX RALLY development group has given special attention to the

Product Improvement Requests voted on by DECUS members.

Please note that Digital has not yet formally announced an availability date or version number for these enhancements. References to "the next version of VAX RALLY" in this article must therefore be understood to be TENTATIVE; these

features will not be formally committed until such time as further testing has been completed and a formal product announcement is issued.

The following are the responses of the VAX RALLY development group to the top 12 overall PIR vote–getters, in order by number of votes:

F89–16 Ability for ADL to move the cursor to a given field

The next version of VAX RALLY includes a new Application Development Language (ADL) built–in procedure called SET_CURRENT_FIELD, taking one argument, the name of a form/report field. This procedure moves the cursor to the named field. As with previously available form/report navigation, moving the cursor off a record causes that record to be updated in its data source and, if that group uses an "autocommit" option, the form/report transaction is committed.

F89–15 Provide more action sites

The next version of RALLY includes support for several new action sites.

o   Three new action sites are provided for form/report packets: before quit, after entering query mode, and before executing query.

– The before quit action site allows application developers to call an ADL procedure when the user attempts to quit out of a form/report; this ADL procedure can SET FAILURE to keep the user in the form/report.

– The after entering query mode action site allows application developers to initialize a query on behalf of the user.

– The before executing query action site allows application developers to call an ADL procedure to examine and/or modify a query entered by the user; this ADL procedure can SET FAILURE to prevent the query as then formulated from being executed.

o   In form/report data groups three new action sites are provided: before visiting record, after visiting record, and local function. The before visiting record and after visiting record action sites are self–explanatory; the before visiting record action site is particularly intended for allowing application developers to initialize fields in a new record.

VAX RALLY "local functions" are actions that the user can optionally invoke, typically by pressing the SELECT key. The new local function in a data group, if defined, overrides any local function specified at the form/report packet level.

o   There is also a new local function action site for individual fields; similarly the field–level local function, if defined, overrides any local function at the group or form/report packet level.

F89–28 Extend VAX RALLY UPDATE to handle renaming of database fields

As a result of the popularity of this PIR, and the intensity of the discussion on DECUServe, the development group has designed an extension to the VAX RALLY UPDATE utility in the form of a new qualifier, /SUBSTITUTE, which would allow the developer to specify the old and new names for VAX RALLY to replace throughout the application. However, this feature is unlikely to appear in the next release of VAX RALLY.

As was pointed out on DECUServe, substitution of an individual field is easier to implement than substitution of a relation, but we agree that it would be desirable to be able to perform substitution at either level. The ability to delete all occurrences of a particular field is also desirable; this would delete all Data Source Definition (DSD) fields referring to a database field, delete all form/report fields referring to these DSD fields, and give integrity errors for any references to deleted fields. Similarly, it is desirable to be able to add a field to all DSDs that refer to the relation containing the field.

F89–26 Run–time variables from DML

We agree that it would be more efficient for application developers to be able to use parametrized RSEs from DML than to read and process all records, as is currently necessary. We are investigating methods of providing an ADL built–in procedure that would specify the value for a run–time parameter. However, this feature is unlikely to appear in the next release of VAX RALLY.

F89–30 Provide LOV "Starts With" for definition time

The next release of VAX RALLY includes the ability for application developers to use LOV "starts with" to get short lists of values of object names in the VAX RALLY Definition System.

F89–12 Display menu choices according to authorized access

We have heard this request from several users, and we agree that it would be useful. We would like to discuss this feature on DECUServe to determine how it should work. For example, we could have an action site for each choice that could call an ADL procedure to determine whether to enable that choice, and we could use the highlight area for each choice to designate the portion of the menu text that should be displayed only if that choice is enabled.

F89–2 Require confirmation before delete

We agree that it is very useful to have the ability to require confirmation before deleting a record (even though the "undelete" commands, described below, make the consequences of an accidental deletion less serious). Given that this is not difficult for application developers to do using existing VAX RALLY features (the Guide to Application Development describes a simple way to accomplish this with one menu and two small ADL procedures), and given that the use of VAX RALLY features allow the application developer to customize the confirmation procedure, we currently plan to put our efforts into other features that provide capabilities impossible or difficult to produce using existing VAX RALLY features.

F89–25 LSE for editing ADL

The next version of VAX RALLY includes the option to edit ADL procedures either using LSE or using VAX RALLY's own editor.

F89–1 Provide 'undelete record' command

The next version of VAX RALLY includes several new form/report commands: 'undelete record after', 'undelete record before', 'undelete record next_group', 'copy record', and 'recall record'. Each data group has the capacity to remember one record, either by deleting a record in that group or by using the 'copy record' command. The "undelete" commands are modeled after the current "insert" commands, with the additional feature of initializing the newly–inserted record from the saved record in its group. The 'recall record' overwrites the current record with the saved record in its group.

F89–23 DCL object

We agree that calling DCL commands from a VAX RALLY application is a common activity that we should make as convenient as possible. We are leaning towards adding a built-in ADL procedure, rather than a DCL object, so that application developers would be able to use string concatenation in ADL to construct the DCL command. However, this feature is not likely to be included in the next version of VAX RALLY.

F89–13 Enhance autocommit features in parent–child situations

The next version of VAX RALLY includes a new option in DSDs and in form/report data groups to commit the form/report transaction when the cursor moves (either by the user's commands, or by CALL_CMD, or by the new SET_CURRENT_FIELD procedure) out of the hierarchy of records headed by a record in the specified group. No commit occurs when the cursor moves within that hierarchy, for example, between an order entry header record and its child (line item) records.

F89–14 Highlight current field

The next version of VAX RALLY includes the option to highlight the current field in any combination of highlight types. If the cursor is in a list of values, both the current field in the LOV and the field that brought up the LOV is highlighted.

The VAX RALLY group thanks all who voted in the PIR process, or discussed them at DECUS symposia and on DECUServe. We look forward to continuing these discussions.

ORACLE TIP – Screen I/O in Forms C User Exits
Mark Keller, ORACLE Working Group Chair, USFDA, Rockville, MD

ORACLE users frequently find that an application requires processing that cannot be done within a form. As a case study, an application required that a SQL query be performed and some relatively complex calculations performed on the data returned. The operator must then choose a course of action based on the results. The basic flow design of the developer was thus:

1. Exit the form passing arguments to the query,

2. Execute the SQL query,

3. Present a menu to the user prompting for a course of action,

4. Do any necessary processing,

5. Return control to the form.

ORACLE does not support VAX RTL I/O in V2 Forms user exits unless the exit is written in VAX C. However since C was the shop language the developer did not expect any problems and in the Forms development phase (IAD), none occurred. When the application was tested in production (IAP) phase, the C RTL routines, e.g. fprint, fscan, produced unpredictable results.

It was finally determined that in V2 IAP the buffering of screen I/O is modified by calling the C RTL function setbuf and changing sdtin (SYS$INPUT) and sdtout (SYS$OUTPUT). This is probably done for performance reasons.

The workaround is to reset SYS$INPUT and SYS$OUTPUT by calling the setbuf function in the user exit as shown in the following code fragment and using the C token NULL as the pointer to buffer in the second argument.

```
#include
/*other preproccessor statements and
        setup code would go here */
int MY_EXIT (p1,p2,p3,p4,p5)
char *p1,p3;
int  *p2,*p4,*p5;
{
```

```
setbuf(stdin,NULL);    /* reset SYS$IN
                          PUT */
setbuf(stdout,NULL);  /* reset
                         SYS$OUTPUT */
EXEC SQL WHENEVER SQLERROR GOTO
                          error;
/*  application specific processing
    including VAX C I/O RTL calls */
return(IAPSUCC); /* return to form -
                   ok      */
```

```
error:
return(IAPFAIL); /* return to form -
                   error   */
}
```

The calls to setbuf in the user exit cause the VAX C RTL to use default values for SYS$INPUT and SYS$OUTPUT as if it were running outside the form environment.

Following this modification the application performed consistently in both development and production mode.

Loading Data into a DATATRIEVE Domain when the Input Data is in Multiple Records: Extracting Help Levels from a HELP file

Bart Z. Lederman, System Resources Corp., Burlington, MA

DATATRIEVE is often used to read data from one file (domain) to another, particularly when the form or organization of the data has to be changed. A situation which may be encountered is where data on more than one record of the input file should be stored in a single record of the output file. I ran into this sort of situation when I wanted to check to see if the HELP qualifiers I had in an LSE (Language Sensitive Editor) language template actually matched the content of the HELP file. The problem here is that there are multiple levels of HELP. You can say "HELP subject" and receive help on that subject, but there may be sub–topics which fall under that subject. Within LSE, all of the levels have to be specified together on one line. What I want to do is read through the HELP file picking up the keywords on the various levels, and combining them.

An example will probably make this clear. A section of the RUNOFF HELP file is included here:

```
1 RNO

    This is a user written file con-
taining information on RUNOFF "lan-
guage"commands. The idea is to use it
with the Language Sensitive Editor,
though it should work on it's own. It
doesn't have entries for the abbre-
viated commands, because the LSE def-
initions point the abbreviated com-
mand to the full command entry in
this help file.

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2   .APPENDIX
    .APPENDIX [appendix_title]

Starts a new appendix on a new page.

2   .AUTOJUSTIFY
    .AUTOJUSTIFY

    Turns on justification and filling
at the start of each header lev-
el,chapter, appendix, note, and foot-
note. On by default.
```

```
[Section removed here to save space]

2   .DISABLE
    .DISABLE

3   BAR
    .DISABLE BAR

Disable change bar marking.
.  .  .
```

In order for LSE to link the ".DISABLE BAR" command to the appropriate HELP library entry, the subject has to be entered in the template as "DISABLE BAR". To make sure all subjects match, I have to have a list of all help topics in the HELP library with all keywords matched to all of the keywords in higher (lower numbered) levels.

First I will define a record and domain to hold the data I'm going to read.

```
REDEFINE RECORD HELP_IN_RECORD OPTI-
MIZE
01 HELP_REC.
!
!
! Read in text from a .HLP file to
extract levels.
!
    10 LEVEL PIC X.
            ! first character is level
    10 FILLER PIC X.
            ! next character is blank
    10 WORD_IN PIC X(32).
            ! keyword should be here
    10 FILLER PIC X(50).
            ! avoid "record too
            !          long" errors
;

REDEFINE DOMAIN HELP_IN USING
HELP_IN_RECORD ON RNO.HLP;
```

The help file looks like this when read:

```
DTR> FOR HELP_IN PRINT LEVEL, WORD_IN
```

```
                    WORD
LEVEL               IN
1    RNO
     his is a user written file conta
     ommands.  The idea is to use it
     t should work on it's own.  It d
     ommands, because the LSE definit
     he full command entry in this he

     . Z. Lederman 25-Jun-1987   V1.0
2    .APPENDIX
     APPENDIX [appendix_title]

     tarts a new appendix on a new pa
2    .AUTOJUSTIFY
     AUTOJUSTIFY

     urns on justification and fillin
     hapter, appendix, note, and foot

 . . .
```

Although this looks a bit messy, it can be seen that
WORD_IN contains the keyword when LEVEL contains a
number. This is what we need to extract the help information.
Now I can define a record and domain to hold the converted
data.

```
REDEFINE RECORD
        HELP_LEVEL_RECORD OPTIMIZE
01 HELP_LEVEL_REC.
!
! Store "flattened" records of help
! levels in a .HLP file.
!
   10 SEPARATE.
!
! Get to the fields separately
!
    20 ONE   PIC X(32)
        EDIT_STRING T(16).
    20 TWO   PIC X(32)
        EDIT_STRING T(16).
    20 THREE PIC X(32)
        EDIT_STRING T(16).
    20 FOUR  PIC X(32)
        EDIT_STRING T(16).
!
! Get to the fields together
!
   10 TOGETHER COMPUTED BY
       ONE ||| TWO ||| THREE ||| FOUR
        EDIT_STRING T(72).
   10 MINUS_ONE COMPUTED BY
       TWO ||| THREE ||| FOUR ||| ""
         EDIT_STRING T(72).
;
REDEFINE DOMAIN HELP_LEVEL USING
HELP_LEVEL_RECORD ON HELP_LEVEL.SEQ;
```

Now I'm ready to do the data conversion. The trick here is
that data has to be stored from one input record to the next. To
do that, I have to set up some temporary fields to hold the input
data. When I have data to write, then I write the temporary
fields. This is the difference from 'normal' data conversion,
where the input file is written directly to the output file.

```
REDEFINE PROCEDURE GET_HELP_LEVELS
!
! Move keywords from .HLP file into
!   "flattened" file
!
READY HELP_IN
!
! Make a new blank file (remember to
! purge)
!
DEFINE FILE FOR
      HELP_LEVEL ALLOCATION=30;
READY HELP_LEVEL WRITE
!
! Hold keywords temporarily
!
DECLARE T_ONE    PIC X(32).
DECLARE T_TWO    PIC X(32).
DECLARE T_THREE  PIC X(32).
DECLARE T_FOUR   PIC X(32).
!
! Need a blank word to reset things
!
DECLARE BLANK    PIC X(32).
BLANK = "
     "
!
! Start with a clean slate
!
T_ONE    = BLANK
T_TWO    = BLANK
T_THREE  = BLANK
T_FOUR   = BLANK
!
! Go through the help file, picking
! up only lines which have a help
! level (a number in column 1)
!
FOR HELP_IN WITH LEVEL NE " " BEGIN
!
! For each level encountered, record
! the appropriate new word and blank
! out anything left over from
! previous lower levels
!
  CHOICE OF LEVEL = "1" THEN BEGIN
     T_ONE    = WORD_IN
     T_TWO    = BLANK
     T_THREE  = BLANK
     T_FOUR   = BLANK
  END
  LEVEL = "2" THEN BEGIN
     T_TWO    = WORD_IN
     T_THREE  = BLANK
     T_FOUR   = BLANK
  END
  LEVEL = "3" THEN BEGIN
```

```
      T_THREE = WORD_IN
      T_FOUR  = BLANK
    END
  LEVEL = "4" THEN T_FOUR  = WORD_IN
  END_CHOICE
!
! Each time we encounter a help
! level, write a new record to the
! "flattened" file
!
    STORE HELP_LEVEL USING BEGIN
      ONE = T_ONE
      TWO = T_TWO
      THREE = T_THREE
      FOUR = T_FOUR
    END
  END
!
END_PROCEDURE
```

The most difficult part of a conversion like this is deciding when to write the output record. This particular example is easier than some others I've worked on. Because I want an output record for each input where the help level changes, and I can select my input to be only those records where the level changes (by looking at the LEVEL field), I can write one output record for each input record in the FOR loop. In other applications you might have to wait for something to change. For example, I could use the following where the STORE statement is above:

```
IF TWO NE OLD_TWO BEGIN
   STORE HELP_LEVEL USING BEGIN
      ONE = T_ONE
      TWO = T_TWO
      THREE = T_THREE
      FOUR = T_FOUR
   END
   OLD_TWO = TWO
END
```

where OLD_TWO would be another temporary field. This would give me output records only when the second level keyword changes.

Now that I have converted the data I can just print it out. Some samples are given below (reduced to only a few records to save space):

```
DTR> FOR HELP_LEVEL PRINT TOGETHER

    TOGETHER

RNO
RNO .CHAPTER
RNO .COMMENT
RNO .CONTROL CHARACTERS
RNO .DATE
RNO .DISABLE
RNO .DISABLE BAR
RNO .DISABLE BOLDING
RNO .DISABLE HYPHENATION
RNO .DISABLE INDEXING
RNO .DISABLE OVERSTRIKING
RNO .DISABLE TOC
RNO .DISABLE UNDERLINING

DTR> FOR HELP_LEVEL PRINT MINUS_ONE

    MINUS
    ONE

.CHAPTER
.COMMENT
.CONTROL CHARACTERS
.DATE
.DISABLE
.DISABLE BAR
.DISABLE BOLDING
.DISABLE HYPHENATION
.DISABLE INDEXING
.DISABLE OVERSTRIKING
.DISABLE TOC
.DISABLE UNDERLINING
```

The reason for the two COMPUTED_BY fields is that the comparison with the LSE template requires that the first level help keyword be removed, matching the MINUS_ONE field. I also wanted to see if the procedure was working; however, there may be occasions where I will want to examine a HELP file which has more than one level 1 help keyword as in the case of the system HELPLIB.HLB help library. This would be done with all of the keywords combined in the TOGETHER field.

Wombat Magic, Fall 1989 – Part 3

Session Chair: Joe H. Gallagher, Ph. D., 4GL Solutions, Overland Park, KS
Session Editors: Herbert G. Reines, Reznick Fedder & Silverman, Bethesda, MD
Richard Copeland, Corning Inc., Corning, NY

Editor's note: The following is Part 2 of a highly edited transcription of the Wombat Magic Session at the 1989 Fall DECUS Symposium in Anaheim, California, which occurred on November 9, 1989. Material which was presented on transparencies has been merged into the oral presentation. An attempt has been made to convey both the technical content of the Magic Session as well as the humor, covert intellectual

swaggering, and the spirited interchange of the presentations. Material which appears in the text within square brackets [] has been added by the editor in an attempt to improve the understandability of this very exciting Magic Session. The material presented here is not presented in the same order as it occurred in the session.

John Babiarz, System Support Services, Southington, CT

Numeric Day Of Week.

This first piece of magic, I used as an article in one of my contributions to [a local] DECUS [newsletter], and basically, it's a program or function to get the day of the week out so we can do calculations based on [a] numeric value. And there's two ways of doing it. One way is in DATATRIEVE itself, and that's by using a COMPUTED BY, and in this case, if it's Monday, I want the value to be one, Tuesday, the value is two, and so on. Otherwise, Sunday is going to be seven. This you can do with regular DATATRIEVE.

```
DECLARE DAY_NUMB COMPUTED BY CHOICE
OF
    FORMAT(TEST_DATE) USING WWW EQ
"Mon" THEN 1
    FORMAT(TEST_DATE) USING WWW EQ
"Tue" THEN 2
    FORMAT(TEST_DATE) USING WWW EQ
"Wed" THEN 3
    FORMAT(TEST_DATE) USING WWW EQ
"Thu" THEN 4
    FORMAT(TEST_DATE) USING WWW EQ
"Fri" THEN 5
    FORMAT(TEST_DATE) USING WWW EQ
"Sat" THEN 6
    ELSE 7
    END_CHOICE.
```

In this case, when we print the COMPUTED BY variable for the date 2–OCT–1989, we come up with the value of one.

```
DTR> TEST_DATE = "2-OCT-1989"
DTR> PRINT DAY_NUMB

    DAY
    NUMB

    1

DTR>
```

The other way is to add a DATATRIEVE function. So, instead of writing a function, it so happens that the VMS runtime library has a LIB$DAY_OF_WEEK function.

So all we do is define the macro, for DATATRIEVE here, that references LIB$DAY_OF_WEEK, and then we execute the function and we get the same value.

```
$DTR$FUN_DEF MY_DAY_OF_WEEK,
LIB$DAY_OF_WEEK, 2
    $DTR$FUN_OUT_ARG   TYPE =
FUN$K_STATUS
    $DTR$FUN_IN_ARG    TYPE =
FUN$K_REF, TYPE = DSC$K_DTYPE_ADT,
ORDER = 1
    $DTR$FUN_IN_ARG    TYPE =
FUN$K_REF, TYPE = DSC$K_DTYPE_L,
OUT_PUT=TRUE
    $DTR$FUN_END_DEF
```

```
DTR> PRINT MY_DAY_OF_WEEK(TEST_DATE)
    MY
    DAY
    OF
    WEEK

    1

DTR>
```

So there's two ways of doing it; one way is building in a function to DATATRIEVE, and one is declaring a variable.

John Putnam, Harris Bank, Chicago, IL

More Numeric Day Of The Week.

I have ... a real quick one [magic], which is an addendum to the one that was already presented, and I think this should work. You should be able, in DATATRIEVE, to define a table, that has the characters for the day of the week mapped to the numbers and format a view of the table, and that should work.

```
DEFINE TABLE N_DAY
"Mon":1
"Tue":2
"Wed":3
"Thu":4
"Fri":5
"Sat":6
"Sun":7
END_TABLE.

PRINT FORMAT DATEX USING WWW VIA
N_DAY
```

Herbert G. Reines, Reznick Fedder & Silverman, Bethesda, MD

Julian Date.

Since we're all in date stuff, ... the problem that I faced, was one data file from the third party [data base] had dates that I couldn't handle. The date ... was in a Julian format. [The relevant part of the record definition is]

```
...
    03 your_Julian.
    05 J_YEAR PIC XX.
    05 J_DAYS PIC XXX.
    ...
```

That is approximately what the record definition looked like, and this is the solution for getting it into a date format.

```
DECLARE my_DATE USAGE DATE COMPUTED
BY
    FN$DATE("1-JAN-19"|||J_YEAR"+(J_
DAYS - 1)) .
```

It's a simple declare of a COMPUTED BY and a concatenation of the year. Now, to be honest with you, I really didn't think of it all by myself. I had a gigantic table. Phil Naecker [Technology Editor for the VAX/DEC Professional magazine], who some of you are familiar with, gave me the idea of how to do this with a function, and a this is how it works out.

Herbert G. Reines, Reznick Fedder & Silverman, Bethesda, MD

Using RUNNING COUNT to skip lines in a report.

We sometimes get questions from users who, hopefully, [come to the magic session] to do their own magic. The question we got this time was: The user had to make DATATRIEVE use a control character for the printer, to get a blank line between groups of five records. What they wanted to do was take advantage of the green bar [paper], with groups of five records, when they printed out their domain. So we decided to try and help them using standard DATATRIEVE, rather than doing some [brute] force things. The Sub title of the slide, is: "What happened to RUNNING COUNT?" One of the things, if you remember in John Putnam's elegant solution for the challenge, you will notice, if you remember his slide, he had: FN$MOD(RUNNING COUNT − 1,36) or RUNNING COUNT/36. That's really because RUNNING COUNT has some very erratic behavior. We have now pointed [that] out to the appropriate DATATRIEVE parties, and they have all shaken their head, and said "It shouldn't do that, it shouldn't do that, but it shouldn't do that, but it shouldn't do that!" Anyway, this is the solution we came up with. We chose our favorite domain, YACHTS. In this case, we declare FIVELINES, which is COMPUTED BY FN$FLOOR of RUNNING COUNT divided by..., and we wanted this to come up five. Every five lines, we wanted a blank line. We ended up having to divide by six [to] get it to come up with five lines. And then REPORT YACHTS; PRINT (TYPE...), whatever, and AT BOTTOM OF FIVELINES print a blank and REPORT.

```
READY YACHTS
DECLARE FIVELINES COMPUTED BY
FN$FLOOR(RUNNING COUNT/6).
REPORT YACHTS
PRINT TYPE, SPECS
AT BOTTOM OF FIVELINES PRINT " "
END REPORT
```

This is all well and good. It does work, and it's more elegant than forcing things by printing printer control characters. The other thing to point out here is that, if you play around with the AT BOTTOM OF, and change it to AT TOP OF FIVELINES, DATATRIEVE handles that completely differently, and we're not really sure what its doing with RUNNING COUNT. It all goes to show that you can't depend on RUNNING COUNT and the Wombat has the magic.

Bart Z. Lederman, System Resources Corp., Burlington, MA

Help.

Before I do the magic, I ought to sort of apologize, I guess, for what I said about Rally – it really isn't fair to expect Rally to know what it is, since nobody else does, either. [laughter and applause]. [One of the judges interjects.] Some of us are Rally developers. [Bart replies.] All I care is if the DATATRIEVE judges like it!

Anyway, um, if you think John [Henning] doesn't like me now, you wait for this. At his session on DATATRIEVE Version 5, he pointed out that they added the CDO command to DATATRIEVE and told you that you can do any CDO command from DATATRIEVE. And, since he's a product manager, he lied to you. [John Henning from the audience:] I'm NOT a product manager! [Bart inquires.] What are you? [Henning replies] Engineering manager. [Bart continues.] Engineering manager! That's even worse. Anyway, Bert Roseberry had called up and complained that he couldn't do CDO HELP. It's the one command that won't work. And ... [Henning: You're not going to violate your Field Test Agreement, are you?] [Bart replies.] It's been released. Anyway, the question was: "Is there any good way to get to CDO HELP?", and it turns out that there's a good way to get to ANY kind of help. It's a feature of VMS HELP that apparently a lot of people don't know about. If you type HELP in DATATRIEVE, you'll see a screen something like this:

```
H E L P  -  type  for  help.  Type  to change  help topics.
Additional  information  available:

ABORT        ACL         ADT          ALLOCATION Assignment BEGIN_END  Boolean
CDD_Versions             CHOICE       CLOSE      COMMANDS   COMMIT
COMPUTED_BY              Condition    CONNECT    CROSS      DBMS       DECLARE
DECwindows DEFAULT_VALUE              DEFINE     DEFINEP    DELETE     DELETEP
Dictionary DISCONNECT DISPLAY        DISPLAY_FORM          DROP       EDIT
EDIT_STRING             ERASE        ERROR      EXECUTE    EXIT       EXTRACT
FIND       FINISH      FOR           FORMAT     Forms      Functions  Guide
HELP       IF          Invoke        LIST       MATCH      Missing
MISSING_VALUE           MODIFY        NEWUSER    New_Features          Node
OCCURS     ON          OPEN          Path_name  PICTURE    PLOT       PRINT
Procedure  PURGE       QUERY_HEADER             QUERY_NAME Quit       Rdb
READY      RECONNECT   REDEFINE      REDEFINES  REDUCE     RELEASE
Release_Notes           REPEAT       REPORT     Restructure           ROLLBACK
RSE        Sample_Data               SCALE      Search     SELECT     SET
SHOW       SHOWP       SIGN          SORT       Specify    Startup
STATEMENTS STORE       SUM           SYNCHRONIZED          Synonyms   THEN
USAGE      VALID_IF    Value         VAXLSE     VAXTPU     Versions
Version_Numbers         VIDA          Video      WHILE      Wombat

Additional help libraries available (type @name for topics):
Topic? @helplib
```

It'll have reverse video on the top, which I can't reproduce, but it will give you a list of all the things you have help on, and then it'll say something like "additional help libraries avail-able". Now, whether it gives you a list of help libraries or not, you can put in the name of ANY VMS help library. For example, if you go "@helplib" at this point,

```
H E L P  -  type for help. Type to change help topics.
Information available:
:=         =          @              ACCOUNTING ALLOCATE   ANALYZE    APPEND
ASCII      ASSIGN     ASU            ATTACH     AUTHORIZE  AUTOGEN    BACKUP
BASIC      BLAST      BRIEF          CALL       CANCEL     CC         CDD
CDDL       CDDV       CDD_PLUS       CDO        CLOSE      COBOL      CONNECT
CONTINUE   CONVERT    COPY           CREATE     DATATRIEVE DEALLOCATE DEASSIGN
DEBUG      DECK       DEFINE         DELETE     DEPOSIT    DICTIONARY
DIFFERENCES           DIRECTORY      DISCONNECT DISKQUOTA  DISMOUNT   DMU
DUMP       EDIT       ENCRYPT        EOD        EOJ        Errors     ETHERnim
EXAMINE    EXCHANGE   EXIT           FDL        FMS        FORTRAN    GOSUB
GOTO       GRAPH      HELP           Hints      IF         INITIALIZE INQUIRE
INSTALL    Instructions             JOB        Kermit     LATCP      Lexicals
LIBRARY    LICENSE    Line_editing              LINK       LOGIN      LOGOUT
LSEDIT     LWPRINT    MACRO          MAIL       MERGE      MESSAGE    MONITOR
MOUNT      NCP        NCS            NETCOPY    NOTES      ON         OPEN
P.S.I.     PASSWORD   PATCH          PERFORMANCE           PHONE      PRINT
PSI        PURGE      Queues         RALLY      RDBVMS     RDML       RDO
READ       RECALL     RECOVER        Reminder   RENAME     REPLY      REPORT
REQUEST    RETURN     RMS            RMU        RTL_Routines          RUN
RUNOFF     ScriptPrinter            SEARCH     SET        SHOW       SLIDE
SORT       SPAWN      Specify        SPELL      SPM        SQL        START
@HELPLIB Topic?
```

it will get you the DCL–wide help that's available in the system help library. While you're still in DATATRIEVE. At the prompt, you can go "@CDOHELP", "@RDOHELP", "@LSEHELP", any help library you want. You can get to it directly from DATATRIEVE and, in fact, most other utilities.

Focus

on Electronic Publishing

EP
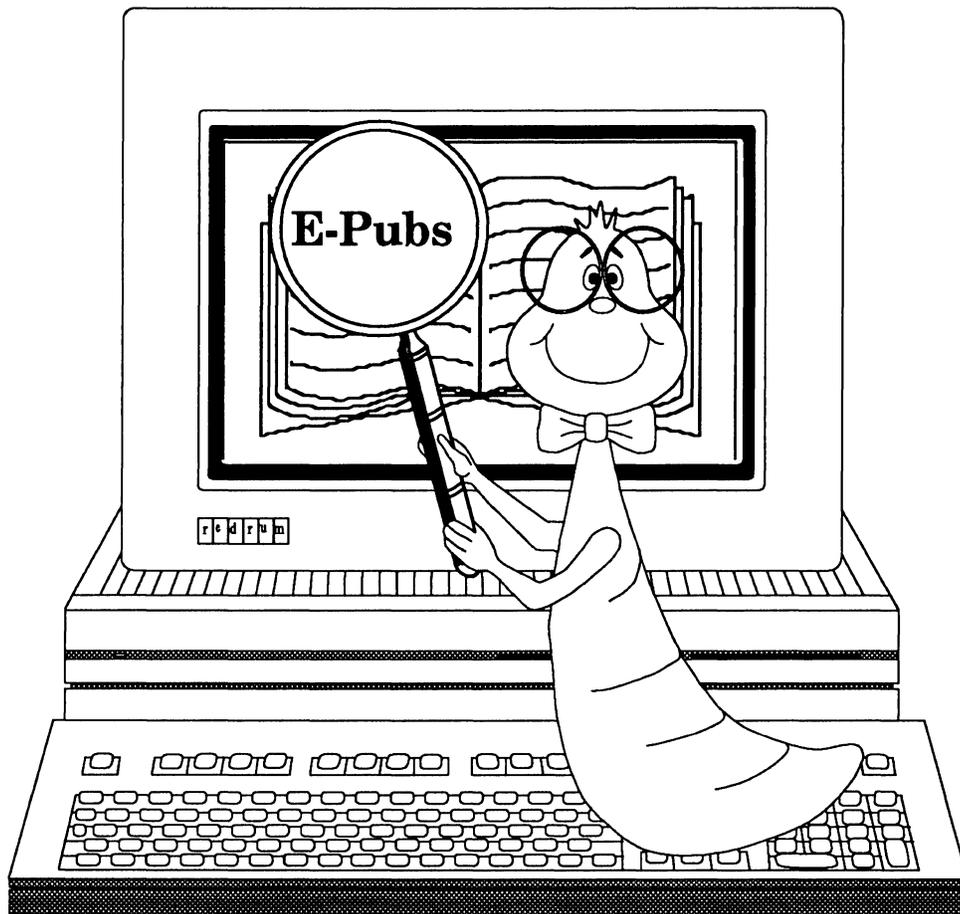
E-Pubs

Submission Rules

Contributions of articles, letters to the editor, etc. are solicited and gladly accepted. Submissions can be directed to the editor as follows:

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Editorial Policy

Editorials, letters to the editor and articles in this newsletter are solely the opinions of the authors and do not necessarily reflect the official views of the Digital Equipment Computer Users Society, Digital Equipment Corporation, or the authors' employers.

The Editor's Screen:

Richard Wolff

While I'm relatively certain that the earth's orbital speed has not changed lately, it does seem like not so long ago that the last DECUS symposium was unfolding in Anaheim. Now, the final touches are being applied to the Spring conference scheduled for next month in New Orleans. As seems to be the case for each successive meeting, this symposium promises to be more informative, more entertaining and more rewarding than it's predecessors. This issue of Focus outlines the sessions, grouped in "streams" of related topics, that have been planned by the Electronic Publishing SIG. I encourage you to attend the Spring conference and to share the experience.

E-Pubs SIG Symposium Schedule New Orleans, LA May 7 - 11, 1990

MONDAY		General
0900-0930	E-Pubs SIG Roadmap	Kindschuh
0930-1000	E-Pubs: A Case Study	Abbott
1000-1100	Publishing Without Paper	*Phadke
1100-1200	Desktop Publishing Vision	*Lehmenkuler
1200-1300	Evaluation of E-Pubs Systems	Cannady
1300-1400	Making Newsletters on a VAX	Hays

MONDAY		Documentation Management
1400-1500	Documentation Management	*James
1500-1600	The New Document Shop	Whitmer
1600-1700	Building a DB Publishing Appl.	Ten-Hove
1700-1800	Automated Magazine Production	Henry

MONDAY		PostScript/Printers
1800-1900	Evolving PostScript Environ	Wecksell
1900-1930	Printing and Demand Publishing	Bryll
1930-2000	Production Printing	VanderVen
2000-2100	High-Speed Distrib Printing	Neshati
2100-2130	Imagesetting in DEC Environment	Matheson

MONDAY		DECwrite (I)
2130-2215	Working w/ WPS-PLUS & DECwrite	*Goguen
2215-2300	DECwrite Systems Performance	*BOIS Perf

TUESDAY		DECwrite (II)
0900-1000	Presentation Graphics Futures	*Harbison
1000-1100	Documents With CDA/DECwindows	*Sellers
1100-1200	Creative Laziness W/DECwrite	*Snover
1200-1300	DECwrite: LiveLinks	*Snover

TUESDAY		Campground/Working Group Activities
1300-1400	Newspaper Publishing W.G.	@W.G. Room D
1400-1500	DECwrite Working Group	@W.G. Room A
1530-1700	DECwrite/CDA Clinic	@Campground
1700-1800	E-Pubs SIG Q&A/Wishlist	@Campground

WEDNESDAY   **Interleaf**

1400-1430	E-Pubs and Marketing	Demilo
1430-1500	Customizing Interleaf	Jackson
1500-1600	Interleaf System Management	Ellis
1600-1700	The Ins and Outs of Interleaf	Chambers

WEDNESDAY   **Desktop Publications**

1700-1800	Desktop Publishing: A Primer	Warren
1800-1900	WordPerfect for Desktop	Schepper

WEDNESDAY   **Working Group Activities**

1000-1130	Interleaf Clinic	@Campground
1200-1300	Interleaf Working Group	@W.G. Room
1300-1400	Tech Pubs Task Force Forum	@W.G. Room

THURSDAY   **CDA**

0900-0930	Introduction to CDA	*Hedman
0930-1000	CDA at Work on the Network	*Snover
1000-1030	CDA ISV Case Study	*Orthober
1030-1100	Using CDA Tools	Meehan
1100-1200	Writing a CDA Converter	*Orthober

THURSDAY   **Online Documentation**

1200-1230	CD-ROM Introduction	Ream
1230-1300	Intro to Online Documentation	*Green
1300-1400	Producing Docs for Bookreader	*Utt

THURSDAY   **VAX DOCUMENT**

1400-1430	VAX DOCUMENT Overview	*Adler
1430-1500	VAX DOCUMENT Advanced User	*Adler
1500-1530	VAX DOCUMENT Figure Tricks	
		English-Zemke
1530-1600	Using LSE With VAX DOCUMENT	*Sheets

THURSDAY   **Layout**

1800-1900	Typography, Pagination, Layout	*Lehmekuler
1900-1930	Overview of Versacomp	Ream

THURSDAY   **TeX, LaTeX, etc.**

1930-2000	TeX in a Commercial Environment	
		Kellerman
2000-2100	Installing TeX on VMS	Zirin
2100-2200	Practical Use of LaTeX	Denning
2200-2230	LaTeX From SIG Tapes	McDougall
2230-2300	LaTeX Education Examples	Watson

THURSDAY   **General**

2000-2030	Making of Update.Daily	McCormick
2030-2100	A Color Primer	Hamilton

THURSDAY   **Campground/Working Group Activities**

0900-1000	DECUS TeX Coll. Wishlist/Q&A	
		@Campground
1100-1200	TeX/LaTeX Clinic	@Campground
1300-1500	TeX/LaTeX/Web Workshop	@Campground
1600-1700	TeX/LaTeX/Web WG	@W.G. Room D
1700-1800	Datalogics WG	@W.G. Room D
1800-1900	TeX Magic	@Campground

FRIDAY   **CALS/Technical Documentation I**

0900-0930	Tech Doc Formats Primer	Abbott
1100-1130	Text and Graphics Conversions	*Lehmenkuler
1130-1200	Impact of CALS on Pub Environ	*Taplin

FRIDAY   **Distributed Processing**

0930-1015	Electronic Distribution	Roy
1015-1100	E-Pubs in an LAVc Environ	*Dube

FRIDAY   **Wrapup**

1300-1400	E-Pubs SIG Wrapup	McCormick

         * denotes a DEC Speaker

edusig

Natural Intelligence

Newsletter   April, 1990

Jim Gerland
State University of New York at Buffalo
University Computing Services
Computing Center
Buffalo, New York 14260

EDUSIG At The New Orleans Spring DECUS

New Orleans is a great place to hold a meeting and DECUS is a great meeting to attend. This winning combination occurs May 7th through 11th, 1990 when the Spring DECUS Symposium is held at the New Orleans Convention Center.

A full week of DECUS events cover the agenda. Here are some highlights from EDUSIG's Spring line-up. With more than forty hours of sessions, EDUSIG covers a number of topics of interest to educators -- Academic Computing, Campus Networking, National Networks, TEI (The Education Initiative), Training ideas, Administrative Computing Issues and Solutions, Instructional Computing, and much, much more. Approximately 25% of the sessions are given by Digital Representatives, providing the latest information on products and services and also providing a highly visible and very accessible pipeline for users back into the Digital Infrastructure. The remainder of the presentations are user sessions, providing an excellent forum for sharing ideas, solutions, and problems among DECUS attendees.

Outside the formal sessions, there are many occasions provided by EDUSIG for continuing the personal networking process. An EDUSIG Campground provides a relaxed environment between sessions for a quick chat or a needed break. The EDUSIG suite in the headquarters hotel provides a late night place to gather and exchange ideas. The Digital Education Computer Systems booth on the Exhibit Floor provides information and contact with Digital.

Hope to see you in New Orleans. If you need information about DECUS or EDUSIG, please contact me at (616) 895-2037 or vie e-mail.

Mary Jac Reed <21874MJR@MSU.BITNET>

EDUSIG Steering Committee Election

EDUSIG announces a call for nominations for the position of EDUSIG Executive Committee Member. The election will take place at the EDUSIG Business Meeting in New Orleans. The term of office is three years, with the person elected beginning his/her term following the Fall, 1990 Symposium in Las Vegas.

The current Executive Committee has slated one candidate:

Mary Jac Reed
Grand Valley State University
Current Symposium Chair for EDUSIG

Any EDUSIG member is eligible to run for the Executive Committee. Additional nominations may be submitted in writing to:

DECUS/US Chapter Activities Manager
219 Boston Post Road (BP02)
Marlboro, MA 01752

A statement of the candidate's qualifications and the signatures of ten (10) EDUSIG members are required for nomination.

Nominations will be accepted until April 30, 1990.

Ardoth A. Hassler <HASSLER@CUA.BITNET>

BITNET Mail At DECUS

EDUSIG is again providing international electronic mail service for all DECUS attendees via a cooperative network of academic computers: BITNET in the U.S., Asia, Mexico, and South America; NetNorth in Canada; and EARN in Europe, Africa, and the Middle East.

EDUSIG and BITNET, Inc. invite you -- both new and current users, U.S. and international DECUS attendees -- to learn more about BITNET, and to use BITNET electronic mail all week at DECUS. Here's how:

To access a system on BITNET, enter CONNECT BITNET at the Local> prompt at a DECUS public terminal. Log into your VMS account and use VMSmail as usual. You should find directions for addressing mail to BITNET/EARN/NetNorth (Jnet% addresses) and to Internet and UUCP (IN% addresses) on green instruction sheets near each public terminal.

You can also send and receive network commands and interactive messages, and receive files, from your VMS account. Your network address will be username@DECUS for the week, where username is your initials and last name, and perhaps underscores to make your name unique.

Special DECUS restrictions limit mail files to 200 NJE records, and prevent the sending of other files, however.

Please enjoy the BITNET service. Stop by the EDU booth if you have any questions, or for demonstrations of restricted functions, BITNET print and batch servers, and BITNET symbionts. BITNET users, be sure to request a green "BITNET" button at the EDU booth.

BITNET-related events begin this week with a meeting of BITNET technical working groups at the Quality Inn on Saturday, March 3. BITNET mail service and the BITNET demonstration will operate whenever DECUS public terminals are available. Watch for separate Birds-of-a-Feather (BOF) sessions for BITNET, Jnet, and PMDF users during the week.

BITNET is a trademark of CREN, Inc. Jnet is a registered trademark of Joiner Associates Inc.

Steven L. Arnold <ARNOLD@WISCPSL.BITNET>

The Graph Paper

GRA

April, 1990

DECwindows Spring Symposium Sessions

Laura Vanags, DECwindows Working Group Chair

GAPSIG is proud to provide Spring 1990 DECUS Symposium attendees with a rich selection of sessions about DECwindows, the X Window System and other related topics. Learn about window systems, DECwindows, the X Window System - attend the novice level topics. Develop your DECwindows programming skills - attend the intermediate sessions. Learn how to tune local and remote DECwindows - attend the Tuning session (Tuesday, 3:00 pm to 3:45 pm) and the Remote Tuning session (Tuesday, 3:45 pm - 4:30 pm). Participate in the future of DECwindows and windowing systems - attend the Graphics ANSI Standards session (Monday, 3:00 pm to 4:00 pm) and the DECwindows Working Group Meeting (Wednesday, 1:00 pm - 2:00 pm). We invite anyone interested in or involved with DECwindows to join us. Find out what others are doing and provide input to DEC on what you'd like to see. Finally, to get your DECwindows questions answered, come to the DECwindows Clinic (Wednesday, 12 noon - 1:00 pm). DEC's experts will be available to answer questions and listen to suggestions. GAPSIG is looking forward to meeting you in New Orleans!

From the Editor

Robert Hays
700 KMS Place
P. O. Box 1567
Ann Arbor, MI 48106
(313) 769-8500 x458

We're back again - this might be a record, since we've published continuously for over two years now. If there is anything special YOU, our readers, want to see in this newsletter, contact me (the address and phone are right above this paragraph).

This is the pre-symposium issue, so you will find all kinds of useful material to make your symposium more successful. Take note of the roadmap article, which you may want to consider before leaving for New Orleans. Don't worry, the SIG plans to have roadmap cards this time around to help guide you through the small twisty passages of a DECUS symposium.

Happy Computing

Robt L Hays
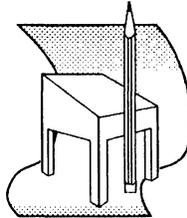
From the Chair's Desk

Bijoy Misra
Chairperson, GAPSIG

Graphics at New Orleans will be a little different than we have had in previous Symposia, in that we would be hosting the special 10th Anniversary exhibit "A DECade of Computer Graphics" in our own Campground. It was the highlight of the Exhibit Hall in Anaheim and this time we have volunteered to provide the necessary coverage and security. The exhibit covers the industry, DEC and SIG history from 1979 till 1989, with sample hardware platforms included. It was an eventful 10 years for Digital and for the GAPSIG. We are delighted that arrangements were made to place the exhibit at the Campground.

The SIG had its first Campground allocation at Dallas in 1986 and has continued to increase its Campground activity ever since. The Campground equipment has increased and

PostScript® Programming
by Bob Hays
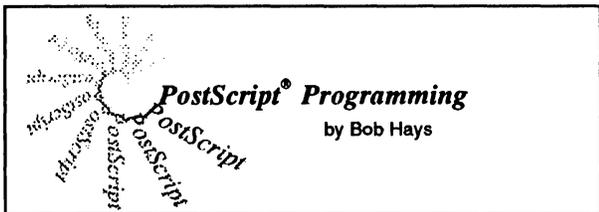
Now that you have had a taste of PostScript code, its time to return to our introduction. This month, I want to consider the imaging model PostScript uses.

PostScript considers all drawing to be done with opaque paint on the page. This means that most PostScript programs operate in layers with more recent drawing instructions writing over previous information.

The color of the paint is chosen by the user - in this case white is another color. PostScript provides for colors (to be continued in a later article), but for this article consider only black and white. Grays are formed by the process of **half-toning** in which a percentage of pixels in an area are turned on to simulate gray (see Figure 1). The *setgray* function sets the gray scale to use and takes the form:

scale setgrey -

where scale varies between 0.0 (black) to 1.0 (white, or all colors on).

The concept of the current path now comes into play. In the beginning, the output page is blank and there is no default position to operate from in the PostScript environment. A path is a virtual object that can be added to and then realized in various ways; path operations fall into three categories: movement, drawing, and realization. The *moveto* operator is an example of a **movement** command - it changes the current position without adding to the current path. The *lineto* and *curveto* operators are **drawing** commands and add to the current path. The *stroke* operator draws the current path to the page, the *fill* operator fills the current path with a color, and the *newpath* operator deletes the current path; these are examples of **realization** operations and that each of these operators deletes the current path when they finish. Note that there is only one path defined at a time in PostScript.
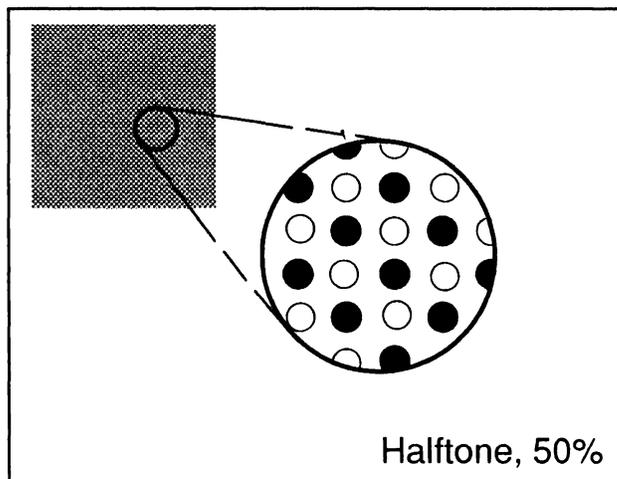
Figure 1. Grays are simulated by half-toning for bi-tonal printers.

A short example (see Figure 2) will illustrate the current path concept. In this case, we will draw a box on the output page.

The example begins with a *moveto* instruction, which causes the **current point**, or current location on the page, to be defined as (100,100). The three *lineto* operators then create a **path**, which is closed with the *closepath* operator. The *stroke* operator marks the output page with the path, in this case a box with default line width and line color. The *showpage* operator causes the page to be printed and ejected from the printer.

Next month, another letter from the Colophon example set. If you are at the New Orleans Symposium, stop by the "Beginning PostScript Programming" session on Monday and say hello!

Drawing a box in PostScript

```
100 100 moveto
100 150 lineto
140 150 lineto
140 100 lineto
closepath
stroke
showpage
```
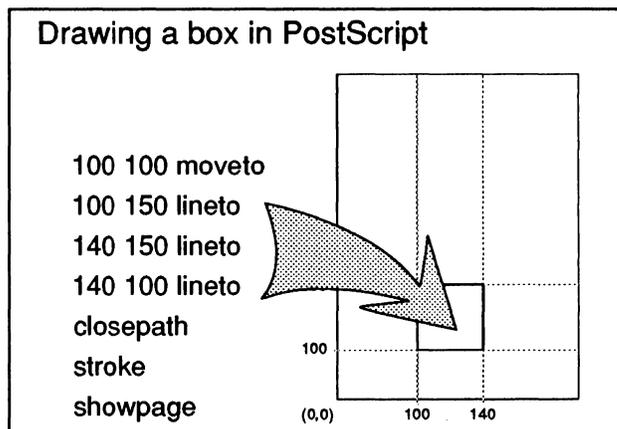
Figure 2. This is a simple box drawing procedure in PostScript.

Shoot the Moon!

Volunteer to help the GAPSIG blaze new trails in graphics applications. There are a few openings available to help out RIGHT NOW! You too can have a voice in influencing Digital's graphics direction in the new decade.

To volunteer or just to gain more information, call or write to:

> Bob Hays
> KMS Fusion, Inc.
> 700 KMS Place
> PO Box 1567
> Ann Arbor, MI 48106-1567
> (313) 769-8500

From the Editor ...

The theme this spring is **Network Graphics**. Our keynote speaker is Bill Hancock, who will discuss his experiences using graphics across networks. Today, with the rise of X-based window systems, such performance issues are becoming paramount at many sites. I've listened to Bill before and his sessions are always popular and interesting - I look forward to seeing many of our readers there!

As I write this column, I've gotten two phone calls asking for help because of this newsletter.... I'm glad that you are reading this! I'm also hopeful to answer your questions or pass them on to people that can.

You see, that's why we're here - to facilitate information exchange among Digital users. I'm also the newsletter editor for a local users group (MIVAXLUG), because I learn things there that I cannot find out anywhere else. DECUS Symposia are another example of this phenomenon.

We want to start a new column, "Our Graphics Shop". It would be about one member's graphics setup each month. To do this, we need you, our readers, to supply short (100 - 500 word) descriptions of your graphics environment, along with any (optional) graphics that would be representative of your shop. Please mail submissions to the editor at the address on page GRA-2. Thank you!

Anyway, these questions concerned conversion of graphics formats from Macintosh and VAX to either GKS-compatible form or PostScript. My suggestions so far are to check into the CDA Converter Library and to look into using the ScriptPrinter software to perform ReGIS conversions interactively (I've seen a network mail message about this - after I try it, I'll post it here for you to check out).

That's all for now. I hope to see you all in New Orleans. And, come see the DECade of Graphics exhibit in the GAPSIG campground (and look in the store for our special graphics watch)!

Applications Graphics SIG
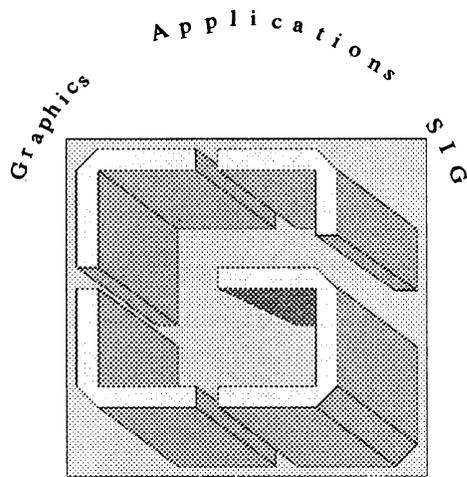
Fall, 1989 In Anahiem

Presents

The Graphics Hardcopy Contest!

The Graphics Applications Special Interest Group (GAPSIG) is sponsoring a **Graphics Hardcopy Contest** during the Spring '90 DECUS Symposium in New Orleans. This is your chance to have that stunning graphic recognized by your peers!

The rules are:

1) The Contest is open to all DECUS members.
2) There are two entry categories:
   (a) color, and
   (b) black & white.
3) Prizes of for each category will be awarded.
4) All entries will be displayed in the Graphics Applications SIG Campground at the symposium and are the property of DECUS with the appropriate copyrights. In addition, some entries may be published in the SIGs Newsletter and other DECUS publications.
5) The judging will occur at a scheduled Symposium session by a panel composed of the members of the GAPSIG Steering Committee.
6) The winners will be announced in Friday's Update.Daily at the Symposium, the GAPSIG Wrapup session on Friday and later through this newsletter. You do not need to be present to win.
7) Entries must be an original of size 7" x 10" or larger. A Digital Equipment computer or peripheral must have been an integral part of the production process. Color and halftone prints, plotter/printer outputs, and inkjet/laser prints are all acceptable. Each entry must be accompanied by the full name and address, company affiliation, DECUS membership number and a ten line description of the picture including the hardware and software used for the production.
8) Entries must be deposited at the GAPSIG Campground by Wednesday evening, May 9, 1990, or mailed to:

> Bijoy Misra
> Harvard-Smithsonian
> Center for Astrophysics
> 60 Garden Street, MS39
> Cambridge, MA 02138

Mailed entries must arrive by May 1, 1990 to be entered in the contest.

GAPSIG Keynote, Spring 1990

The Spring 1990 DECUS Symposium theme for the GAPSIG is Network Graphics, and the GAPSIG is pleased to present our keynote speaker, Bill Hancock, who will speak about Networks and Graphics: A Direct Experience on Tuesday, May 8th from 10:00 am to 11:00 am.

In these days where "the network is the system," the "system" at times is not happy when it has to deal with graphics over the network. More and more networks are being used as teh transport platform for graphically-intense applications. This trend will increase and the need for stable, high-performance network technologies will be critical in the near term to solve network performance problems that arise with graphical access methods across the network.

This session will examine the issues of graphical access methods (X-Windows, etc.) over various types of network technologies and provide hard fact and figures on performance of such methods. There should be time for questions.

A Quote ....

"The fun? Oh, that's for free. What they pay me for are all the headaches."
                    - Author unknown

Using ScriptPrinter Software for Conversions

Aaron Leonard

ScriptPrinter software provides the following translators: ANSI -> PostScript, Regis -> PostScript, and Tektronix 4014 -> PostScript. The latter two translators can be run directly, simply by running the shareable exe's: i.e.

```
$ RUN SYS$SHARE:TRN$TEK4014_PS
-or-
$ RUN SYS$SHARE:TRN$REGIS_PS
```

Running the ANSI->PostScript translator (TRN$ANSI_PS) directly doesn't work. However, if you have DECwindows installed, you can convert from ASCII text to PostScript using the CONVERT/DOCUMENT command:

```
$ CONV/DOCU in/FORM=TEXT out/FORM=PS
```

GAPSIG Roadmap

Spring U.S. Chapter DECUS Symposium
New Orleans, LA May 7 - 11, 1990
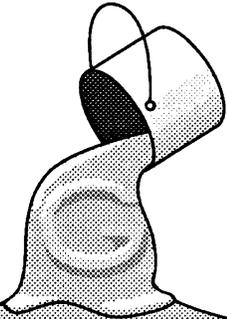
Monday

Time	Session	Room
9:00 am - 9:30 am	GAPSIG Roadmap	Room 37
9:30 am - 10:00 am	Data Presentation	Room 37
10:00 am - 10:30 am	Migrating DI3000 to DECwindows	Room 37
10:30 am - 11:00 am	Visual Data Analysis	Room 37
11:00 am - 12 noon	DEC GKS, DEC GKS-3D and DEC PHIGS - Overview and Features	Room 37
12 noon - 1:00 pm	X Window System Overview	Room 37
1:00 pm - 2:00 pm	Color Printing in PostScript	Room 27-29-31
2:00 pm - 3:00 pm	DECprint Program Overview	Room 27-29-31
3:00 pm - 3:30 pm	Video Graphics	Room 27-29-31
3:00 pm - 4:00 pm	Graphics ANSI Standards	Salon B
4:00 pm - 5:00 pm	DECimage Storage Manager Tutorial: Building a Distributed Image Storage/Retrieval Application	Salon B
6:00 pm - 7:00 pm	BRAVO-3 for VAX/VMS - Product Status	Room 37
7:00 pm - 7:30 pm	Using DECwindows for Bitmaps	Room 37
7:30 pm - 8:30 pm	Converting Private Pixel Maps to DDIF Images	Room 37
8:30 pm - 9:00 pm	DECwindows Terminal Emulation	Room 37
9:00 pm - 10:00 pm	DECwindows Programming Self-Taught	Room 37
9:00 pm - 11:00 pm	GAPSIG Computer Graphics Video Tapes I	Campground
10:00 pm - 11:00 pm	DECwindows Server/Xlib Test Suite Development Experience	Room 37

Tuesday

Time	Session	Room
9:00 am - 9:30 am	Networks for Hardcopy Solutions	Room 37
9:30 am - 10:00 am	Networked Visualization	Room 37
10:00 am - 11:00 am	Networks and Graphics: A Direct Experience	Room 37
11:00 am - 11:30 am	Network Graphics Techniques Evolution	Room 37
1:00 pm - 3:00 pm	Computer Video Tapes II	Campground
2:00 pm - 2:30 pm	NOARL's Map Data Formating Facility	Room 37
2:30 pm - 3:00 pm	X Window System Overview	Room 37
3:00 pm - 3:45 pm	DECwindows Tuning	Room 37
3:45 pm - 4:30 pm	Remote DECwindows	Room 37
4:00 pm - 5:00 pm	Animation/Visualization Working Group	Salon A
4:30 pm - 5:30 pm	Integrating Distributed Applications Using DECwindows	Room 37
5:30 pm - 6:00 pm	IBM PC/DECwindows Graphics Interface	Room 37

Wednesday

Time	Session	Room
10:00 am - 10:30 am	GAPSIG Business Meeting	Room 37
10:30 am - 11:30 am	Visualization in the '90s	Room 37
11:30 am - 12 noon	CAE Integration and Data Management	Room 37
12 noon - 12:30 pm	CAE Data Management Tools	Room 37
12 noon - 1:00 pm	DECwindows Clinic	Campground
12:30 pm - 1:00 pm	PIM CAD User Experiences	Room 37

GAPSIG Roadmap ...

Wednesday (cont'd)

1:00 pm - 2:00 pm	Tuning Your Graphics Applications	Room 37
1:00 pm - 2:-- pm	UIS/DECwindows Working Group	Campground
2:00 pm - 3:00 pm	VWS Migration Tools Update	Room 37
3:00 pm - 4:00 pm	How to use DEC GKS, DEC GKS-3D, and DEC PHIGS with DECwindows	Room 37
3:00 pm - 4:00 pm	Imaging Clinic	Campground
4:00 pm - 5:00 pm	Visualization and Graphics Standards	Room 37
6:00 pm - 7:00 pm	Engineering Graphics Working Group Meeting	Campground

Thursday

9:00 am - 10:00 am	PEX Overview - 3D Support in the X Window System	Room 37
10:00 am - 11:00 am	X Window System Standards Proposal: X Imaging Extensions	Room 37
11:00 am - 12 noon	DECimage Product Set Overview and Technical Description	Room 37
12 noon - 12:30 pm	DECimage Application Services	Room 37
12:30 pm - 1:00 pm	DECimage Storage Manager Tutorial	Room 37
12:30 pm - 1:00 pm	CLX: X-Windows From LISP	Room 16
1:00 pm - 2:00 pm	Beginning PostScript Programming	Room 37
2:00 pm - 3:00 pm	Advanced PostScript Programming Tutorial	Room 37
3:00 pm - 4:00 pm	Graphics Hardcopy Contest Judging	Campground
4:00 pm - 5:00 pm	Hardcopy Working Group Meeting	Campground
5:00 pm - 6:00 pm	Encapsulated PostScript: How to do it and How to Use it	Rooms 13-15-17
5:00 pm - 6:00 pm	Imaging Working Group	Campground
6:00 pm - 6:45 pm	Display PostScript Introduction	Rooms 13-15-17
6:00 pm - 7:00 pm	Worksystem Working Group	Campground
6:45 pm - 7:30 pm	Display PostScript Technical Overview	Rooms 13-15-17
7:00 pm - 8:00 pm	GKS/PHIGS/Graphics Standards Working Group	Campground
7:30 pm - 8:00 pm	Adobe Fonts, Printing	Rooms 13-15-17
8:00 pm - 9:00 pm	Graphics User Interfaces: What do we Like?	Rooms 13-15-17
9:00 pm - 9:30 pm	Simple PostScript Application	Rooms 13-15-17
9:00 pm - 10:00 pm	GAPSIG Computer Graphics Video Tapes III	Campground
9:30 pm - 10:00 pm	VAX Graphics Devices	Rooms 13-15-17
10:00 pm - 11:00 pm	Graphics Tenth Anniversary Celebration	Rooms 13-15-17

Friday

9:00 am - 10:00 am	Imaging Clinic - DECimage and DECscanner Applications	Campground
10:00 am - 11:00 am	Imaging Clinic - DECimage Storage Manager	Campground
12 noon - 12:30 pm	DECwindows/Ada Interface	Room 37
12:30 pm - 1:30 pm	Widgets and DEC's UIL: A Quality Control System	Room 37
1:30 pm - 2:00 pm	Data Visualization Graphics Devices	Room 37
2:00 pm - 2:30 pm	Scientific Visualization	Room 37
2:30 pm - 3:00 pm	Visualization Design	Room 37
3:00 pm - 3:30 pm	Production Printing	Room 37
3:30 pm - 4:00 pm	Print Queues and Symbionts	Room 37
4:30 pm - 5:00 pm	GAPSIG Wrapup	Room 37

GAPSIG Roadmap ...

DECwindows, X Windows, and Related Sessions

Monday

10 - 10:30 am	Migrating DI3000 to DECwindows	Rm 37	GR037
12 - 1 pm	X Window System Overview	Rm 37	GR094
2 - 3 pm	DECprint Program Overview	Rm 27-29-31	GR073
3 - 4 pm	Graphics ANSI Standards	Salon B	GR018
4 - 5 pm	PC DECwindows DOS X Display Fac.	Rm 37	PC017
7 - 7:30 pm	Using DECwindows for Bitmaps	Rm 37	GR021
7:30 - 8:30 pm	Converting Pixel maps to DDIF	Rm 37	GR069
8:30 - 9:00 pm	DECwindows Terminal Emulators	Rm 37	GR074
9 - 10 pm	DECwindows Programming Self-Taught	Rm 37	GR003
10 - 11 pm	DECwindows Server/Xlib Test Suite	Rm 37	GR092

Tuesday

9 - 10 am	Digital's Presentation Graphics	Rm 24	EP026
10 - 11 am	DECwrite: Doc. in a CDA/DECwindows	Rm 24	EP072
11 - 12 pm	Realtime POSIX (IEEE 1003.4)	Rm 8	DA081
1 - 2 pm	POSIX and portable FORTRAN	Rm 27-29-31	LT043
2:30 - 3 pm	X Window System Overview	Rm 37	GR008
3 - 3:45 pm	DECwindows Tuning	Rm 37	GR034
3:45 - 4:30 pm	Remote DECwindows	Rm 37	GR083
4:30 - 5:30 pm	Distrib. Appl. Using DECwindows	Rm 37	GR071
5:30 - 6 pm	IBM PC/DECwindows Gr. Interface	Rm 37	GR053

Wednesday

10 - 11 am	Macs, PCs, DECwindows and VAX	Rm 10-12-14	PC027
11 - 12 pm	Creating Custom DECwindows Widget	Rm 10-12-14	PC035
12 - 1 pm	DECwindows Clinic	Campground	GR047
1 - 2 pm	DECwindows Working Group	Salon D	GR023
1:30 - 2:30 pm	POSIX - An Opportunity for VMS	Ballrm B&C	VA253
2:30 - 3 pm	DECwindows Realtime Analysis	Rm 20	DA037
3 - 4 pm	DEC GKS, PHIGS and DECwindows	Rm 37	GR029
3:30 - 4:30 pm	Overview of Motif	Ballrm B&C	VA250
4:30 - 5 pm	DECwindows/Motif Window Mgr	Ballrm B&C	VA244
5 - 6 pm	Porting Appl. to Motif	Ballrm B&C	VA278
6 - 7 pm	VMS Integrated POSIX Tech. Desc.	Ballrm A	VA254

Thursday

9 - 10 am	PEX Overview - 3D sup. for X	Rm 37	GR095
10 - 11 am	XIE: X Imaging Extensions	Rm 37	GR082
11 - 12 pm	VAXTPU Prog. Under DECwindows	Rm 26-28	LT122
12:30 - 1 pm	CLX: X Windows From LISP	Rm 16	GR097
1 - 2 pm	DECwindows Bookreader	Rm 18	EP089
4 - 5 pm	DECwindows in Laboratory Appl.	Rm 20	DA054
7 - 8 pm	Open Systems Strategy	Rm 20	UN041
7 - 7:45 pm	Window-based VAX OPS5	Rm 16	AI004
8 - 9 pm	Graphics User Interface Choices	Rm 13-15-17	GR043
10 - 11 pm	Using Motif in Scientific Appl.	Rm 5-7-9	LT109

GAPSIG Roadmap ...

Friday

Time	Session	Room	Code
9 - 10 am	X Windows Appl. Des. w/ FORTRAN	Rm 41	LT044
10 - 11 am	VAX-based Doc. Mgt: Mac, DW, PCs	Rm 2-4-6	PC025
11 - 12 pm	Port Publ. Appl. to DECs RISC	Rm 5-7-9	UN079
12 - 12:30 pm	DECwindows/Ada Interface	Rm 37	GR002
12:30 - 1:30 pm	Widgets and DEC's UIL	Rm 37	GR025
1 - 2 pm	Cust. and Prog. DECwindows	Ballrm A	VA248
2 - 3 pm	VMS DECwindows Transport Layer	Ballrm A	VA243
3 - 4 pm	Enhancing VMS DECwindows with DCL	Ballrm A	VA015
3 - 3:30 pm	DECwindows and VT Terminals	Rm 8	LT112

Hardcopy Sessions

Monday

Time	Session	Room	Code
12 - 1 pm	Printer/PrintServer Update	Rm 2-4-6	HM058
1 - 2 pm	Color Printing in PostScript	Rm 27-29-31	GR076
1:30 - 2 pm	Batch/Print Future Directions	Ballrm	VA223
2 - 3 pm	DECprint Program Overview	Rm 27-29-31	GR073
6 - 7 pm	The Evolving PostScript Environ.	Rm 11	EP016
7 - 7:30 pm	Printing and Demand Publishing	Rm 11	EP069
7:30 - 8 pm	Production Printing	Rm 11	EP008
8 - 9 pm	High-speed Network Laser Printing	Rm 11	EP091
9 - 9:30 pm	Image setting, DEC Environment	Rm 11	EP081

Tuesday

Time	Session	Room	Code
9 - 9:30 am	Networks for Hardcopy Solutions	Rm 37	GR055
9 - 10 am	Digital's Presentation Graphics	Rm 24	EP026
11 - 12 pm	Prgmng DEC ANSI Printers	Rm 41	HM060
12 - 1 pm	Sharing Print Service, VMS/UNIX	Rm 41	HM068
1 - 2 pm	Mngng, Using PrintServers, ULTRIX	Rm 41	UN067

Wednesday

Time	Session	Room	Code
10 - 11 am	PrintServer Technical Update	Rm 2-4-6	HM059

Thursday

Time	Session	Room	Code
1 - 2 pm	Beginning PostScript Programming	Rm 37	GR004
2 - 3 pm	Adv. PostScript Tutorial	Rm 37	GR078
3 - 4 pm	Graphics Hardcopy Contest	Campground	GR017
4 - 5 pm	Hardcopy Working Group	Campground	GR012
5 - 6 pm	Encapsulated PostScript	Rm 13-15-17	GR075
6 - 6:45 pm	Display PostScript Introduction	Rm 13-15-17	GR088
6:45 - 7:30 pm	Display PostScript Tech. Overview	Rm 13-15-17	GR091
7:30 - 8 pm	Adobe Fonts, Printing	Rm 13-15-17	GR077
8 - 8:30 pm	PostScript FAXing on Macs	Rm 2-4-6	PC058
9 - 9:30 pm	Simple PostScript Application	Rm 13-15-17	GR006
9:30 - 10 pm	VAX Graphics Devices	Rm 13-15-17	GR005

Friday

Time	Session	Room	Code
9 - 10 am	VMS Batch/Print Performance	Ballrm A	VA234
11 - 11:30 am	Text and Graphics Conversion	Rm 37	EP002
3 - 3:30 pm	Production Printing	Rm 37	GR096
3:30 - 4 pm	Print Queues and Symbionts	Rm 37	GR072

GAP SIG DECwindows corner

Commands　　　Edit　　　Options

X Terminals

Laura Vanags, DECwindows Working Group Chair

As hardware catches up to windowing software, we're beginning to see the emergence of a new user interface technology. X terminals are still in their infancy. Only a few companies have advanced into supporting color X terminals. At Fermi Lab, Accelerator Division, we looked into what was available. This list does not claim to be exhaustive. Additional information can be sent to me at:

VANAGS@ADCALC.FNAL.GOV (Internet)
VANAGS@FNALAD (Bitnet), or
ALMOND::VANAGS (DECnet)

or by US Mail to:

Laura Vanags
Fermi
Box 500
MS306
Batavia, IL　60510
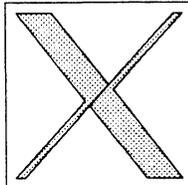
Digital Equipment Corp. (508) 897-5111	Mono X terminal Good quality
C. Ito 1-(800) 347-2484	No color available now. We had problems getting tech. info.
GraphOn (408) 435-8400	No color, no ethernet support
Hewlett-Packard 1-(800) 752-0900	14 inch @ 640 x 480 resolution 16, 19, 20 inch @ 1024 x 768 resolution
Human Designed Systems (215) 382-5000	14 inch @ 640 x 480 16 inch @ 1024 x 800 (4 & 8 plane) 21 inch @ 1280 x 1024 (flat face)
Jupiter Systems (415) 523-9000	Great X terminal, high end high performance
NCR (513) 445-5000	No color model
Network Computing Devices (415) 694-0650	17 inch @ 1024 x 768 8 plane, square CRT, 2mB RAM
Spectra Graphics (619) 450-0611	No color model Specialize in IBM support
Tektronix (503) 685-3180	15 inch @ 1024 x 768 19 inch @ 1024 x 768 (with and w/o Tek graphics)
Visual Technologies 1-(800) 433-0880	No color model Good mono model

Visit our DECade of Computer Graphics Exhibit!

PDP-1　　VT102　　VT240　　VT340　　VAXstation 2000　　DECstation 3100
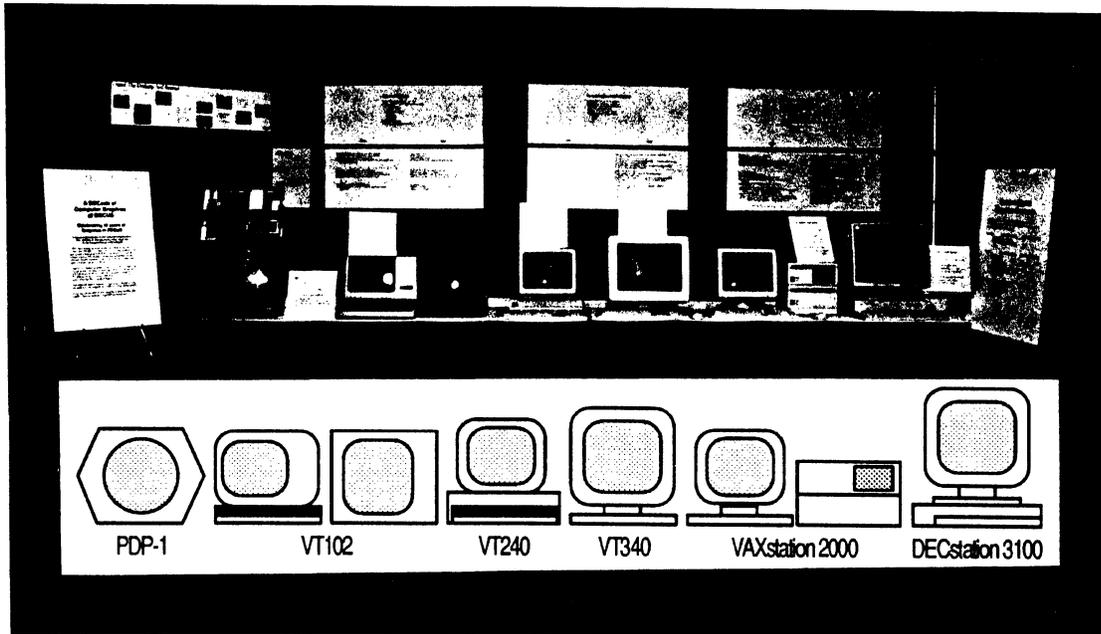
Visit the "DECade of Computer Graphics" exhibit located in the GAPSIG Campground at the New Orleans Symposium. And, while you're there, meet developers of your favorite Digital graphics software and get answers to your important questions!

"No time to say hello, goodbye, I'm late! I'm late! I'M LATE!!!"

Hey buddy -- Wanna buy a watch?!?

How many times have you heard THAT at DECUS Symposia?

In 'Nawleans, GAPSIG is sponsoring, at your local DECUS store, a one-of-kind, fractal watch. It's accurate, it's waterproof, it's colorful and it's one-in-a-million and YOU should have one. The watch features a Mandelbrot fractal on its face and is offered with either a black leather band or a red Swatchy type band. So stop by the store and be the first on your cluster to own one.

Remember ...

    Whether it's sessions or mealtimes,
    Synchronizing those deadlines,
    One's timepiece is a must
    when attending DECUS.
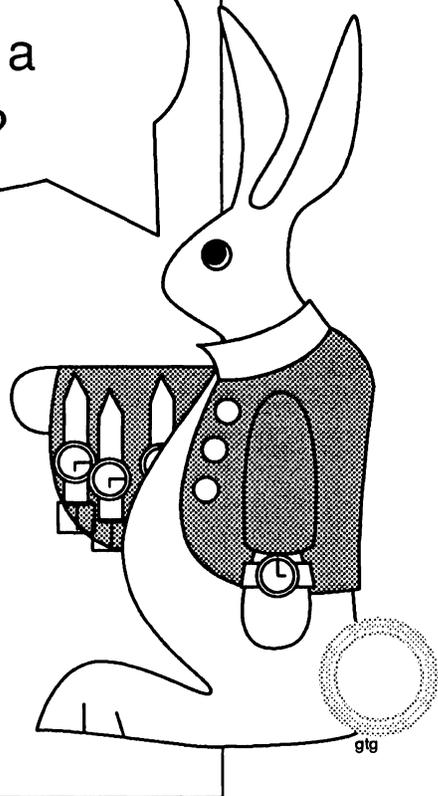
Hardcopy at the Spring Symposium

Bob Hays, editor and Hardcopy Working Group Chair

The **Hardcopy Working Group** welcomes you to New Orleans this Spring! There are a number of important sessions planned this spring, especially in the areas of PostScript programming and use and also with regard to Digital's DECprint program.

There are sessions all week on a variety of hardcopy issues (see p. 9). **Make sure to attend the Hardcopy Working Group meeting in the GAPSIG Campground at 4 pm Thursday; Digital will have representatives present to hear what YOU have to say about hardcopy issues.** This is the place where you can get your questions answered and your wishes heard!

The PostScript programming sessions reside mostly on Thursday, starting at 1 pm in Room 37 with **Beginning PostScript Programming,** and followed by sessions on **Display PostScript, Advanced PostScript Programming,** and **Encapsulted PostScript.** Make sure, however, to attend Monday's session at 2 pm on **Color PostScript.**

If you are looking for a hardcopy solution, stop in the GAPSIG Campground and browse through the Material and Information binder - this is a collection of articles and literature on hardcopy issues and devices. If you have any questions, you can write or call me (my address and phone are on page 2).

The GAPSIG Fall Symposium

Network Graphics
Theme

PSS on "Elements
of Digital Image
Processing"

Keynote Address:
Bill Hancock
Tuesday, 10am

Campground
Clinics

DECwindows
DECimage
DECprint
DEC GKS
DEC PHIGS
Standards

Working
Group
Meetings

Exhibit:
"A DECade of
Computer Graphics"

10th Anniversary
Celebration,
Thursday, 10pm

Hardcopy
Graphics
Contest

GAPSIG
Souvenir
Watch

BE THERE!

From the Chair's Desk ...

(Cont'd from p. 2)

we have held our Working Group meetings and Clinics at the Campground. Campground support has been provided by Mike McPherson, Bob Goldstein, Daniel Land, and Steve Schultz over the years. Steve Hankin did the coordination at Anaheim and presented the first public domain software demonstration at the Campground. Our official Campground Coordinator for New Orleans is Hal Dell, the Chair of the Imaging Working Group. With the exhibit in the Campground and other hardware and software for hands-on work, the Campground will need many volunteers. Hal is preparing a complete schedule. Please get in touch with him at (215)657-1884 or write to him at the address given at the back of this newsletter if you can help the SIG in this capacity.

Our Tenth Anniversary celebrations started with our booth at SIGGRAPH '89 in Boston and the opening of the exhibit at Anaheim. The reception for the SIG members at Anaheim added historical perspective. The concluding session of the event will be hosted Thursday at New Orleans with a special anecdotal presentation by Mr. Jim Warner of Precision Visuals Inc, a major software company and a Digital user. This is an opportunity for you to share your experience or thoughts about the SIG and for the SIG's future. Don't forget to pick up the SIG souvenir buttons at this function! Come early, the number is limited!

On the Symposia schedule, our theme for the Symposium is "Network Graphics". Various applications for graphics production using networking technologies will be taken up in several sessions. The keynote address will be presented by Mr. Bill Hancock on Tuesday at 10 am. Other networking topics to be covered include hardcopy solutions, visualization, image processing and software applications. Besides the theme topic, sessions have been scheduled for DECwindows, DECPrint, DEC GKS, DEC PHIGS, DECImage and Postscript. All the GAPSIG working groups will have their working group meetings and product clinics during the Symposium. I hope you can join in and participate in all of our activities. Better still: Ask for a volunteer leadership position and get involved! We need you!

TABLE OF CONTENTS

EDITOR'S NOTES

As promised, we're back to 'normal' around here, and can produce the newsletter from submissions received electronically. My apologies to those who submitted working group and standards reports some time ago, for not getting them out to the world before now.

There is quite a bit in this issue of *Leverage*. Thanks particularly to Ted Nieland for the Tape reviews, and George Scott, for the Clinic report. Both are examples of what DECUS can do to directly benefit you in your work. Also, B.Z. Lederman's article on Quadword Arithmetic may well prove to be of some help. The author submitted the macro code of his routines, which I elected not to publish, since it ran to over seven pages. Perhaps it can be submitted to the SIG tapes, or I will send a copy given an SASE.

Again, questions, comments, suggestions, or submissions can be directed to me at the address in the back of the Newsletters. See you next month.

Al Folsom, *Leverage* Editor

FALL 1989 VAX/L&T SIG TAPE REVIEWS
The L&T Reviews: Part 1

Earle Ake
Science Applications International Corporation

E. Loren Buhle, Jr.
University of Pennsylvania School of Medicine

Tom Comeau
Space Telescope Science Institute

Ray Kaplan

Mark Shannon
Carnegie-Mellon University

Todd Aven
Computer Associates International

Geoffrey Brunkhorst
Mayo Foundation

David Hittner
Pioneer Standard Electronics

Ted Nieland
Control Data Corporation

Ric Steinburger
SRI International

This is part of the review of the Fall 1989 VAX/L&T SIG Tape. Due to the large amount of overlap between the L&T and VAX SIG tapes, the Tape editors decided to combine the tapes into one large tape with no overlap. This SIGs tape contains many useful items for people with VAX Computers and people interested in Languages and Tools.

The reviewers have scoured through most of the tape and have jotted down the following notes on the material that is on the tape. Not everything on the tape is reviewed due to the shear volume of material, but it is hoped that this review will help people in deciding what on the tape might be useful to them.

The SIG tapes are a project started by the SIGs a while back as a method of distributing free software that might be helpful to others. Not all of the material on the tapes are "finished" products.

This review is sponsored by the VAX and L&T SIGs and is coordinated by the L&T Public Domain Working Group. Anyone wishing to help with future reviews can contact the the Public Domain Working Group Chair, Ted Nieland. He can be contacted on DCS at NIELAND or at TED@NIELAND.DAYTON.OH.US on the Internet.

This is the fourth SIG tape to be reviewed. The VAX and L&T SIGs are interested in your comments on the reviews and what can be done to improve them. Comments can be sent to DECUS_REVIEWS@NIELAND.DAYTON.OH.US or to NIELAND on DCS. Or contact any VAX or L&T SIG Steering committee member.

The material reviewed here is all part of the L&T section of the tape.

The encapsulated reviews are rated on a 1-5 scale with 5 being excellent.

[.BULLETIN]
Ease of installation: 4
Documentation: 5
Intended Audience: System Managers, General
Ease of Use: 5
Usefulness: 5
Sources included: Yes, MACRO, FORTRAN
Objects Supplied: Yes, Object Library

The BULLETIN utility permits a user to create messages for reading by other users. Users may be notified upon logging on that new messages have been added, and what the topic of the messages are. Actual reading of the messages is optional. Messages are automatically deleted when their expiration data has passed.

Bulletin is a handy way to pass messages around between project teams, or general interest messages from the system manager without having to send multiple copies of messages to everyone in the team or system. You can enable users to view the topics of new messages created since they last logged in or force them to read the message when they do login. Automatic message delete is present so you don't have to worry about deleting that message about the system coming down for maintenance you posted last week and forgot about. Messages are organized into folders based on like subjects. This a way to get messages through to a lot of users easily.

[.COY]
Ease of Installation: 4
Documentation: 4
Intended Audience: General
Ease Of Use: 4
Usefulness: 5
Sources Included: Yes; TPU, Fortran
Objects Supplied: Yes

This submission contains one program, WPE. WPE is a WPS+ (tm) emulator that is TPU based. The program gives most of the functions of WPS+ keyboard. This is a good program for those who are used to the WPS+ keyboard style, but occasionally need to use an editor for ascii files. An interface is provided so that if DECSPELL is on your system, it will be used for a spellchecker. Documentation is provided, and details differences between WPS+ and WPE, but it assumes that you know how to use WPS+, since this is an emulator. Since this is based on TPU, it can be easily modified to add features not normally found in WPS+, and does include some extensions the author found useful. Good for normal WPS+ users.

[.EPUBS]
Ease of Installation: 2
Documentation: 3
Intended Audience: General, TeX Users.
Ease of Use: 3
Usefulness: 4
Sources Include: Yes

Objects Supplied: In most cases.

The EPUBS submission contains several utilities for use with TeX and LaTeX, including a TeX previewer and a description of how to include Macintosh drawings in LaTeX documents.

Len Schwer's paper is a pretty complete discussion of how to get various DVI to PS converters to include MAC drawings. He includes descriptions of (and solutions to) many common problems, and points to several useful resources. The TeX X-windows previewer is less useful, since it is buggy and somewhat difficult for a VMS user to use. The program's author admits all these shortcomings, but has gone to some lengths to provide a DECWindows previewer that is at least usable, and has succeeded.

[.EPUBS.DVIPS]
Ease of Installation: 3
Documentation: 3
Intended Audience: General, TeX Users with PostScript (tm) printers.
Ease of Use: 5
Usefulness: 5
Sources Include: Yes
Objects Supplied: Yes

DVIPS is a converter which takes .DVI files (TeX output) and creates .PS files, which can be printed on a PostScript printer. It includes all sources, objects, and executables, documentation with notes on how to change site-specific parts of the manual,".TFM" files, and a replacement set of LaTeX "style files" which use PostScript fonts. A separate utility to include MacIntosh figure files is also included.

The code is very well written and internally documented. If you are a VMS-only user, some comments will be confusing, as will the use of "-option" instead of DCL-style qualifiers. Installation is straightforward, but does require understanding something about how TeX fonts are defined and used. If you've installed TeX, DVIPS will be easy. The utility is easy to use, and produces .PS files which are (sort of) readable, something not all DVI-to-PostScript converters do not do. If you are also a PostScript programmer you'll appreciate that feature.

[.GPLOT]
Ease of Installation: 2
Documentation: 3
Intended Audience: Experienced TeX users
Ease of Use: 3
Usefulness: 4
Sources Included: Yes.
Objects Supplied: Yes.

GPLOT and GTEX take input from Computer Graphic Metafiles generated by DISSPLA and NCAR graphic systems and combine them with .DVI files generated by TeX to produce TeX documents with graphics. Samples, documentation, installation instructions, and help files are

included. The code runs under both VMS and UNIX, and the VMS version uses DCL style qualifiers, while the UNIX version expects the "-option" format.

Like many converters and previewers, installing this system requires substantial knowledge of how TeX builds documents and finds fonts. The documentation is fairly good, but the help files make many site-specific references to Pittsburg Supercomputing Center. Once installed, however, the system is fairly easy to use if you are already familiar with how TeX and most DVI-to-device converters work, and how NCAR, DISSPLA, or other CGM generators work. Documentation on adding device drivers to the interface is pretty good, and the range of output devices supported is fairly broad, which is helpful for those who don't yet have postscript printers.

ANAHEIM L&T CLINIC REPORT

George Scott

Seventy-eight questions were formally submitted for the Languages and Tools Clinic at the Fall 1989 DECUS Symposium in Anaheim. The first dozen were submitted in the campground before the Clinic opened. Almost all were answered during the two hour clinic, either in person or in writing. One stumped all of the experts though. The inquirer wrote her name on the form, but left the problem description blank.

Sam Harbold, August Reinig, Brad Daniels, Daryl Gleason, Jeff Slayback, Jim Arsenault, Tina Cleaveland, Ed Vogel, Karl Puder, Eric Wittenberg, Bruce Ferguson, Carrie Wilpoll, Karen Michaels, Gaylen Royal, John Reagan, Anne Saturnelli, C Q Rehberg, and John Ellenberger, all of Digital; and David Ream, Lexi-Comp; Mike Terrazas, LDS Church; Scott Krusemark, Systemation; Jerry Oberle, Survey Sampling; J M Ivler, McDonnell-Douglas; Shirley Bockstahler-Brandt, Johns Hopkins University APL; and Joe Pollizzi, Space Telescope, all contributed their expertise. Matt Variott, Contel Federal Systems; and Marie Murphy and Joe Mulvey, Digital Counterparts for L&T SIG, routed the "patients" to the "doctors." All of these people made the Clinic a great success.

Some of the more interesting problems and solutions follow. Answers will be mailed to the first dozen, and open questions are forwarded to Digital.

Jean Wagener, consultant, needs to upgrade 1100 Fortran routines that are up to 15 years old, some not linked in the past five years, from VMS 4.6 to 5.2. She asks, "Will they break? Must I recompile and relink all? What are my options?" Scott Krusemark answers, "Bring all code/executable up to VMS 4.6. Then at least the executables will run under 5.2. All upgrades can then be done with confidence that nothing will break on-line."

Jeannine Allen of Amoco Chemical Co asks, "Is there a way to SUSPEND a very large batch job mid-stream by SUSPENDing the batch queue for prime time?" Karl Puder replies, "The $ STOP/QUEUE command will do exactly that." See the help for STOP/QUEUE or the manual for variations.

John Kalstrom, Signal Technology, wants to know how he can tell from a batch job if all of his tests are successful, without wearing himself out programming. Jim Arsenault suggests that he perform a "$ DIR *.RES" on the collection subdirectory. If all tests were successful, DTM would delete all result files. John also asks, "When a SUBMIT times out or crashes, VERIFY/RECOVER takes a looong time. Is it that I have too many collections, or too many tests?" Jim found that John is on a VAXstation 2000 with 8mb and DECwindows running, and guesses that the cause is lack of memory. John should get more memory.

Michelle Langdon of Martin Marietta Energy Systems wants to know, "How can I customize LSE to compile code with either callable RDO or SQL and Cobol. I have defined a command to use the precompiler but it expects the extensions .SCO or tokens for Cobol, the language I'm using." Tina Cleaveland points out, "To change the file types, use: LSE > modify language cobol /file_types=(".cob", ".sco", "rco")" The quotation marks and the periods are mandatory. Michelle also wants to use logicals in the Cobol Select statement in the format "X: FILE" where X is a logical and FILE is a literal. John Henning suggests, "Use $ TRNLNM and LIB$SET_LOGICAL."

Rose Cottrell, Public Safety Equipment, wants to know if the problem with messages longer than 699 characters and the Dibol Message Manager will be corrected soon. An anonymous source said, "To be corrected in next version of VAX Dibol." She also had a problem with a command stream of Dibol report programs that would hang up at a random point, never the same program, with the program using 99% of the CPU. She was advised to examine quotas and to consider requesting Colorado Support Center to examine the system at the point of failure.

Bill Bui, Russel Information Sciences, wants to create windows in C with cursors and graphics, while retaining portability. Mike Terrazas suggests, "Recommend using a package such as 'Curses.' There are a lot of limitations. Also use Windows (DEC, MS, Motif) if further functionality is necessary."

Several people received demonstrations of VAXset and individual products.

Tamara Vaughan of Booz, Allen, & Hamilton says, "When creating a benchmark file during an interactive session, process stops.... Process runs normally outside DTM." Jim Arsenault says, "DTM cannot test Regis, Sixel applications in terminal testing mode. You may however test them as DECwindows tests inside DECterms (DTM V3.1)."

Tony Johnson of Pacer Systems wants to save a sequence of Debug commands for frequent usage. J M Ivler suggests, "One method is to use 'SET LOG filename' and 'SET OUTPUT LOG' and enter the Debug commands. Edit the 'filename' log file created. Remove any noise between the commands. When you reenter the debugger, you can issue those commands by doing an '@filename'. If you wish to use that procedure often, you can bind the command to a key using the 'define key' command." This method generalized will work with many subsystems. In some cases, "$ SET HOST/LOG" may be the only way. Gaylen Royal told Tony that it is not possible to create an Ada representation clause at runtime, using variables to declare number of bits and range information.

Scott Kutac, Sidlinger Computer Corp, wanted to make system calls from his Ada programs, so he made several packages that basically redefined the system calls in terms of Ada. He was assured that his wish that DEC would supply the Ada packages to support system calls is answered in Version 2.0.

Joel Carpenter, Pacer Systems, created, closed, and opened a file from an Ada program. He received a diagnostic like USE_ERROR, primary key does not match that in FORM parameter. Gaylen Royal reminds him that he must write something in the file before closing it, as documented in the Run-Time Reference Manual page 3-2.

Steve Fawthrop of the Williams Cos. asks, "MMS - I frequently rebuild object libraries using MMS but the list of modules is steadily increasing. I get round this by calling DCL from MMS to build a symbol and use it as an MMS macro. Is there an easier or more elegant method? I'm concerned that the string may get too long to handle. The list of files is built from the current directory listing." Daryl Gleason replies, "There is no easier method currently. The string length issue can be avoided by having the DCL command procedure actually generate a full descriptor file with all of the dependencies which would then be invoked, instead of having the command procedure build a string."

Glen Perillo of Banker's Trust inquires, "After opening a file in a C routine, how do you get the "Fortran unit #" of the file so you can pass it to a Fortran routine?" Scott Krusemark and Brad Daniels agree that it is not possible as desired.

Yanamandra Sastry, RMS Technologies, asked several questions about LSE. Tina Cleaveland gave these answers: "LSE uses the VAX compilers to do syntax checking. We once considered writing separate syntax checkers, but discarded that idea. LSE is definitely a Programmer Productivity Tool. LSE's templates provide syntax 'tutoring.' It is very easy to tailor the templates."

Marc Chichester of MCI writes, "If object files are inserted into OLB then deleted, MMS rebuilds entire system." Joe Pollizzi replies, "Use SKIP_INTERMEDIATE switch."

Ken Richardson of Compassion International observes, "Debug on VAXstation 3100/DECwindows is very slow to start up (diskless 8mb). 1) How can I speed it up? 2) How can I use non-windows Debug?" August Reinig replies, "To use the character cell debugger, define dbg$decw$display to be " " (that's a space). To speed startup, get more memory, a faster CPU, or run the debugger on a different machine and display it on the VAXstation."

REPORT OF THE JANUARY 1990 MEETING OF P1003.9:
The Fortran Binding to POSIX

by Joseph J. King

The POSIX effort will produce standards which define operating system services, operating system shell commands, real time services and language bindings. POSIX is an acronym for Portable Operating System Interface and is used to refer to a group of standards being developed by IEEE. Working group P1003.1 published the first POSIX standard in September 1988 (IEEE Std. 1003.1-1988). This standard defines the operating system services (the kernel) for a POSIX system. The working group P1003.2 is nearing the completion of a standard which defines the shell commands for a POSIX system. Other POSIX working groups include P1003.3 (testing), P1003.4 (real-time), P1003.5 (Ada), P1003.6 (security), P1003.7 (system administration),

P1003.8 (networking), P1003.9 (FORTRAN), P1003.10 (supercomputer), P1003.11 (transaction processing) and 1201.1 (windowing toolkit).

As each part of the operating system is defined by a POSIX standard, language bindings will be developed to provide applications access to the functionality. Working group P1003.9 is in charge of developing the FORTRAN binding to the POSIX standards where appropriate. Currently P1003.9 is developing a binding to the kernel (IEEE Std. 1003.1-1988). The purpose of the binding is to provide FORTRAN applications access to operating system services and enhance program portability.

In January 1990, P1003.9 met in New Orleans. The following is a report of that activity. P1003.9 has developed a draft of a language binding to the operating system kernel services based on the 1978 FORTRAN standard (F77). There is nearly an one-to-one match between functional interfaces defined in P1003.1 and P1003.9. The differences between the interfaces are the result of differences in FORTRAN language functionality and FORTRAN programming convention. For example, it was necessary to define additional subroutines and functions to handle kernel defined data structures and symbolic constants. Additionally, it was decided that the interface to the kernel would have a subroutine interface as opposed to functions which return a either success or fail.

The functionality currently contained in the FORTRAN binding includes process creation and execution, process termination, signal handling, timer operations, process identification, user identification, system identification, time functions, environment access, terminal access, directory operations, file creation, special file creation, file removal, file characteristics, interprocess communication (e.g. pipes), file I/O, file control, and miscellaneous functions.

This meeting consisted primarily of editorial changes to the document in preparation of public ballot in May or June of this year. We have worked hard over the last several months to get the document in this condition. If you are interested in obtaining a copy of this document please contact John McGrory the 1003.9 chair.

This document contains several new routines that I contributed last meeting. They include routines to access the underlying file descriptors associated with FORTRAN units (F77FILENO and F77FDOPEN). These routines allow a FORTRAN program to open a POSIX file descriptor for FORTRAN I/O and allow a FORTRAN program to obtain the file descriptor associated with a FORTRAN unit specifier. These routines are useful for communication with other processes as well as file sharing. For example, a parent process may want to create a check point file. In addition, children processes which are created by the parent may write to that same file. The parent process creates the child by the using the POSIX subroutines F77FORK and F77EXEC. Since only the file descriptors survive the F77EXEC call, the child process must call F77FDOPEN to open the file descriptor for FORTRAN I/O. F77FDOPEN returns a valid FORTRAN unit so that the child can use the FORTRAN WRITE statement. The child would have to know which file descriptor to open, however. This can be communicated from the parent as a command line argument. The parent calls F77FILENO to determine the file descriptor value to pass. In order to synchronize output to the file the subroutine F77FLUSH can be called to flush any buffers that may associated with the unit.

In New Orleans we reviewed several other new routines which I contributed. These include the stream I/O functions F77GETC, F77FGETC, F77PUTC, F77FPUTC, F77FSEEK and F77FTELL. These routines allow more natural communication with other processes which may be written in

C.

Other new routines include routines for getting command line arguments and the local time and date (F77GETARG, IF77ARGC, and F77LOCALTIME). In addition, we added routines for determining the precision and range of the INTEGER, REAL and DOUBLE data types. The function IF77LENTRIM was added which returns the position of the last nonblank character in a string. Also the functions IF77OR and IF77AND were added to aid in the manipulation of POSIX bit flags. These routines perform bitwise OR or AND operations on FORTRAN integers.

We also considered a proposal to add the routine GERROR which returns the text of system error messages. The proposal left the definition of the messages to the implementor. For this reason the committee decided that this routine did not enhance portability and should not be in the standard. It was my opinion that GERROR did enhance portability by providing applications access to the error messages that are appropriate to the system. This allows the message to be in the native language of the user. The committee did not think that vendors would supply proper error messages if left unspecified.

We also considered adding the subroutine SYSTEM which executes a command. Because SYSTEM will be part of our binding to 1003.2 the committee decided not to put it in this binding.

Technical issues that will be resolved by the next meeting include; the treatment of unsigned POSIX values stored in FORTRAN signed integers; specification of errors conditions for the structure access routines; trailing blanks in constant names; global variable access; and the use of null pointers.

Now that the technical work is nearly complete, we were able to work hard on many editorial issues at this meeting. There are many editorial changes that need to be made before ballot, however, it appears that we will be ready for the balloting group in May 1990. The balloting group consists of any interested persons that wish to read the document, make comments and vote for or against acceptance. Any one can be a member of the
balloting group, although it is an easier process if you are an IEEE member. This is the only mechanism of public review allowed under IEEE rules. If you are interested in joining the balloting group please contact myself or John McGrory or IEEE.

P1003.9 would like to encourage attendance to all interested parties. This is a small group so your input would be valued. Our next meeting is in Snowbird, Utah in April, 1990. If you would like to attend this or any following meetings please contact:

John McGrory (Chairperson)
Hewlett-Packard
19447 Pruneridge Ave
Cupertino, CA 95014
mcgrory%hpda@hplabs.hp.com
(408) 447 0265

I can be reached at the following address:

Joseph King
Genetics Computer Group
University Research Park
575 Science Drive Suite B
Madison, Wisconsin 53711
jking@gcg.com
(608) 231 5200

QUADWORD INTEGER ARITHMETIC

B. Z. Lederman

Background: what are quadword integers

The VAX/VMS architecture defines a number of integer data formats: byte (8 bits), word (16 bits), longword (32 bits), and quadword (64 bits). (There is in theory an octaword data type but I've never seen it used anywhere.) Longword integers have a signed range of -2,147,483,648 through 2,147,483,647: this is usually enough for most applications. There are times, however, when a greater range of integer values is desired. The next logical step would be to go to quadword integers which support much larger numbers (if I've done my calculations right: -9,223,372,036,854,775,808 to 9,223,372,036,854,775,807). Unfortunately, it appears that most VAX languages don't support such variables: there is no INTEGER*8 in FORTRAN, or "verylong int" in C. It turns out that the VAX architecture doesn't support quadwords in quite the same way as other integers: there is no MULQ or DIVQ instruction as there is MULW, DIVW, ADDW, etc.

Of the possible alternatives, using floating point variables is often undesirable because there is always the possibility of floating point rounding and truncation which can turn an integer into a non-integer (1,000,000 can turn into 999,999.99). Using packed decimal variables is also sometimes possible, but they tend to be much slower than integer arithmetic (especially on machines which emulate the packed instruction set in software) and the languages which don't support quadword integers often don't support packed variables either.

I had discussed this problem a little on DECUServe. Larry Kilgallen said that Ada allowed a programmer to define meanings for "+", "-", "*", etc., for arbitrary data types; but it would still require having subroutines which performed the operations and I don't have access to an Ada compiler. He also pointed out that with Bliss macros the operations could be made in-line, but would look like subroutine calls rather than arithmetic:

```
QMULT ( QRESULT, QA, QB )
        rather than
QRESULT = QA * QB
```

In both the above situations, it would still be necessary to write the routines which actually

performed the operation.

George Merriman suggested checking for RTL routines: Bruce Bowler further clarified this, pointing out LIB$ADDX and LIB$SUBX (which solve the problem of adding and subtracting quadword and longer integers), but that there was no corresponding LIB$MULX and LIB$DIVX.

Gary Rice pointed out that the (at that time) next release of VMS would include DATE math as RTL routines. It turns out that VMS V5 does have such routines; but as it doesn't make much sense to multiply two dates, there are still no quadword multiply or divide routines. I discovered that I couldn't get very far trying to define a quadword data type within PL/I. Matt Madison said that a programmer can define a quadword quantity, BIT (64) ALIGNED, then use that as a parameter to routines such as LIB$ADDX and LIB$SUBX, but cannot use the PL/I arithmetic operators with it. User TACKETT on DECUServe suggested the use of LISP, which allows arithmetic with integers of arbitrary length: but I did not have much success trying to program in LISP (the only book I had in it was out of date) and it really wasn't suited to the overall application I wanted.

I eventually found out that VAX COBOL does support quadword integers, if you know how to specify them properly (a LONG picture string and USAGE COMP). I also found that it does addition and subtraction in-line, but calls COBOL RTL routines to do multiplication, division, and conversion to/from other data types including text. They are not documented in any of the VMS RTL manuals, but they are in the microfiche.

So why not just use COBOL?

If COBOL can do quadword integer arithmetic, why not just write all routines which need to do this kind of math in COBOL? There are several reasons. First, many people do not have access to the VAX COBOL compiler. Second, many people don't like COBOL, or don't have anyone available who can program in COBOL. Next, if a program has already been developed in some other language and only needs to have it's range extended by using quadwords instead of longwords, it could be rather inefficient to re-write the entire program in another language.

The next possibility which comes to mind is to write a few short subroutines in COBOL: one to add two quadwords, one to multiply two quadwords, one to divide two quadwords, etc., and then call these subroutines from the other language in use. This is a reasonable solution. However, it still requires access to a COBOL compiler and programmer to first produce the routines: and there is an extra level of subroutine calls which reduces the efficiency of the program. Since all the COBOL subroutines would do in most cases is call the COBOL RTL routines, it would make more sense to just call the COBOL RTL routines directly.

Incidentally, DATATRIEVE also supports quadword integer data types and will do math operations on them. But it is difficult to call DATATRIEVE routines from an external program passing parameters: and as noted above, it isn't always possible to rewrite a program in another language just to add quadword integer support.

Problems calling the COBOL RTL routines directly

There is a problem trying to call the COBOL RTL routines directly from most high level languages. The routines don't follow the 'standard' VMS calling conventions: arguments are not passed on the stack or in a call frame. Instead, they are passed in registers (or addresses are

passed in registers). Also, they do not have ".ENTRY" points, so they must be called with a "JSB" instruction rather than the "CALLG" or "CALLS" instruction. This is fast, and works well when the routine is called by code produced by a compiler or from a Macro-32 program. But few, if any, compilers will allow you to assign variables to specific registers: in particular, calling the routines directly from a VAX FORTRAN program would be just about impossible. [Editorial comment: it should be reasonably easy for the programmers who maintain the compilers to add quadword integer support to other languages like FORTRAN and C, since the routines have already been worked out for COBOL; and the RTL is supplied with the VMS operating system so everyone should have it.]

The solution I decided upon was to write 'relay' routines. These can be called using the standard VMS calling mechanism similar to that used by other RTL and System Services, so they can be called from any VMS language which can call SYS$, STR$, LIB$, and other RTL routines. The 'relay' routine then puts the arguments into registers and calls the COBOL RTL routine. This would not seem to be any more efficient than writing the relay routines in COBOL, and perhaps it isn't. But it does eliminate the need for a COBOL compiler and programmer.

A sample of such a routine looks like this:

```
.ENTRY    COBOL_MULQ, ^M<R2, R3, R4, R5, R6, R7, R8>
;
; call COBOL_MULQ(multiplier, multiplicand, product)
;
; Multiply two Quadword Integers:
;     product = multiplier * multiplicand
;
; No real status is passed back in from the RTL.  On overflow,
; the low order 64 bits are returned with no indication.

MULTIPLIER = 4                    ; offsets to arguments
MULTIPLICAND = 8
PRODUCT = 12

        MOVL MULTIPLIER(AP), R6      ; Move addresses of arguments from
        MOVL MULTIPLICAND(AP), R7   ; address pointer to registers
        MOVL PRODUCT(AP), R8        ; used by COBOL RTL routine
        JSB  G^COB$MULQ_R8          ; call RTL routine
        MOVL #SS$_NORMAL, R0        ; force success on return.
        RET
```

By this method, I made multiplication and division of quadwords available to most languages. The VMS LIB$ADDX and LIB$SUBX routines used with the default array length makes addition and subtraction available. Because the LIB$xxxX routines expect arguments to be passed by reference, I made all of my routines work with arguments passed by reference. This not only provides consistency, it is in some cases the only way to pass a quadword integer to a subroutine.

I also added a routine of my own which tests a quadword and returns an indication if the quadword is zero, greater than zero, or less than zero, which doesn't call any RTL routines.

The routines could be improved somewhat: it wouldn't hurt to check to see if the correct number of arguments were passed, for example. It shouldn't be necessary to check the validity of the address passed, because the COBOL RTL should do that. By checking the number of arguments, it might also be possible for the routine to be called as a function returning the product in a register pair (when only two arguments are supplied) as well as a subroutine: but this requires that the language receiving the returned value know how to retrieve the value from a register pair.

More routines needed

It isn't enough to just have the four math operations available. It's also necessary to convert between quadword integers and other data type. It is especially necessary to convert between integer and ASCII characters so that the integers can be displayed, and so that data input from a terminal or file can be converted to integers. Languages which don't support quadword math aren't going to have these routines, so they must be obtained somehow.

The COBOL compiler apparently does most or all of these conversions by going through the packed datatype first. It should be possible to do the conversion more directly, but I wasn't inclined to write my own (even though it would be a one-time only project) because of all of the work that has to be done to do it properly, such as testing for the presence and/or absence of signs, embedded commas, leading blanks, incorrect argument passing, etc. Since there are COBOL RTL routines which do the conversion between packed and quadword, I made relay routines for them, and added my own conversion routines between ASCII text and quadwords by going through packed intermediate variables. This may not be terribly efficient, but it uses tested routines, and the amount of time a program spends doing this kind of data conversion should be small compared with the time it does actual math or other work. The conversions I supplied are Integer to Text (by reference), Text (by reference) to Integer, Integer to Text (by descriptor), and Text (by Descriptor) to Integer.

There are other COBOL RTL routines for which I have not provided relay points. They convert between D_Floating and quadword integer, F_Floating and quadword integer, and integer and quadword integer. It should be fairly easy to add relay points to these routines in the same manner as for multiplication and division. It should be fairly easy for a programmer to convert between quadword integers and shorter integers, as the quadword integer usually has to be declared as an array of shorter integers.

Passing the torch

For me, the reason I originally became involved in quadword arithmetic is no longer very important, and I have routines which are usable. There is certainly some optimization which could be done, and as mentioned above, a few more which could be added. I'm submitting this to the newsletter to pass along what I've done so someone else can continue the work from here, should anyone need it.

ANNUAL REPORT OF DECUS PARTICIPATION
in ANSI X3J11 — C STANDARDS

The C Standard was approved this year! The committee met in March of 1989 and approved the draft, over the objections of a commentator. The commentator chose to file a formal appeal with X3 and with ANSI, but both of those bodies have since voted to deny the appeal. The net effect of the appeal was to delay the Standard by about 6 months.

DECUS had planned to host the meeting of X3J11 which was scheduled for September of 1989, but the committee decided not to meet in light of the still pending appeal. The next meeting, in March of 1990 will be our first interpretations meeting, where the committee will give opinions as to the meaning of the Standard. Those opinions will be solicited by questions from compiler implementers and those chartered to validate implementations.

Current Chair of X3J11:	DECUS Representative:
Jim Brodie	Mike Terrazas
Jim Brodie & Associates	LDS Church
106 S. Terrace	50 E. North Temple 27th Floor
Chandler, AZ 85226	Salt Lake City, UT 84150
(602) 863-5462	(801) 240-3264

PUBLIC DOMAIN WORKING GROUP REPORT
Fall 1989, Anaheim, Ca

The Public Domain Working Group of the Languages and Tools SIG met in Anaheim at the Fall 1989 DECUS Symposium. The meeting had   attendees. The meeting was called to order by the Working Group chair, Ted Nieland.

Ted Nieland reported on the status of several projects, including:

- The Spring VAX/LT SIG Tape. The combined tape was a success. It is also on the DECUS Library CDROM #5.

- The DECUS TeX Collection. The collection was updated and sent out in August. New items include a DEC Windows previewer, A Macintosh version of TeX and more DVI drivers. All other material was also updated. It is also on the DECUS Library CDROM #5.

- The Other Half of VMS special collection tape. This is a VMS starter kit of DECUS software. A vote on the most popular programs for VMS was taken and those programs are being offered on this tape. It is intended to be easy to install for novice system managers.

- Voting on favorite non-commercial programs. The working group is sponsoring a vote on favorite non-commercial software for VMS, RSX, UNIX, RT-11, MS-DOS and Macintosh OS (Finder/MultiFinder). The results of this voting will be presented at the next symposium. Ballots are available at this symposium and will also be made available via the DECUS Newsletters, DECUServe, and network mailing lists.

- The GNU tape. This will have all the GNU material on it and the VMS ports.

- Updates of the MS-DOS, ADA, and UNIX-C Tapes from SIMTEL-20. The material that was submitted to the library will be updated.

- The Communications Protocol Collection. A Tape has been submitted to the DECUS Library that contains all the common async communications protocol programs for VMS. Included are KERMIT, X-MODEM, Y-MODEM, and Z-MODEM.

Lots of new material has been submitted for the Fall 1989 SIG tape. The VAX and L&T SIGs will again be working together to produce one combined tape to eliminate duplicates. The Fall 1989 tape is expected to be sent to the DECUS Library and the Tape-Copy/NLC tree by mid-January. Ted Nieland has been named the new L&T SIG Tape Librarian as of this symposium. Ted will be working with Glenn Everhart, the VAX SIG Librarian to produce the Fall 1989 SIG tape.

The working group is still looking for someone to work on the networks tools special collection tape. The group would also like to find someone to work on a UNIX utilities for VMS special collection and a VMS utilities for UNIX special collection. If you would like to work on one of these projects, please contact Ted Nieland (see information below).

The working group also is looking for more DEC Windows material that can be used for examples for programmers. A request was made to the representative from DEC to see if DEC had any items they could submit for the SIG Tape.

The working group is looking for a vice-chair. Anyone who is interested should contact the chair, Ted Nieland, at (513) 427-6355, or send a mail message to NIELAND on DCS or TNIELAND@AAMRL.AF.MIL on the Internet.

Ted Nieland also reported that the SIG tape reviews and DECUS library reviews are being well received. The reviews will be continued. Anyone wishing to help with such reviews should contact him. A new coordinator for the review process is being sought. Anyone who would be interested should also contact Ted.

The L&T SIG is also looking for an assistant SIG tape librarian to assist with the L&T SIG tape (currently combined with the VAX SIG tape). Anyone who is interested should contact the L&T SIG Tape Librarian, Ted Nieland, through any of the channels mentioned above.

If anyone has any ideas for special collection tapes, or would like to submit material for future SIG tapes, please contact Ted Nieland with your suggestions.

Languages & Tools

Public Domain Software Top 30 Ballot

The Public Domain Working Group of the Languages & Tools SIG is interested in what public domain/non-commercial software you find useful on the carious computers you may work with. For each of the operating systems listed below, please list your favorite public domain/non-commercial software programs. Return this ballot to Ted Nieland, Control Data Corp, 2970 Presidential Drive, Suite 200, Fairborn, OH 45324. Results of this vote will be presented at the Spring 1990 DECUS Symposium and published in LEVERAGE.

Note: Some of the previously nominated programs are already listed. If that is a program you would have listed, just circle it. Please note no more than 10 programs for each operating system. Votes can also be E-MAILed to TNIELAND@AAMRL.AF.MIL.

VMS	UNIX	MS-DOS
TeX & Utilities	KERMIT	KERMIT
KERMIT	TeX & Utilities	ARC
VERB	GNU EMACS	PKZIP
FILE	GNU CC	SEDT
FINGER	SEDT	MicroEMACS
DECUS UUCP		TeX & Utilities
GNU CC		
GNU EMACS		
SPELL		

RSX	RT/TSX	FINDER (Macintosh)
DECUS C	KERMIT	KERMIT
FINGER		STUFFIT
KERMIT		

ANNUAL STANDARDS REPORT, X3J4 COBOL

Bruce Gaarder, DECUS Representative

Accredited Standards Committee X3J4 (COBOL) met five times this year amid much discussion. The Intrinsic Functions Addendum to the Standard was passed in September, so there will be a standard method of calling functions, both numerical and string-handling.

We have issued many interpretations of the standard, in which we tell inquirers what the standard says or should say, if it is not clear. These are collected and periodically issued in a COBOL Information Bulletin.

We are currently balloting on sending the collection of interpretations which are corrections to the standard on for further review. This is not a topic of unanimity, since some believe that this makes the standard a moving target. The DECUS position on this has been one of supporting the original purpose of a corrections addendum, which was to try to limit the number of programs which would be affected by correcting the standard as soon as possible. The fact that it has taken five years is disappointing, but it is going to be almost as long before the next full revision of the standard can take place.

Another sore point comes in the calling of a non-COBOL program from a COBOL program in the UNIX environment, since the rules for calling a COBOL program say that the program-id must be treated as if it were all upper-case, and it is implementor-defined if it is not a COBOL program. This has resulted in different vendors doing different things to identify a case-sensitive call. The DECUS position on this is that it is clearly specified as implementor- defined in the standard, and that it should not be changed until the full revision of the standard.

We are also working on a COBOL language interface to the Forms Information Management System (FIMS) standard, which DECforms is an early implementation of, since the standard has not yet passed. Another project is waiting for approval from the higher levels of the American National Standards Institute (ANSI). The project is to develop COBOL support for multi-octet characters sets, which are necessary for many non-English languages.

There are six meetings planned for 1990. Please contact me if you need further information on the dates or locations. You are welcome to attend.

Chair of the Committee:
Don Schricker
M/S 019-890
Wang Laboratories
One Industrial Avenue
Lowell, MA   01851

Alternate DECUS Representative:
Dale D. Marriott
El Paso County Office Bldg.
27 E. Vermijo St.
Colorado Springs, CO   80903

Primary DECUS Representative:
Bruce L. Gaarder
Donahue Enterprises, Inc.
2441 - 26 Ave. So.
Minneapolis, MN   55406

PROJECT MANAGEMENT WORKING GROUP REPORT

George L. Scott

The Project Management Working Group of the L&T SIG met during the Fall '89 DECUS Symposium at Anaheim. About a dozen attended. Those in attendance seemed to be mostly interested in how to manage a project rather than in what project management systems are available. We discussed the essentials of how to manage a small project. It was emphasized that there is lots of planning involved, including the identification of relatively small work packages. The planning is followed by monitoring actuals against the plan, followed by ever more planning.

George Scott volunteered to present a session at New Orleans on the subject. Val Nelson may present one or more sessions at Las Vegas on project management software. Val also identified a source of summary information on project management software, the Project Management Institute, PO Box 43, Drexel Hill, PA 19026, (215) 622-1796. They have a survey called Project Management Software Packages in three ring notebook form. For more information, people can call either the institute or Val Nelson at (206) 775-8471.

"A Little Inaccuracy

Sometimes Saves Tons

Of Explanation"

H. H. Munro
"The Comments of Moung Ka"
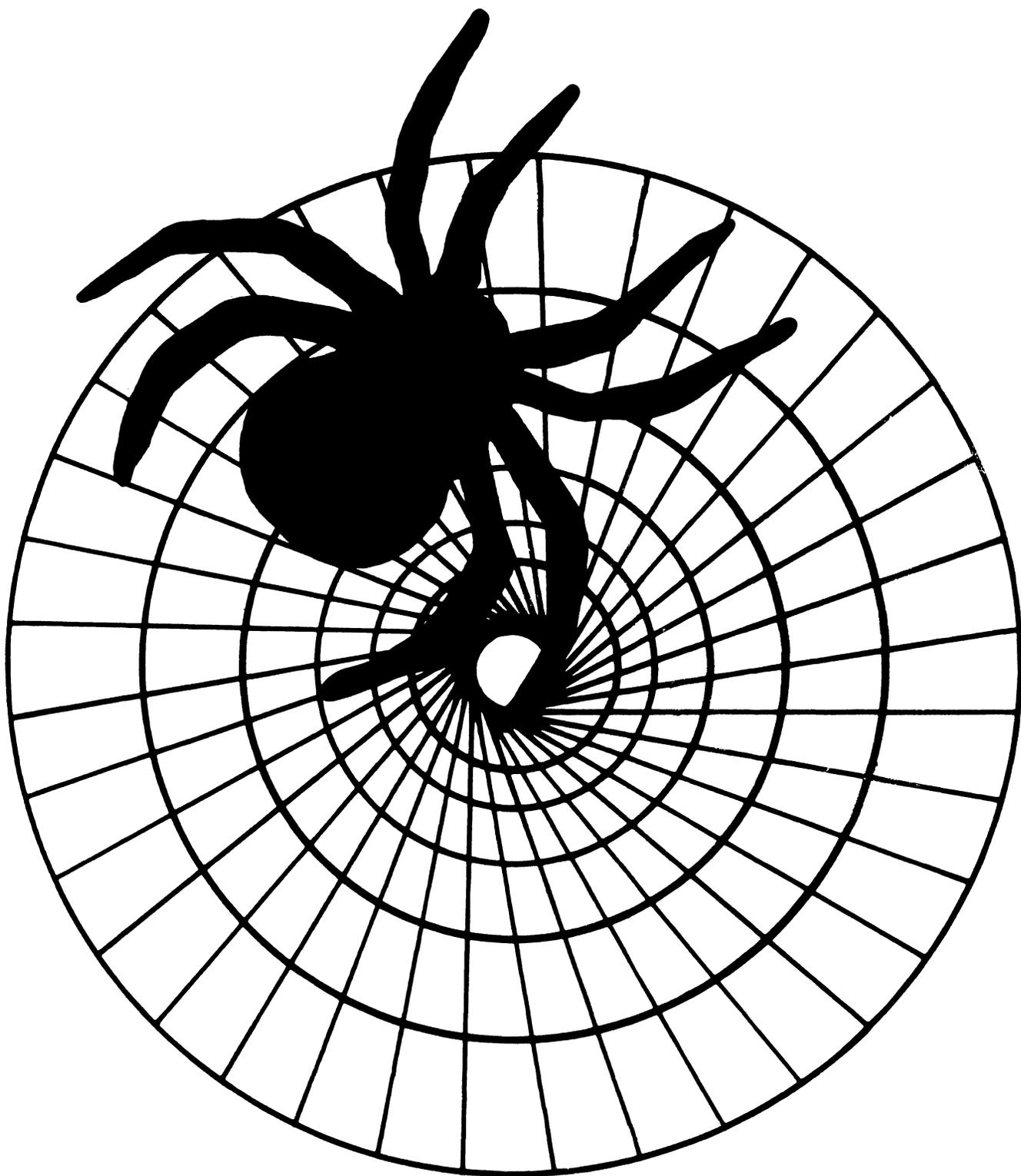
Networks SIG

APRIL 1990 NETWORK SIG Newsletter

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FROM THE EDITOR'S COBWEB

I'm back! Many thanks to Rick Carter, Assistant Editor, for holding down the fort during my first months of motherhood! I'm looking forward to editting the newsletter again (during Max's naps, of course - this could become a very short newsletter!)

Many of you will be attending the New Orleans symposium, you lucky dogs. I've included in this issue an introduction to working groups, by Dennis Jensen, the working group coordinator. Check for a group that might interest you, and talk to Dennis or anyone at the Networks Suite in New Orleans for more information! This is a great opportunity for those with similar interests to interact with Digital. Dennis has listed the meeting times, and check UPDATE.DAILY for meeting locations in New Orleans. Notes from the working groups will be published here in the future.

Its not too late to get in your entry for the Best Node Names Contest! Rick Carter has been getting a hearty response for his contest, and judging will be soon. Win your very own exclusive original Network SIG T-shirt and/or mug!

The long-awaited DEQNA Upgrade Program has been announced as of February 1990. Pricing details are available from your local sales office, and the policy details, as announced by DEC, are included in this issue. This applies to anyone who plans to migrate to Phase V DECnet.

Send any comments, suggestions, or articles to:

Judi Mandl
11 Catlin Road
Harwinton, Ct. 06791

I'm glad to be back! Have fun in New Orleans!

NETWORK WORKING GROUPS

Dennis V. Jensen
Network Working Group Coordinator
258 H Development
Ames Laboratories
Ames, Iowa 50011-3020

The Networks SIG sponsors eight working groups which discuss technical issues and user requirements with Digital developers. I encourage all attendees at symposia with a specific interest in thest topics to attend and be heard. If you cannot attend symposia but have issues you would like presented, mail them to me at the above address, or electronically to DJ@ALISUVAX.BITNET .

SPRING 1990 SYMPOSIUM NETWORK WORKING GROUPS

DISTRIBUTED SYSTEM SERVICES, THURSDAY 2PM
FIBER DISTRIBUTED DATA INTERFACE, WEDNESDAY 5PM
IBM INTERCONNECT, THURSDAY 1PM
NETWORK DESIGN & GROWTH MANAGEMENT, THURSDAY 10AM
OPEN SYSTEM INTERCONNECT, THURSDAY 9AM

ROUTERS & BRIDGES, THURSDAY 3PM
TERMINAL SERVERS, TUESDAY 4:30PM
TCP/IP, THURSDAY 11:30AM

Watch the newsletter for notes from the working groups published here in the future.

THE LAST OF THE BEST NODE NAMES (I THINK!)

Rick Carter

As I write this, it's 4 PM on February 28. Unless I get an entry postmarked before tomorrow in the next few days, this is it!

Here's the last batch:

Trey Reeves, at National Health Labs, Inc. in Dallas, Texas submits for their nationwide computer network:

> Dallas nodes: BUBBA, BIGTEX, JOEBOB.
> Nashville nodes: JED, with JETHRO planned.
> New York node: GUIDO.
> Florida nodes: DOLFIN, GATOR
> San Antonio, Texas node: BOWIE (as in "Jim").

Copyright regulations prevent me from showing you the __Far Side__ cartoon which accompanies the next entry. It shows Laurel and Hardy running from a city being destroyed in a mushroom cloud, with Laurel saying "Now you've done it!"

The letter with it, from Rand P. Hall of Merrimack College, North Andover, Massachusets, reads:

> We, too, used to have boring node names for our two-node
> VAXcluster. Then came the cartoon... System crashes on STAN
> and OLLIE are now followed by a "Now you've done it!" from
> one or more of the staff members.

The final entry is actually several entries, all from John W. Manly at Amherst College, Amhert, Massachusets (this seems to be Colleges in Massachusets month here!) My contest didn't state that the networks had to really exist, and these are lists of ideas. Perhaps some of you readers may wish to take notes for your future networks. John takes it from here:

> Coins of the world. This is my personal favorite, and,
> I suspect, our strongest contender:

DOLLAR	American
CREDIT	Star Trek
FRANC	France
YEN	Japan
POUND	UK
PESO	Mexico
PESETA	Spain
MARK	Germany
RUBLE	USSR
SHEKLE	Israel
DRACMA	Greece (actually spelled Drachma)
YUAN	China
RUPEE	India
SOL	Peru

SOMALO	Somalia (East Africa)
KRONA	Iceland and Sweden
ZLOTY	Poland
KWANZA	Angola
AUSTRL	Argentina (actually spelled Austral)
PENNIS	Finland [I don't believe it, do you?]
TAKA	Bangladesh
CRUZAD	Brazil (actually spelled Cruzado)

Candy. This seems like a particularly good idea to me,
since there is a very large set to choose from (and more
are constantly appearing), so users can name their machines
after their own personal favorite.

MOUNDS
SKOR
SNCKRS
CHUNKY
REESES (Reeses Peanut Butter Cup)
TWIX
GRAND (100 Grand Bar)
LSAVER (or LIFSAV for Life Savers)
MINT
BONBON
SKYBAR
MANDM (or MM for M&M)
MANDMP (Peanut M&Ms)

Ice Cream. Once again, a large set to choose from, and one
that has relevance for most people (almost everyone has a
favorite flavor).

COFFEE
VANILA
CHOC
STRAWB
SHRBET
MOCHA
MINT
LIME
RIPPLE
ROCKY (or ROCKYR for Rocky Road)
OREO
RASBRY (Raspberry)
PRALIN (Praelines or however it's spelled)
NEOPOL (my personal favorite, Neopolitan)

Games. Everyone loves these, computer people particularly.

CHESS
PENTE
RISK
POKER
BRIDGE
HEARTS
LIFE
MNOPLY (Take a guess)
SCRBLE (Scrabble)
OTHELO (Othello)

CHCKRS (Checkers)
SQDLDR (Squad Leader)

Insects (Or bugs, if you are in a computer kind of mood).

ROACH
ANT
BEE
WASP
HORNET
FLEA
TICK
LOUSE
LOCUST
BEDBUG
EARWIG (Possibly the grossest insect on the planet)
CHIGGR (Chiggar)
GNAT
FLY
MOTH

Icky things. Fairly open group, overlapping somewhat with the last one. The last is a particularly good one for the president's workstation.

SNAKE
RAT
MOUSE
SHREW
SLUG
WORM
TICK
LOUSE

Bond women. I don't have a long list, but a few trips to the video store for research should prove fruitful.

GALORE - Goldfinger (Pussy Galore)
SOLIT - Live and Let Die (Solitaire)
GOODNT - Diamonds Are Forever (Goodnight)

Or expand it to allow any Bond characters, in case you advocate a policy of non-discrimination.

JAWS - The Spy Who Loved Me
ODDJOB - Goldfinger
DRNO - Dr. No
SCARA - Man With the Golden Gun (Scaramanga)

Philosophers. Popular among more intellectual users.
Another case of a fairly large set to choose from.
Also, a particular choice could say something of interest about the workstation owner.

PLATO
LOCKE
HOBBES
MARX
HUME
KANT
BACON

BERKLY
JAMES
QUINE
NTZCHE

And finally, my second favorite, the Ten Plagues of Israel
(in order).

BLOOD
FROGS
GNATS
FLIES
CATTLE (A plague among the Cattle*)
BOILS
HAIL
LOCUST
DARK
DEATH (Death of the firstborn)

* As opposed to a plague OF Cattle, which would be a
devastating plague indeed. I mean, Frogs nearly did it,
and they only weigh a fraction of a cow.

Well, it's been real, and it's been fun. Final results (and any last-minute entries) will appear next month!

ANNOUNCING THE DEQNA UPGRADE PROGRAM

The DEQNA Upgrade Program offers:

o Low-cost migration to standards-based network controllers

o Enhanced system-level performance when operated with VMS

   V 5.3 and later

o Easily orderable through DECmailer 800#

PROGRAM DESCRIPTION

To encourage migration to its enhanced 802.3 compliant Ethernet controllers, Digital is offering its customers a very aggressive, low-cost trade-in program. As the first step in this migration, Digital announced the official End-of-Sales-Life for the DEQNA hardware product, effective July 2, 1989. This trade-in program, which is offered for a limited time, provides customers the opportunity to migrate from their current DEQNA to either the DELQA-YM or the DESQA-SF, depending on the configuration of the installed DEQNA, for the low price of $660.

In order to take full advantage of the latest networking capabilities offered by Digital, as well as the changes in standards requirements, either the DELQA or the DESQA adapters are required. Digital, therefore, recommends that our customers move from DEQNAs to DELQAs or DESQAs where ever possible.

Digital is sensitive to the need for customers to be able to fully utilize their system and network resources at the lowest possible cost. This program is further endorsement of Digital's commitment to its customer base.

UPGRADE PROGRAM DETAILS

This is a workdwide program and the process will vary by geography.

Ordering in the U.S.

The $660. priced Upgrade is ONLY AVAILABLE through the DECmailer 800 number: (800) 225-5385.

Orders will be accepted through Q3/FY91, and delivery must be requested by the end of Q4/FY91. Availablility is 120 days ARO; however, reqests for shorter lead times will be accepted.

Customers will be expected to know what system CPU-Box/Cab-Type the DEQNA is installed in, i.e., BA123, BA11-M, BA23, H9642 or BA200 Series, in order to determine which DEQNA Upgrade Option(s) is appropriate.

The $660. price does NOT INCLUDE installation. Customers will be instructed to contact their local Digital Customer Services office to schedule installation.
The upgrade options will be shipped to the customer, who will have 60 days to schedule installation and return the replaced DEQNAs before being invoiced for the upgrades.

NOTE: If the replaced DEQNAs are not returned within 60 days of date of shipment, the customer will be invoiced for the sum-of-pieces USLP for those units not yet returned.

The packaging used to ship the upgrade will be used to return the replaced DEQNA to Digital. This is necessary to ensure proper crediting for the returned DEQNAs. (THE FORM FACTOR OF THE RETURNED DEQNA MUST MATCH THE FORM FACTOR OF THE UPGRADE OPTION, OR THE CUSTOMER WILL BE INVOICED AT SUM-OF-
PIECES USLP).

The removed cab-kits can be disposed of locally and should NOT be returned to Digital.

Technical-Self-maintenance customer's installation, or installation by Digital Customer Services, is highly recommended. The installation process listed below include both removing the DEQNA and installing the upgrade option. (These are the normal option installation-only prices.)

At the end of the 60-day installation period, or at the time of return of the replaced DEQNA(s), whichever occurs first, the customer will be invoiced for the upgrades.

(EDITOR'S NOTE: CONTACT YOUR SALES REP FOR PRICING/ORDERING INFORMATION)
OPERATING SYSTEM SUPPORT

VMS-DEQNA

VMS Driver support for the DEQNA hardware will be withdrawn as of the second major (follow-on) VMS functional release from today. This will occur within the next 9-12 months. Digital will continue to ship the DEQNA device driver (XQDRIVER) with the VMS kit as part of this follow-on release and for the next two releases after the follow-on release. However, the DEQNA hardware will not be directly addressable using the native DELQA driver. Customers may, using their own device driver implementations, continue to issue direct $QIO calls to the DEQNA.

VMS - DELQA-YM and DESQA

VMS Version 5.3 or above must be installed to use the enhanced features of either the DELQA-YM or DESQA. Both will run in Non-Enhanced Mode with VMS Version 5.2 and below or other Digital operating systems.

NON-VMS SUPPORT (CUSTOMER RESPONSIBILITY)

The DELQA-YM is backwards compatible, in Non-Enhanced mode, with the DELQA-M, except for the "Option ID Code." It is the customer's responsibility to modify their drivers to ensure compatibility (if necessary) in Non-Enhanced mode. Digital supplied operating systems do not
use this feature.

HARDWARE/SOFTWARE SUPPORT

Hardware Product Services for the DEQNA will continue to be offered by Digital Customer Services. Customers with Software Product Services contracts will be supported per the current terms and conditions.

SPR/QAR SUPPORT

VMS SPR support of the DEQNA device driver (XQDRIVER) is guaranteed, AT A MINIMUM, for the next 24 months, BUT ONLY FOR VMS 5.3 SYSTEMS and below (SYSTEMS THAT HAVE NOT BEEN UPGRADED TO THE VERSION OF VMS THAT CONTAINS DECNET PHASE V).

SERVICE INSTALLATION

Customer Services (U.S.) will de-install the DEQNA and install the upgrade option for the standard installation cost of the upgrade option. For customers maintaining the DEQNA under a Digital service contract, the upgrade installation charge is $100.

QUESTIONS AND ANSWERS

WHAT BENEFIT IS THERE FOR A CUSTOMER WHOSE DEQNA(s) IS BEING MAINTAINED UNDER A DIGITAL SERVICE CONTRACT?

Customer Services is offering a reduced upgrade installation charge for DEQNA under contract. Contact your local Customer Services organization.

CAN MY CURRENT DELQA-M BE UPGRADED TO THE HIGHER PERFORMING DELQA-YM?

Yes, through this upgrade program (same price, same options, same terms, same availability, same restrictions.)

WHAT REVISION OF THE VMS OPERATING SYSTEM DO I NEED TO RUN IN ENHANCED PERFORMANCE MODE AND CAN THE ENHANCED CAPABILITIES OF THE NEW DELQA-YM BE USED IN NON-VMS ENVIRONMENTS?

VMS Version 5.3 or above is required to run the DELQA-YM and DESQA in Enhanced Performance Mode. All other Digital operating systems, unless modified, will drive the controllers in Standard Mode (DELQA-M equivalent performance).

WILL ANY SYSTEMS SHIP WITH THE HIGH-PERFORMANCE VERSION OF THE DELQA?

No plans are in place to ship high-performance DELQA-YM modules integrated into systems unless ordered as seperate line items.

IF MY CUSTOMERS DO NOT RUN VMS, CAN THEY STILL TAKE ADVANTAGE OF THE UPGRADE PROGRAM?

Yes; however, without support for the Enhanced Performance Mode, there is some risk of reduced performance as compared to the DEQNA. No other operating systems have dropped support for the DEQNA.

WILL BOTH DELQAs and DEQNAs BE ACCEPTED IN TRADE UNDER THE NEW PRODUCT CODES?

Yes.

Office Automation

*****

Office Automation

Strategic Business

OASIG

Information

CONTENTS OF APRIL ISSUE

FROM THE EDITOR

It's almost Symposia time again, and I know some of you are still trying to figure out how to get to New Orleans. I hope you succeed!

Under "old business". Special thanks to those of you who have started sending in the OA SIG QUESTIONNAIRE found in the back of the book. There is such a variety of sites, applications, equipment, etc., and I hope I can do justice to reporting the results in another few months. I may call on one of you in New Orleans to help with the talleying and results reporting, so if you are interested, please feel free to step forward for this once-only assignment!

Also under "old business": I have never received one suggestion about a name for the Newsletter other than several I got by word-of-mouth at Anaheim. I am perfectly satisfied with one of those, but want everyone in the SIG to have a fair shot at besting it. So I guess nominations are open till New Orleans.

Roger B.

Some Thoughts on Office Automation
George Bone, Mare Island Naval Shipyard

"Office automation", "automating the desk top", "automated data processing"; One hears these phrases constantly in the trade magazines, press releases, and "shop talk". One wonders, though, whether the end result of "automation" is desirable.

In the nineteenth century, the invention of the steam engine initiated the industrial revolution; an event which changed the relationship of product value and labor and, in so doing, the very nature of civilization. With the advent of the "computer revolution", businesses have found a new tool and seem to be trying to automate the office as their ancestors automated machine shops and assembly lines.

But what is "office automation?" Perhaps we can get some insight by breaking down the phrase to its component parts. The "Office" is a place in which to do business, whether the business is a church, a government department, or a multi-national conglomerate. "Automation" is the act of having a machine perform tasks previously performed by humans. It is in applying this second term to the place of business that errors of limitation occur. Too often, applications such as word processing (automated typewriters), spreadsheets (automated ledgers), databases (automated file cabinets), and electronic messaging (automated mail) are implemented as a final solution to the "office automation" problem.

Perhaps, though, the answer lies in rethinking the concept of "office". An office need not be in a single geographical location, and can range in size from a skyscraper to a sales representative's company car. The one common thread that runs through all the myriad types of offices is that they are collection and dissemination points for information.

So what is information? "Information" can best be expressed as the proper data provided to the proper person at the proper time. If any of these elements is missing, the data is not information - it is worthless trivia.

Three examples:

1) Procurement agent "Roger" is required to buy a supply of a particularly complex part for a product his company manufactures. If he is provided with the data "The US entered the second world war after Pearl Harbor was attacked on December seventh, 1941", he has not been provided with information because the data is not proper - it has no bearing on the matter at hand.

2) If Roger is provided with a record that states that company XYZ has a 50% failure rate on this particular part, but the record arrives ten days after the contract has been awarded, he again has not been provided with information. The data has not arrived at the proper time.

3) If this same data was provided to the company president well before the contract award date (and not forwarded), it is STILL not information because the wrong person has custody of the data.

Our job then, if we are to support the office, is to provide this information - the proper data at the proper time to the proper person. We must, in effect, manage information. This information management, then, incorporates the "office automation" tasks of implementing a word processing system, or an electronic messaging system, or an electronic conferencing system, and expands upon them to include working with the strategic planners in the company, determining their need for information, and finding the best, most cost-efficient method for delivering it. Office automation must not be satisfied only with providing the tools to perform specific tasks - it must provide the entire structure within which these tools are to be used.

It's time to look beyond office automation to our real job - information management.

FILE CABINET BOOKMARK
Don Plorde, DuPont Fibers

How many times have you been working on a document and have had to go off elsewhere in your file cabinet or to another sub-system or application? Lot's I'm sure. Getting back to that document can be a pain unless you have had a lot of foresight to use keywords or place the document at the top of your file cabinet; perhaps you even have a photographic memory and know the document number. Well, I usually do not remember to use clever tricks nor do I have a photographic memory. I would go through the old Select routine to get back to my document. Version 2.3 ALL-IN-1 has provided some relief in the new Index forms, but it would still be handy to have a "bookmark" to return you to your document.

This is incredibly easy to do once you decide what it is that you need. I chose to implement this with two DEFAULT menu options called MARK and RESTORE. You could just as readily give them places on the WP and EM menus. MARK places your bookmark and RESTORE puts you back at that document in your current block.

The Named Data for these two options follows. Note that I have used the new XOP and IFSTATUS functions which are available in v2.3 ALL-IN-1. If you are still on v2.2 or earlier, you will have to make some simple modifications to replace them.

;;MARK;;

```
XOP "~~CHK_EM_OR_WP~~"\IFSTATUS\GET $OAS_BOOKMARK =
OA$CURDOC_FOLDER:30 OA$CURDOC_DOCNUM\DUMP_CACHE\DISPLAY
Bookmark placed at current message/document\FORCE
```

;;RESTORE;;

XOP "~~CHK_EM_OR_WP~~"\IFSTATUS\.IF OA$FORM_NAME EQS "WP" THEN
  GET $WPDOC = $OAS_BOOKMARK ELSE GET OA$CURMES = $OAS_BOOKMARK
\DISPLAY Document/message stored in bookmark restored\FORCE

;;~~CHK_EM_OR_WP~~;;

.IF OA$FORM_NAME NES "EMC" AND OA$FORM_NAME NES "EMD" AND
OA$FORM_NAME NES "WP" THEN GET OA$STATUS=0\\DISPLAY Valid only on
EM or WP Menus\\FORCE

Usage is pretty simple. While you have the document or message you want stored in the bookmark in the current item block, just enter MARK. To return to your bookmark, enter RESTORE.

The MARK command has utility even with the new Index forms and with the expanded capabilities available on the Read Menu. If you are on an Index you may want to MARK one item so that you can return to it later in a rapid fashion from a normal menu. RESTORE does not seem to have much to offer from the Index. To enable MARK from an EM or WP Index, just modify the EM$INDEX$OPTIONS default form with the following Named Data:

;;MARK;;

GET $OAS_BOOKMARK = OA$SCROLL_KEY\DUMP_CACHE
\DISPLAY Bookmark placed at current document\FORCE

MARK can be handy in a multiple read situation too. You might want to MARK an important message that you need to come back to later on. To enable MARK in Read Mode, add the following Named Data to the OA$LIST$CAB$OPTIONS form:

;;MARK;;

MAIL GET OA$LIST_DOCUMENT\IFSTATUS\GET $OAS_BOOKMARK =
OA$CURMES\DUMP_CACHE\PROMPT "Bookmark placed at current
message . . .   Press RETURN to continue"

I am assuming here that you are familiar with the new Customization Management features of v2.3 ALL-IN-1 and will be enabling the MARK and RESTORE commands on copies of the subject forms in your Site area. This protects these enhancements from being lost in the next upgrade.

_____

MAINTAINING PERMANENT SYMBOLS

Roger E. Bruner, Foreign Mission Board

[NOTE: You may want to review the article "DELETING $SYMBOLS" in the December 1989 Newsletter and the corrections in the February 1990 isue before reading this one. Form "PST" was described in detail in those articles.]

In several of the Foreign Mission Board's ALL-IN-1 applications, I control access to certain options and screens by creating a permanent symbol in the privileged users' accounts. Since there are only a few users involved, I used to do a NEWDIR to the specific accounts and a 'GET $xxxxx="yyyyy"' to create the symbol and to assign its value. However, I always felt uneasy about having to use NEWDIR for that purpose and wanted a more satisfactory system.

Here's what I ended up with. Access to this procedure is controlled by adding "APS" (Assign Permanent Symbol) to the System Manager options; "APS" is defined in Named Data to mean "DO PST_ASSIGN". I found that it would not work in my own (non-privileged) personal account, but did fine in MANAGER.

Script PST_ASSIGN.SCP displays the argument form PST_ASSIGN to collect information from the MANAGER about:

1) the User name
2) the Symbol
3) the Symbol value
4) disposition of the Symbol (Add, Delete, Change)

However, as the MANAGER TABs past the User name, the "/POST" uses an OA$DIR to capture the actual VMS filename of that User's permanent symbol table, loads it into the (DISPLAY ONLY) FILENAME field, and uses a "GET LOG$USERPST" to create a DCL logical from FILENAME's value. If no value displays in the FILENAME field, the MANAGER should realize that, for some reason, the procedure is not working correctly. Otherwise, the MANAGER is assured that the VMS file he/she sees displayed is the one that will be written to.

To doubly verify the accuracy of the procedure, however, the MANAGER may also do a GOLD L on the SYMBOL field, looking at such symbols as FULLNAME and USERNAME.

Once a value is entered in the SYMBOL field, that symbol is "looked up" in the appropriate .PST file and the current value is entered in the (DISPLAY ONLY) "Value Now" field.

Then all that remains is to enter the NEW VALUE (if appropriate) and the MODE.

The ADD, CHANGE, and DELETE functions are all controlled within the script itself. Notice that these tests are performed:

1. the presence of the symbol BEFORE adding it
2. the presence of the symbol AFTER adding it
3. the value of the symbol AFTER changing it
4. the absence of the symbol AFTER deleting it

The key to testing the VALUE as it actually exists in the Permanent Symbol Table consists of:

get #test = pst.value[#symbol]
.if #test . . .

I will be most interested in whether you find this approach to be useful and whether you experience any difficulties in using it.

LAYOUT for PST_ASSIGN:

Assign a Value to a User PST Table

User: MARTH PAM_____
File: USER$21:[PAMM.OA]MARTHPAM.PST__

Symbol: CRS_PRV_____(Do not include $ sign.)
Value Now: Y_____
New Value: N_____

Mode: C (D = Delete, C = Change, A = Add)

NAMED DATA for PST_ASSIGN:

;;.TYPE;;

ARG/OVERLAY

;;USER;;

/PUT_SAVE=#USER/VALID=PROFIL.USER/POST='GET FILENAME=
OA$DIR:"*.PST".ALLBUTVER[PROFIL.DIRECT[USER]]\GET #FILENAME=FILENAME
\GET LOG$USERPST=#FILENAME'/PRE='DUMP_CACHE PST'

;;FILENAME;;

/PUT_SAVE=#FILENAME

```
;;SYMBOL;;

/RECOG=PST.NAME/SHOW=VALUE
/PUT_SAVE=#SYMBOL
/POST='GET CVALUE=PST.VALUE[SYMBOL]'

;;VALUE;;

/PUT_SAVE=#VALUE

;;MODE;;

/VAL=OA$TABLE:"A,C,D"/PUT_SAVE=#MODE

+ + + + + + + + + + + + + + + + + + + + + + + + + + + + + + + + + + + + + + + + + + +
! pst_assign.scp    reb, 02-Nov-1989 07:36

.label begin_here
 form pst_assign/pre=-
  'get user=direct=filename=symbol=value=cvalue=mode=""'
 .IF OA$FORM_TERMINATOR = 112 THEN .GOTO CANCELLED
 get log$userpst=#filename

 .if #mode eqs "A" then .goto ADD
 .if #mode eqs "C" then .goto CHANGE
 .if #mode eqs "D" then .goto DELETE

.label add
 .if #cvalue nes "" then .goto cannot_add
 write add pst name = #symbol ,value= #value
 .if oa$status nes "1" then .goto error
 get #test = pst.value[#symbol]
 .if #test nes #value then .goto error
 display Symbol has been added to specified account.
 .goto begin_here

.label cannot_add
 oa$msg_purge
 display You cannot add this symbol.  It already exists.
 .goto begin_here

.label delete
 prompt "Do you really want to delete this symbol?  [Y/N] "
 oa$fld_stay
 .if oa$prompt_text nes "Y" then .goto begin_here
```

```
write delete pst %key = #symbol
.if oa$status nes "1" then .goto error
get #test = pst.value[#symbol]
.if #test nes "" then .goto error
display Symbol has been deleted from specified account.
.goto begin_here

.label change
write change pst %key = #symbol ,value= #value
.if oa$status nes "1" then .goto error
get #test = pst.value[#symbol]
.if #test nes #value then .goto error
display Symbol has been changed in specified account.
.goto begin_here

.label error
oa$msg_purge
display For some reason, this didn't work.
.goto exit_procedure

.label cancelled
oa$msg_purge
display Operation has been cancelled at the User's request.
.goto exit_procedure

.label exit_procedure
.exit
```

CORRECTIONS ON 'INITIAL DEFAULTS' ARTICLE
Bruce Burson, BellSouth Services

[NOTE: I received this information from Bruce related to his article "Initial Defaults for ALL-IN-1 Users" as published last November. He did not detect my mistakes earlier because of an expired Newsletter subscription. PLEASE NOTE that the mistakes published were mine and not Bruce's! Bruce also had some very nice things to say about the Newsletter, and I know you join me in inviting Bruce to share other articles with us in the near future. ED.]

The sentence in the second paragraph which gives the location of the USER directory originally read:

In ALL-IN-1 v2.2, this directory is dev:[ALLIN1.LIB.USER] and in v2.3 it is dev:[ALLIN1.LIB_SHARE.USER].

The reference to the v2.3 location was omitted in the published article.

The name of the FDL file in the CONVERT command is SYSTEM_PST.FDL, not SYSTEM_PAST.FDL. Entering the command as printed in the Newsletter will result in an error.

Finally (and least important), our company name is BellSouth Services. There is no space in the word BellSouth.

WPS-PLUS FORUM: Wasted Blank Sheets of Paper!
Diana McLeod, Mustang Fuel Corporation

Q. I have an attached dot matrix printer. When I send a document to print, a whole piece of paper feeds through before it begins printing. It used to begin printing right where it was. What's going on? What do I need to do different?

A. With V2.2 of ALL-IN-1 you did not have to specify sheetfeeder control in the PG menu if you didn't have a sheet feeder attached. If one was specified, nothing really happened, the printer just ignored the instruction. However, with V2.3 you must specify NOTRAY in the PG menu. This will eliminate ANY extra pages being ejected, including the one at the end.

This will work with system printers as well. We have several LN03 system printers and if you specify NOTRAY in the PG menu, it will print the document and then eject one extra page at the end, which is the separator page. If you specify FRONT or REAR, you will get one blank page before AND after the document.

Send questions and comments to:
Diana McLeod
Mustang Fuel Corporation
2000 Classen Center East
Oklahoma City, OH 73106
(405)557-9400

NEEDED: SESSION CHAIRS FOR NEW ORLEANS
Clark Stockdale, Filmet Color Laboratories, Inc.

Do you want to meet OA Wizards with similar interests? Are you interested in learning more about Decus without any long-range commitments?

Become a VOLUNTEER session chair. It's fun and easy.

What does a session chair do? Welcomes the group on behalf of Decus, introduces the speaker, and insures that the session runs smoothly (dims the lights, flips overheads, etc.) During the question and answer period the session chair reminds the group to speak clearly, so that the whole group can hear.

Session chairs also have a direct input to the symposium committee through room count, and comments about the quality of the speaker, the topic and the audience receptiveness to the session.

How long does it take?

That depends on the length of the session. Choose sessions you are interested in, then be there a few minutes before the session begins to meet the speaker, find out how to pronounce their name and a little something for the introduction. That's it!

Will I get any special instructions from DECUS?

There is always a short meeting on Sunday evening before the Welcoming Reception just for Session Chairs. DECUS will give you some specific information and a quick overview of "How to be a good session chair."

It sounds great! How do I sign up?

In order of preference:

1) Write: Clark Stockdale
           Filmet Color Labs., Inc.
           7436 Washington Ave,
           Pittsburgh, PA 15218

2) Call me at (412) 351-3510 Ext. 233

For all the above include your full name, mailing address, and phone number. You may request a specific session(s) or type of sessions (technical, WPS-PLUS, mailbus, EDI, ALL-IN-1

NOTE Requests will be honored on a first-come, first-served basis.

Being a session chair is a great way to meet the speaker(s) and you're definitely guaranteed a "chair"!!!! It's easy to do but a vital job that must be done for every session given at Symposium. Help make New Orleans Symposium the best Symposium ever! Participate!

PERSONAL COMPUTER

SPECIAL INTEREST GROUP

NEWSLETTER

TABLE OF CONTENTS

PRO Section

PRO Public Domain Software Update
By Gary Rice

This month's updates come to you courtesy of Jacques LaFerriere (who provided me with a copy of the Spring '87 RSX SIG tape) and Bob Kosar. Bob, like Alladin, was trading "New Lamps for old". However, in Bob's case, he was offering to trade a copy of PRO/DECnet v1.0 for a copy of PRO/DECnet v2.1.

Catalog

#	Description
S87-1	SSP - Scientific Subroutine Package
	This is the old IBM Scientific Subroutine Package. It contains a large variety of scientific and statistical routines for general use. It compiles and appears to generate correct results using PRO/FORTRAN, RSX/FORTRAN and VMS/FORTRAN.
	FORTRAN-77
	4 diskettes; Sources ONLY, NO objects, NO task images
S87-2	This area contains Jim McGlinchey's "The Hitchiker's Guide to RSX"
	1 diskette; Text files ONLY
S87-3	Summary description of PDP-11 FORTRAN OTS
	1 diskette; Text files ONLY

S87-4 Task image disassembler
This was developed under RSX11-D and modified to work under RSX11M (and M+). Since RSX11-D was assumed at development, the extended instruction set of the 11/40-11/45 was assumed.
ALSO:
This account contains VCO, a program which compares two files block by block. It is intended mainly for comparing task images or object files. In addition it allows wildcards to be specified, thus allowing you, in particular, to compare two whole UICs.

MACRO
1 diskette; Sources ONLY, NO objects, NO task images

DEC-16 PRO/DECnet v1.0
The original version of PRO/DECnet.

4 diskettes; NO sources, NO objects, Task images; NO DOCUMENTATION

Thats it for this month.

Distribution of the Public Domain Library is handled in the following way: send me enough diskettes to hold the software you desire. Include a return mailer, box, carton, palette, etc. sufficiently large to hold the diskettes. Include enough postage to pay for the return trip. I will NOT use UPS. Sorry. 1st class mail is recommended, but parcel post is ok. I will then copy the requested software for you and send it along. Give me at least a week for ANYTHING (plus travel time). Large (more that 5 diskettes) orders will likely take longer. Specify the software you want by catalog number.

PLEASE don't ask for "specials". It took a lot of time to put THIS collection together.

Send your software requests to me:

Gary Rice
PC SIG Newsletter Editor
McDonnell Douglas
MS: K20/200
5555 Garden Grove Blvd.
Westminster, CA 92683
(714)952-6582

Workstations Section

DECwindows Update (VMS 5.3)
**By Mark Sebern Sebern Engineering Inc. P. O. Box 268 Cedarburg, WI 53012
(414) 375-2200**

Introduction
Due to the newsletter publication lead time, many of you will have already upgraded to VMS version 5.3, which includes an updated version of the DECwindows software (version 2.0?). For those who have not, here is a quick look at some of the new features and problems.

New User Features
Probably the most useful new feature of the session manager is the ability to set up which applications you want to be started automatically at login, using a selection box instead of having to add commands to the DECwindows startup command procedure. There are also several changes to File View, which make it a little easier to add your own applications to the pull down menus.

New Widgets
On the programming side, one notable addition is a color mixing widget that you can include in your own applications. (Naturally, this came out after I built my own facility to do the same thing.) Also new is a compound string text widget, which is like the simple text widget, but supports multiple character sets and writing directions. A gadget version of the pull-down menu entry widget is now available; I have yet to see how much performance gain results from its use.

In addition, many widgets now have new attributes, such as a second label for a message box widget. The UIL compiler also supports multiple callback procedures for a given reason (event type).

DECterm Port Routine Change
As mentioned in a previous article, the DECW$TERM_PORT routine now requires a CLASS S descriptor for the "result_dev" parameter. Prior to VMS 5.3, you could get by with just the address of a buffer. From Pascal in particular, declare this parameter with the [CLASS_S] attribute, or you will get back only the first character of the device name (typically an underscore character).

Screen Capture Problems
Unfortunately, with all this good stuff, a few things were also broken. The sixel screen capture/print function seems to be a case in point. Specifically, the quality of sixel capture output has deteriorated dramatically. I'm not sure, but there may have been some changes to the scaling algorithms. The result is that, with text especially, there is a pseudo-random "dropping" of pixels from the output image, rendering some text almost unreadable. This is a serious problem for people like me who use the sixel capture to import screen images into Interleaf's publishing software. So far, I have been able to get little satisfaction from Colorado CSC ("there's too much else to fix in 5.3").

Since the PostScript form of the screen capture still seems to work ok, one local DEC software type has suggested using DEC's "PostScript to SIXEL" conversion software as a work-around, though I have not been able to try that solution. The DDIF screen capture seems ok, too, though at a much different scale; unfortunately, the standard version of the CDA converter does not offer sixels as an output format.

While this is the worst problem I have come across with screen capture, there seem to be a number of others. The "print screen" print queue selection box often offers you the wrong format type, and I am told that the "color sixel" output format actually produces PostScript. So much for DEC's quality software development process and regression testing, I guess.

Conclusion
The new additions to DECwindows under VMS 5.3 are quite welcome, and I look forward to future development. It's just a shame that we have to take two steps forward and one step back, as we receive newly introduced errors as well as features.

[[Late News Flash]]
After requesting a local office referral on the screen capture quality problem, and escalating it to the corporate level, I did get a fix which seems to restore the pre-5.3 behavior. The patch identification is DECWPRINT$PATCH02_530. The tape I received had the saveset name messed up so it was necessary to copy the files to disk before invoking VMSINSTAL. This kit installs a patch to SYS$SYSTEM:DECW$SESSION.EXE, which takes effect after you log out and then log back in. (Special thanks to Tony Bigonia, Bill Weis, and Adrian Hackl of the Milwaukee DEC office for expediting this fix.)

Rainbow Section

Rainbow Bibliography - Part 8: the Letter L
By Dr. Thomas Warren, PC SIG Session Notes Editor
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The Bibliography that follows is reprinted here in serialized form with permission of:
Rainbow News, P.O. Box 567, O'Fallon, IL 62269, (618)632-1143

What follows is a selected bibliography of articles on the Rainbow. It is selective because it is not complete and not complete because I have not seen everything available. It is, however, complete enough to get the interested party started.

That is a small hint. Let me make a bigger one. IF YOU KNOW OF RAINBOW ARTICLES, PUBLICATIONS, BOOKS, ETC. THAT AREN'T LISTED HERE, PLEASE CONTACT ONE OF THE PC SIG STEERING COMMITTEE. Your input to this monumental effort on Tom Warren's part is VERY MUCH DESIRED! Our addresses and phone numbers appear at the back of these Newsletters. Ed. Each section is headed by a KEYWORD, a list of which are attached in an appendix. *This month, my quota of 25 pages allows me to include the letter "L" of the bibliography. Ed.*

LA50

Crayne, William C. "LA50 Printer Control Functions", RAINBOW NEWS, Vol. 4, No. 7-9 (July-Sept., 1987), 34-35. (LA100, Printing, Printers)

"DEC Notes", WASHINGTON AREA RAINBOW USERS GROUP NEWSLETTER, Vol. 2, No. 7 (July, 1987), 15. (Hardware, Networking, LA50) Salazae, Kim Brody. "WordPerfect: On Beyond Zebra", WASHINGTON AREA RAINBOW USERS GROUP NEWSLETTER, Vol. 2, No. 8-9 (August-Sept., 1985), 6-7, 19. (Wordprocessing, LA50, Printing, Printers)

Fitzgerald, Dennis K. "Product Review: Graphwriter", WASHINGTON AREA RAINBOW USERS GROUP NEWSLETTER, Vol. 2, No. 6 (June, 1985), 3-4. (Graphics, Printers, LA50, LA100, Multiplan)

Geremia, Ken. "Preparing a Videoprompter Script", WASHINGTON AREA RAINBOW USERS GROUP NEWSLETTER, Vol. 2, No. 7 (July, 1985), 9-10. (WordStar, Wordprocessing, LA50, Printing)

Idoine, Jane and Janet Turner. "Using Alternate Fonts and Type Sizes in WordPerfect with an LA50 Printer", WASHINGTON AREA RAINBOW USERS GROUP NEWSLETTER, Vol. 2, No. 7 (July, 1985), 8-9, 17-22. (Wordprocessing, Printers, Printing, Typefaces)

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Macintosh Section

Macintosh Connectivity Survey
By Kent Behrends, Macintosh Working Group Chair

In the questionnaire section of these newsletter you will find the survey which I promised at the Fall'89 DECUS symposium. The survey will run from February through April at which time I will
> (1) publish the results here,
> (2) solicit a response from Digital, and
> (3) solicit a response from Apple.

I plan to make this working group a driving force in the VAX/Macintosh world. Please help me in this by filling out and returning the survey. Thank you.

PCSA Section

PC Integration Product Update
By Anita Uhler, Digital Equipment Corporation

Slides from the Fall '89 DECUS Symposium session PC068 are reproduced here for the benefit of those people who could not attend the symposium itself. Ed.

PC Integration
Product Update

Anita Uhler, PCSA Product Manager
Personal Computing Systems Group
Digital Equipment Corporation
Littleton, Massachusetts, USA
US DECUS, November 1989

PC Integration Product Update/Nov 1989

PC Integration Products

- VMS Services for PCs
- DECnet PCSA Client for DOS
- PCLAN/Server
- DECnet for OS/2
- Network Integration Products
- DECstation Personal Computers
- Future Directions

PC Integration Product Update/Nov 1989

New PC Integration Products

- **Announcements This Week**

Product Announcements
- VMS Services for PCs Version 3.0
- DECnet PCSA Client for DOS Version 3.0
- PCLAN/Server 3100 Version 3.0
- DECnet for OS/2 Version 1.0

Program Announcement
- DECnet PCSA Client for OS/2 Version 1.0

PC Integration Product Update/Nov 1989

VMS Services for PCs
DECnet PCSA Client for DOS

Version 3.0 Requirements

- Increase performance
- Reduce memory requirements below 640KB mark
- Ship it

PC Integration Product Update/Nov 1989

VMS Services for PCs

Version 3.0 Summary

- Performance improvements in file server:
  Provide data caching in the file server.

  Placing files that have been closed into a cache for a short period of time in case the client requests that the file be reopened.

  Implementing the SMB raw protocol extensions supported in the Microsoft's LAN Manager Basic Redirector.

- PCSA Manager provides menu selection for HP Laserjet printer.

- VMS Version 5.1, 5.2 support.

PC Integration Product Update/Nov 1989

VMS Services for PCs

'Your Performance May Vary ...'

- PC Magazine Benchmark ... measures speed of random and sequential reads and writes of files over the network.
- MicroVAX 3100 and one IBM PC/AT 6mhz client.
- Using 'typical' office applications.

PC Integration Product Update/Nov 1989

VMS Services for PCs

Version 3.0 Summary—Packaging

Kit	Media
VMS Services for PCs	Magtape
	TK50
	RX33

PC Integration Product Update/Nov 1989

DECnet PCSA Client for DOS

Version 3.0 Summary—Memory

BIGGEST SAVINGS ACHIEVED BY USING:

- Expanded Memory Specification (EMS) Version 4.0 support for 286 machines.
  The PC must be configured with a user-supplied Expanded Memory Specification (EMS) Version 4.0 software driver.
  EMS Version 4.0 hardware support is required for 8088, 8086, and 80286 Intel (TM) processors.
- Expanded Memory Managers for 386 machines.

PC Integration Product Update/Nov 1989

DECnet PCSA Client for DOS

Version 3.0 Summary—Memory

Other Savings by ...
- Code optimization.
- Capability of loading the LAN Manager basic Redirector into the High Memory Area (HMA) portion of extended memory.
  The configuration must have a minimum of 64KB of extended memory and either the DIGITAL-supplied driver, HIMEM.SYS, or a vendor-supplied high memory manager which supports Extended Memory Specification (XMS) Version 2.06.
- For PC configurations where EMS is not available, DECnet PCSA Client for DOS software provides the user with the ability to unload network components without rebooting.
- LAT automatically loaded/unloaded when SETHOST is invoked.

PC Integration Product Update/Nov 1989

DECnet PCSA Client for DOS

'Your Memory May Vary ...'

Memory savings will vary depending on:
- Processor type
- DOS version
- Ethernet controller type
- Remote boot enabled
- EMS utilized
- EMS driver size
- XMS utilized

PC Integration Product Update/Nov 1989

DECnet PCSA Client for DOS

Version 3.0 Summary—PC DECwindows

What is PC DECwindows Display Facility?
- An MS-DOS X server that uses the industry-standard X Window System, Version 11 (X11), protocol.
- Allows the PC user to display and manipulate VMS and ULTRIX DECwindows applications that are executing elsewhere in the DECnet network.
- A DECwindows application executing on a remote VMS or ULTRIX system with DECnet may be displayed on and receive keyboard and mouse input from the personal computer.

PC Integration Product Update/Nov 1989

DECnet PCSA Client for DOS

Version 3.0 Summary—PC DECwindows

Goal was to reduce memory usage and increase performance:
- Uses new memory management architecture so that it is able to address up to 16MB of physical PC memory (instead of standard 640KB) by using DOS extenders.
- Requires additional extended memory over and above the conventional, EMS, XMS memory required by other PCSA components.
- Virtual memory support.
- With new memory managements schemes, there is sufficient memory for PCs to display all the DECwindows core applications and layered applications.
- Supported on 80286 and 80386 machines.

PC Integration Product Update/Nov 1989

PC-15

DECnet PCSA Client for DOS

Version 3.0 Summary—DECnet-DOS

- Ability to use DECnet-DOS only.
- DIP now called INSTALL. INSTALL when installing to local hard disk using floppy media kit (Ethernet or asynchronous DDCMP connections.)

DECnet PCSA Client for DOS

Version 3.0 Summary—Certified PCs

- DECstations
- IBM PC, XT, AT
- IBM PS/2 Models
- COMPAQ Models
- Olivetti Models
- Zenith Models

Refer to DECnet PCSA Client for DOS System Support Addendum (SSA) for details.

DECnet PCSA Client for DOS

Version 3.0 Summary—Certified PCs

"DECnet PCSA Client for DOS V3.0 has been tested on the preceding supported configurations. If a customer problem with DECnet PCSA Client for DOS can be reproduced by the customer on one of these supported configurations, DIGITAL will work the problem to resolution on these supported configurations. If the customer problem can not be reproduced by the customer on one of these supported configurations, it will be the responsibility of the customer to resolve the issue."

DECnet PCSA Client for DOS

Version 3.0 Summary –
Supported PC Ethernet Cards

- Digital's DEPCA, multi-buffered PC Ethernet controllers
- 3COM 3C503 (Etherlink II)
- 3COM 3C523 (Etherlink/MC)

'Unsupported', but provide drivers for single-buffered Ethernet controllers:

- 3COM 3C500B, 3C501
- Interlan NI5010-1 and NI5010-2

DECnet PCSA Client for DOS

Version 3.0 Summary—Licensing Changes

DECnet-DOS Users

- DECnet-DOS only available in DECnet PCSA Client for DOS.
- Under service contracts, will receive entire DECnet PCSA Client for DOS media/documentation kit. License is upgraded at no charge.
- NOT under service contracts, need to purchase upgrade to full Client license (QBZP5-UZ)

ALL-IN-1 MAIL Users

- New DECnet PCSA Client for DOS licenses purchased will now include ALL-IN-1 MAIL Client for DOS license.
- Under service contracts, will receive ALL-IN-1 MAIL Client for DOS license at no charge. (Still need to purchase separate media doc kit for client. Still need to purchase server license and media/doc kit.)
- NOT under service contracts, need to purchase upgrade to license (QL-VZ8AW-AA).

DECnet PCSA Client for DOS

Version 3.0 Summary—Packaging

Kit	Media
DECnet PCSA Client for DOS	RX01 (*)
	RX04 (*)
	RX08 (*)
	TK50/RX01/RX04
	Magtape/RX01/RX04

IMPORTANT!

(*) Order ONLY for:

1. DECnet-DOS
2. Asynchronous DECnet
3. VAXmate Services for MS-DOS
4. PC DECwindows Display Facility with ULTRIX

VMS Services for PCs
DECnet PCSA Client for DOS

Version 3.0 Summary –Documentation

- User doc (QA-0TLAA-GZ).
  Basic user doc = Guide for New Users, PCMail, SEDT, etc
- 'Advanced' User doc (QA-0TLAD-GZ).
  All DECnet-DOS documentation.
- H kits (media/doc) include all of the above, plus relevant installation, configuration, memory hints documentation.

NEW memory configuration documentation

VMS Services for PCs
DECnet PCSA Client for DOS

Version 3.0 Summary—Other Changes

- Name changes to VMS Services for PCs and DECnet PCSA Client for DOS. controllers.
- New configuration tool (NETSETUP).
- MS-Windows applications (VT320, OUI) and device drivers (keyboard, printer) included.
- EMSSPEED – new utility to measure performance of EMS boards.

VMS Services for PCs
DECnet PCSA Client for DOS

Version 3.0—Seminar Series

- PCSA System Management Seminar
- EY-E547E-S0
- Register by:
  a. Call training center
  b. DIGEST in Educational Services Bookstore in exhibit area
  c. Call (800) 332-5656

PCLAN/Server 3100

Packaged System

- Mid-range LAN server for PCs
- 10 - 50 active PCs (typical)
- Simple to install, configure and manage
- Powerful server and proven network
- Multi-vendor PC integration
- Flexible growth

PCLAN/Server 3100

Hardware

VAXserver 3100 with
- 2.4 VUPS CPU
- 8 MB memory (expandable to 24 MB)
- 4 asynchronous lines
  - Serial port for terminal console
  - Serial port for modem/printer
  - Two serial ports for printers
- Ethernet Controller
- RZ23 (3) 312 MB hard disk storage
- TZ30 95 MB tape driver
- VT320 console
- WAN Configurations:
  - DECnet
  - P.S.I. X.25
  - SNA Gateway

PCLAN/Server Software

- VMS V5.1 (server license and media)
- DECnet-VAX V5.1 (end-node license and media)
- PC Integration Software:

  - VMS Services for MS-DOS (license included with DECnet-VAX)
  - DECnet PCSA Client for DOS
- Software on single TK50; VMS pre-sysgened, tuned
- Software installation via backup

DECnet for OS/2

New Product!

- Phase IV DECnet end node
- Ethernet support (DEPCA, 3C503, 3C523)
- OS/2 V1.0 and V1.1 support
- MOP support
- Utilities:
  a. NCP - network management
  b. SETHOST - VT220 (scripting, multiple sessions)
  c. NFT - File transfer of ASCII and binary
  d. NDU - Virtual disk and print services
  e. Task-to-task communication
  f. Support for compact, small, medium memory models

PC Integration Product Update/Nov 1989

DECnet PCSA Client for OS/2

Program Announcement

- OS/2 Version 1.1 support (including Presentation Manager)
- LAN Manager support
- Disk, file and print services from VMS Services for PCs Version 3.0
- DECnet for OS/2 is an integral component (including NDIS support)
- Applications and utilities
  a. VT320 terminal emulation (SETHOST)
  b. PCMail
  c. Broadcast/receive
  d. SEDT
  e. USE
- NDIS drivers for DEPCA, 3C503, 3C523
- 80286, 80386 support (including IBM AT and PS/2, COMPAQ, Zenith, Olivetti, DECstation models

PC Integration Product Update/Nov 1989

PC Network Integration Products

- Based on DEPCA (Digital Ethernet/mouse PC Adapter)
- Connects PC to Ethernet V2.0 and IEEE 802.3 local area networks
- High performance — based on LANCE network controller with 48 Kbytes of RAM for multi-buffering
- DEPCA Rev E supports DEPCA/EGA/LIMS configuration
- Includes Data Link Layer and self-test firmware in on-card ROM

PC Integration Product Update/Nov 1989

PC Network Integration Products

Configurations

Configuration	Content
DEPCA-AA	Ethernet/Mouse Controller Board only; no license
DEPCA-BA	Ethernet/Mouse Controller Board and DECnet PCSA Client for DOS license
DEPCA-Kz	Ethernet/Mouse Controller Board, LK250 keyboard for IBM PC family, mouse, and DECnet PCSA Client for DOS license
DEPCA-CA	Ethernet/Mouse Controller Board, mouse, and DECnet PCSA Client for DOS license

PC Integration Product Update/Nov 1989

DECstation PCs

System Features

- DECstation 210 = Intel 80286, 10MHz system (US)

- DECstation 316 = Intel 80386, 16MHz system (US)

- DECstation 320 = Intel 80386, 20MHz system (US)

New DECstations

- DECstation 212 = Intel 80286, (US, Int'l)

- DECstation 200 = Intel 80286, (Europe)

- DECstation 300 = Intel 80386, (Europe)

- DECstation 350 = Intel 80386, (Europe)

PC Integration Product Update/Nov 1989

DECstation PCs

Common System Features

- IBM compatible and industry-standard
- Can support serial and parallel printers
- Built-in 3.5", 1.44 MB disk drive
- 16 MB maximum memory
- MS-DOS 3.3 operating system
- 101-key enhanced keyboard
- Choice of 14-inch color or monochrome monitor

PC Integration Product Update/Nov 1989

DECstation PCs

System Options

- DEPCA-CA (Ethernet/mouse controller)
- Memory expansion options to 16MB
- Math Co-processor
- Serial and parallel adapters
- SCSI disk drives: 40 MB, 80 MB, 170 MB
- SCSI tape cartridges: 150 MB
- 20MB and 40 MB IDE disk drives and interface board options
- MS-DOS
- 8 or 16-bit VGA graphics options

PC Integration Product Update/Nov 1989

PC Integration Directions

Continued PC Integration through Network Applications Support Program

- 'Program Announcement' of DECnet PCSA Client for OS/2
- Support of additional PC compatibles
- Support for future DOS versions
- Support of Macintosh

PC Integration Product Update/Nov 1989

Personal Computing
Systems Architecture

1. Definition
2. Server Software
3. Client Software

Personal Computing
Systems Architecture

Definition

- An extension of Digital's systems and networking architecture to the PC desktop
- Transparently integrates personal, departmental, and organizational computing
- Provides direct access to shareable resources: applications and data, disks, printers, network gateways
- Provides simplified, centralized management for end-user computing
- Provides flexible, incremental growth
- Implements file and resource sharing in the Network Applications Support (NAS) program

Personal Computing
Systems Architecture

Components

- Server = Any VAX/VMS system on DECnet network
- Client = PC

Client and server software work together

VMS Services for PCs

Server Software

- Provides resource sharing (applications, data, physical devices)
- Software resides on VAX (layered VMS application)
- Based on DECnet
- Any VAX/VMS system can be a server
- Servers appear to users as local disk drives
- Users can access multiple servers anywhere across the network
- File server makes files on VAX accessible to both VMS and MS-DOS applications
- One single set of data files can be stored in one place shareable by MS-DOS and VMS users with no transfers or conversions required

VMS Services for PCs

- **File Services**
- **Disk Services**
- **Print Services**
- **Device Sharing**
- **Server Management and Control**
      Broadcast
      File security
      System Admin utility

VMS Services for PCs

File Services

- **PC data stored on VAX in RMS format (stream or sequential fixed-length records)**
- **Automatically delivered to MS-DOS users in MS-DOS format with no knowledge of network required**
- **Same data files directly accessible to VMS terminal users**
- **Allows multiple readers/writers**
- **Supports Microsoft's LAN Manager basic file and print services and NETBIOS file sharing**

VMS Services for PCs

Disk Services (LAD)

- **PC system software, applications and private data stored in DOS container file on VAX**
- **Allows multiple readers or single writer to disk**
- **Supports floppy remote boot**
- **VMS Access to LAD**

VMS Services for PCs

Device Sharing

- **Transparent sharing of print services and other physical VAX-based devices**
- **Printer support**
    - **Implemented as part of file server**
    - **Looks like local printer connected to PC**
    - **Allows users to connect to and use printers connected to a VAX/VMS system**
    - **Ability to delete print queue from PC**
    - **Ability to set qualifiers on VMS print commands**

VMS Services for PCs

Server Management and Control

- Uses VMS Access Control Lists for file and print services
- Uses password control and privilege assignments for disk services
- Supports cluster-wide locking
- Allows restriction of number of simultaneous client connections to a resource for license compliance
- Lists resources, current connections, sessions, etc.
- Ability to limit repeat log-ins from PC
- Remote boot (and floppy remote boot) for PC clients
- Broadcast—send messages about server to all or selected users
- Administration Utility — menu-driven

DECnet PCSA Client for DOS

Client Software

- Client and server software work together
- Microsoft's LAN Manager (basic file and print services) and NETBIOS on top of DECnet
- Access to VMS Services for PCs
- Utilities to help manage PCs
- Transparent network I/O
- Offloads VAX — word processing, spreadsheets done on PC end
- Runs industry-standard DOS applications in networked environment

DECnet PCSA Client for DOS Version 3.0

Client Components

- DECnet-DOS
- Microsoft's LAN Manager basic file and print services, NETBIOS programming interface support
- PC Mail, SEDT full-screen editor
- VT320 (windowed) and SETHOST (non-windowed VT220) terminal emulators
- PC DECwindows Display Facility Version 2.0 (MS-DOS X Server)
- Support for DOS Version 4.0, 3.3
- Floppy Remote Boot
- Configuration Tools

RSX

MULTI-TASKER

DECUS
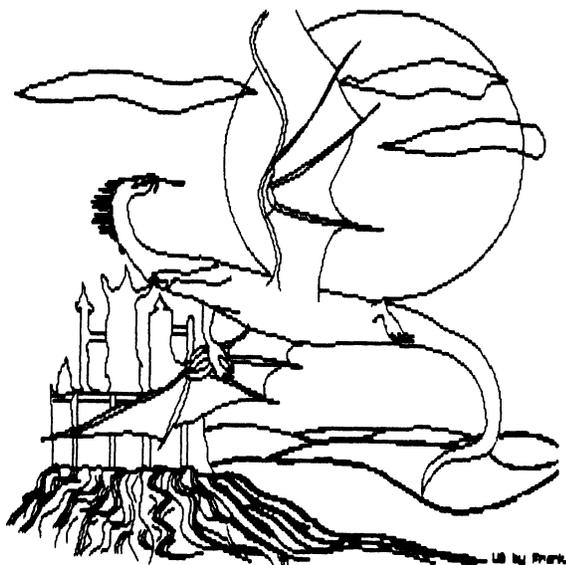
THE RSX/IAS MULTI-TASKER

April 1990

"In hoc signo foobar in XVI bitae"

Fine Realtime Commentary
Since 1975

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Editor's Corner

Phil Hannay, RSX Editor
Frank Borger, IAS Editor
Bruce Mitchell, Minister of Propaganda

----- Editorial: Time For A Change -----

Bruce R. Mitchell
Machine Intelligence and Industrial Magic, Consultants
390 North Shore Drive, RR #1, Box 216
Fountain City, WI   54629

The Editor Emeritus again picks the locks on the Editor's
office   door   to   inject   an   editorial,   this time with some
speculations on our favorite computer company, our favorite
operating system, and things that could be - but aren't -
happening with it.

RSX has been around a long time, and that's a fact. I have
an RSX-11M V2 kit on RK05 on the shelf here looking at me. The
label on this DEC distribution pack DEC-11-OMOJA-B-MC, RSX-11M
V02 BL12 MAPPED OBJECTS, says 4/22/76. That is confirmed by the
pack sticker which says APR 23 '76. So 11M has been around at
least 13 years, and RSX as a concept has been around longer than
that.

RSX has been ported forward to VAXes, Dave Cutler having
taken it as the basis for VMS. It's not recognizably RSX there,
but much of VMS comes from the RSX environment and can be traced
back there with no difficulty.

But that's the only new environment RSX has entered over the
last 15 years, disregarding the abortive flings into TRAX, SCS-11
and P/OS. Arguably, this is because DEC has introduced no new
platforms over the past 10 years. DEC has all its eggs in the
VAX basket, and has not released one new product / operating
system pair in the last 10 years.

That's not healthy. A company that makes only widgets may
find one day that there is no longer a market for widgets. Where
today are the manufacturers of buggy whips, parlor stoves and
crank telephones?

RSX is fundamentally a real-time system. Today, most OEM
real-time work is being done in the VMEbus environment with
68000s. And the major operating system in that environment is
(gag) Unix. Primarily because nothing better is available. It's
Unix or nothing.

Imagine what would happen if Digital released an RSX to run on the 68000. User-written drivers are supported and encouraged; certainly that's an attractive feature to OEMs, with the vast array of VMEbus cards available. In the 32-bit address space, with the necessity for PDP-11 memory mapping removed, what couldn't an RSX system do?

I'm not saying that this would be an easy port. There are lots of differences between RSX-11 and a hypothetical RSX-68, memory mapping actually being one of the simpler problems. But the architecture of RSX is good for the proposed environment, and it wouldn't be like writing an operating system from scratch.

The hardware is available. The platform is there. No development cost for that. All DEC would have to do is port the operating system and sell it. There are rumors from Europe that a user has done it, as a matter of fact. Is it feasible? Hell, yes. Would it sell? Sure. Look at all the utilities and the clean interface.

Will Digital do it? Probably not. Why? I don't know. They justify these decisions with "the ROI on VAXes is better than doing speculative development".

That's fine until the day comes when VAXes don't sell so well, and there's no diversifcation to fall back on.

I have a coffee cup from a recent Symposium that loudly claims "Digital is a software company."

OK guys, if so, let's see you prove it. Put up or shut up.

You are encouraged to submit articles to the Multi-Tasker. No article is too big or too small. They can be serious or funny, and of any techinical level.

Please submit machine readable media if possible. Hardcopy submissions are okay if they are fairly short. Illustrations and drawings that can be photocopied may accompany the article. Most any media is acceptable, however RX50, RX01/2, TK50 and 1600 BPI magtape are preferred. All RSX volume formats are acceptable, and VMS formats are also acceptable on RX50, TK50 and 1600 BPI magtape.

You can also submit articles through the RSX bulletin board system at (612) 777-7664. Kermit the file into your account and then send it via MAIL to username MULTITASKER.

The Multi-Tasker begins life as a RUNOFF file, so feel free to submit your articles in RUNOFF format. The page size will be 80 columns by 58 lines, with the left margin at 10 and right margin at 75. Use literal format for code examples. If you change margins, use incremental changes rather than absolute.

Mail your articles and other submissions to:

Phil Hannay
Cargill Research Bldg
Box 9300
Minneapolis, MN. 55440   tel. 612-475-5433 (daytime)

----- Bulletin Board Notes -----

The RSX Bulletin Board is proud to announce the addition of a TU-60 DECcassette tape drive. No longer do you need to be an island of automation simply because you still use the CAPS-11 operating system. The bulletin board wizards are busy working on an audio to DDIF converter that will allow you to include Led Zeppelin excerpts in your WPS documents.

We continue to work on a collection of the latest RSX goodies. The latest version of MCE, a command line editor, is available in directory DE:[210,1]. It tracks the VMS command editor very well, and has many nice features. The symbolic task zapper (KTZ) described in an article below is found in DE:[377,65]. Old standbys like Kermit, RSX Network mail and Cookie are also available.

As always, contact Jim Bostwick, at 612-475-6264 (daytime) if you wish to donate some equipment.

You can log into the BBS at 612-SPR-PONG (612-777-7664). The line will always do 100-1200 baud, and often 2400 (depending on when the owner of the 2400 modem last went looking for it). New users should log in with username ACCOUNT and password REQUEST. This will get you a registration procedure. You'll need your DECUS membership number in order to get a permanent account.

############### ARTICLES ###############

------ RSX/IAS Hall of Fame ------

T. R. Wyant, Curator
E. I. DuPont de Nemours

As the RSX/IAS SIG matures (or at least grows older), there is a tendancy to reflect on what has gone before, savoring those things that make the PDP-11 and RSX unique. The RSX/IAS Hall of Fame was inaugurated during the Fall 1988 Symposium to honor and preserve for posterity the most famous/notorious (pick one) features of the computing environment we have come to know and love.

We present two more categories that were selected, field-tested, presented, and voted on.

** Favorite Backup Utility **

You'd like something more substantive, you say? Well, perhaps the last two categories were somewhat frivolous. We continue the Hall of Fame with a subject vital to all of us: backup utilities. Backups are like health insurance: most of the time they're a pain; but when you need them, they're a lifesaver. The desirable qualities in a backup utility are speed, accuracy, and flexability. Let's see how our plethora of candidates stacks up:

* BRU

    The favorite of the educational community, BRU has caused more people to learn about the FILES-11 On Disk Structure than any other single component of RSX.

* DSC

    Bruce Mitchell said it best:

    "Disk Save and Corrupt it works real good,
    The volumes it writes are a sin,
    The index file moves to the low blocks,
    My Ghod how the files ..."

* ROLLIN

    How do you follow that kind of introduction?

*   SHA

    No muss, no fuss, and up-to-the minute. But if you put too
    many wildcards on a delete, well ...

*   PRESRV

    Absolutely accurate, and you can even copy a virgin system.
    Only trouble is, you have to take RSX down to use it.

*   PIP

    PIP originated as a test program for F11ACP. In a way, that
    makes it a system manager's dream: a backup utility at least
    as accurate as the file system that supports it.   But it's
    slooooow.

*   TPC

    Being a DECUS utility, the price is right.   And unlike
    PRESRV, TPC runs UNDER RSX, not INSTEAD of it.

But when the dust had settled, the jury preferred

                               FLX

And why not? Who knows when you may need to read your backup
tapes under RSTS? Or even (gasp) VMS!

                ** Worst Command Syntax (MCR) **

     They say the good old days are now. Time was, anyone who
wanted to do ANYTHING with RSX had to pass a series of tests, to
prove he was worthy to use this operating system. The first test
that confronted the aspirant was called "MCR".

     There was never to my knowlege any organized effort to
standardize the syntax of MCR commands.   There were a few
unifying themes, stemming generally from the fact that many of
the commands and utilities used the CSI$ parser, and similar
pragmatic considerations. But within these loose and ill-defined
limits, the developer of a given command seems to have been free
to define the syntax any way he pleased.

     In this kind of sink or swim environment, some inevitably
sink.   So, the RSX/IAS Hall of Fame commemorates those shining
examples of obscure syntax that have plagued generations of
hackers, and choses the Worst Command Syntax in MCR:

*   QUE

    This one command did more to drive me to DCL than any other.

*   BRU

    BRU is a prime example of the "gotcha" school of human
    interface design philosophy: "We know what environment
    you're operating in, but we'll make you tell us anyway, and
    then crash and burn if you're wrong!"

*   LBR

    Certainly any MCR command that puts an output file to the
    right of the equals sign deserves marks for originality.

*   RPT

    We asked for better error logging and reporting. It is well
    and truly said, "be careful what you ask for; you might get
    it!"

*   LOA

    A dark horse candidate. The command syntax is actually
    straightforward enough. But when you realize that the parser
    takes a completely DIFFERENT code path for /VEC/EXP=... than
    it does for /EXP=.../VEC, it opens up entire new worlds of
    obscure syntax.

It was the considered opinion of our distinguished panel of
jurors that the above commands all had such terrible syntax that
they should be inducted en masse into the RSX/IAS Hall of Fame.
That being the case, multiple awards were given, and ALL nominees
received recognition in the MultiTasker. After all, fair is
fair.

```
------ Kludge-o-matic Task Zapper ------

                    David F. Mischler
                4389 Chestnut Ridge Road #5
                   Tonawanda, NY 14150
```

I've always wanted a version of ZAP that would allow the use of symbols, instruction mnemonics, etc. An overdose of caffeine has caused me to hack a limited version for M-PLUS.

A couple of years ago I started writing a symbolic debugger to replace ODT. The result is a two-task debugger; it is now available on the RSX BBS. A while ago I realized that I could substitute routines to manipulate a task image file instead of playing with target task memory (history repeats itself: I bet this is how ZAP grew out of ODT). The resulting program, KTZ, permits you to play with task images using global symbols, except that it doesn't understand overlays. You can even use it on RSX11M.TSK or RSX11M.SYS!

To build KTZ, assemble and task build the sources with the following MCR commands. Replace [DBG] with wherever you put the code. I put KTZ.TSK in my LIBUIC, and let catchall install it for me.

(Editor's note: KTZ sources can be found on the RSX bulletin board on the DECUS disk directory DE:[377,65]. See page RSX-4 for info on accessing the bulletin board.)

```
        MAC @DBGASM  ! Sorry, this takes a while.
        MAC TSKIMG=LB:[1,1]EXEMC/ML,SY:[DBG]DBGPRE/PA:1,TSKIMG
        TKB @KTZBLD
```

The following example shows the use of KTZ to change the system name.

```
        KTZ LB:[1,54]RSX11M.SYS

        Kludge-o-matic Task Zapper V1.8 - RSX11M
        I 000000-073577
        KTZ>; Load executive symbol table
        KTZ>LOAD LB:[1,54]RSX11M
        KTZ>; Check current system name
        KTZ>EXAM/ASCII $SYSNM:$SYSNM+5
        $SYSNM:          GRUMPY
        KTZ>; Change system name
        KTZ>DEP $SYSNM="SL,"EE,"PY
        KTZ>; Check new name
        KTZ>EXAM/ASCII
        $SYSNM:          SLEEPY
        KTZ>EXIT
```

KTZ has brief internal help; the debugger manual documents all of the KTZ commands as well. KTZ can accept input from an indirect command file, and can generate a log file. Memory can be displayed in octal, hex, binary, decimal, RAD50, and ASCII, as well as instruction mnemonics. The /RO switch is supported on the task image file to indicate read only access.

There is a problem with the use of KTZ on an I/D space system image: since D space is set up by VMR, KTZ doesn't know how to find it. This is not much of a problem since most things you will want to patch are in APR 0, which is mapped the same for I and D space.

RSX SIG Question and Answer Session
DECUS Europe Symposium, Cannes September 1988

Transcription: John Pickard, DECUS U.K.
Submitted by: Jan Belgraver, European RSX SIG Core Group

Key:

A   = Answer
Aud = Audience
E   = Editor's note
Q   = Question

1. Q: When you log off, why is the terminal put on half duplex?

   A: Because it's always been so! This caused a problem in CP/RSX
      and the code forces it to full duplex for CP/RSX, otherwise it
      is forced to half duplex. Does putting it to half duplex cause
      a problem, and would that problem be removed if we forced it
      to full duplex when we log out?
      I've got one yes (vote).
   E: There are two situations in which a terminal is reset to half
      duplex. When a user logs out, BYE resets the terminal to half
      duplex, and it remains that way when the nest user logs in.
      If a LAT terminal is set to full duplex when no one is logged on,
      the initialization for the LAT terminal also resets the terminal to
      half duplex. This is the expected and desired behavior in the
      general case. (according to Brian McCarthy in Multi-Tasker in
      combined US SIGs Newsletters, 4(2) Oct-88 page RSX/IAS-6; JHB)

2. Q: Yes it does on a remote line.

   A: I believe in all honesty , and I've been the BYE maintainer
      for a couple of years, it was done so that the next time
      somebody logged in it would be predictable, why half rather
      than full nobody seems to know and we could probably change it
      to force it into full. Hopefully nobody would find it a
      problem because of that, so far I've heard three votes for full
      rather than half, so we'll take a look at that.

   A: I suspect part of it is historical from 11M to 11M+ back when
      there was no full duplex terminal driver BYE put it in the
      state that it is, so that we knew what it was and then when M+
      came along and the full duplex terminal driver was fairly
      standard we left it that way.

3. Q: Why isn't the full duplex driver for terminals full duplex? If
      you want to read and write simultaneously, it doesn't work,
      because the QIO for the write waits for the read. There's a
      way round it with AST's I know but I thought full duplex means

full duplex.

A: We have no idea (laughter...) give it to the languages guys! What you have just discovered is that we are not terminal driver people and we can't answer that one at all. I know there is a mode in which VMS can do what is true full duplex we'll take a look, or ask the terminal driver maintainer to take a look at it, I'm not sure if it can be done within the architecture without a major change. I'm sure it's not the first time the question has come up either, so... sorry. We will take another look at it.

4. Q: I don't know if I've asked this question before but I'll do it again for the record. Would you consider to place IPP on the M kit?

   A: In the context of M being a stable product and one that we are only, I won't say enhancing, but increasing only to add hardware support this would run slightly contrary to that philosophy and in all honesty I'm not sure that you coudn't move IPP over from an M+ system to an M and have it work because it is a non-priviledged task and everything runs fine. I assume everything runs fine, we've only seen one SPR since it came out. So that is another way to do it for those who have both M and M+.
   Again it's something we could take a look at, in general we are not increasing what we provide on M because it's stabilised, but it's worth taking a look at.
   Also a part of that decision which is correct is it's very, I would say even more unlikely, simply because of the decision to keep the kits exactly as they are,
   Also partly because the distribution kits are in some ways full, putting more things on them could increase the size of the kits. If we find that that's the case or even close to that we would never do it. Otherwise, I don't know, it would have to be a strong case.

5. Q: I think it's also missing on the pre-genned M+ kit and Micro/RSX.

   A: It was missing on the 4.0 pre-genned kit, I think it's there on 4.1 and I know it's going to be there on 4.2. There was a small procedural problem in the way pre-genned kits were built, it was caught just in time I think for Micro, it wasn't caught for pre-genned RL02. I believe it is OK now for 4.1.

6. Q: I have a little question I don't know if you can answer, perhaps you could pass it over to the DECNET people. As a novice user of DECNET and implementing it I had some problems afterwards to decide which tasks I should really keep and to find a description of each task in the DECNET manuals as to what they do. It is really very beautiful but I had a problem because I would like to have the description by the process as to which tasks I have to use for each process.

Aud: In the new V4 DECnet documentation there is a chapter
describing nearly all the tasks and indicating if they are
needed on the system or if they are optional.

7. Q: We had a problem with 20 Milliamp interface on a PDP11/23. I
want to ask if there are problems, there are 7 terminals, the
interface is from Burobrands, not Digital, the interface is
good, the terminals are alright but something made the task
that we wrote hang. It works as follows: the terminal, you put
data in it, the programme polls the terminals, it can last for
hours or 10 seconds or 30 seconds and suddenly stops. We tried
everything but we do not know anymore.

A: Are the tasks hanging because the IO is in run down state? I
don't know if there is anything we can do without looking a
lot more at the condition of your system. I don't think there
is truely something wrong with your system, there is just
something in the manner which the IO is not completed as far
as the system is concerned. The IO packet should still be out
there, if you take a crash dump of your system, if you look
back to your data structures to see if your IO is still there.
We don't know of any problems where the IO is lost through
those types of interfaces. Our first guess is always hardware
but, we have been wrong.

8. Q: We have now the fourth interface with the same problems, there
is a limit to this, we have good interface, we are sure.

A: Devices come on line and it looks they are ready and active.

9. Q: The systems responds perfectly even though you hang them 50ft
away it works perfectly, but, there happened some strange
things.

A: I am sorry, we really can't help you too much here, you are
going to have take up a crash dump and look to see what the
status of the system is, okay.

10. Q: I want to ask you, for the DZ11 multiplexor won't you please
let us know, the way to change from software XON-XOFF to
hardware XON-XOFF,I think it is a combined software and
hardware problem.

A: Well as I know the DZ11 hasn't any hardware features that
track data-set ready etc. They have only four lines for the 20
milliamp version, so nothing from the hardware.

A: Full modem control is correctly with DSR etc, this is
available on some controllers, eg DLV11-V, but due to cable
density most controllers use the 9- pin subset of this.

11. Q: I have a question about the terminal driver, I know you are
not experts, but when I issue QIO waits to the terminal
driver, for instance with the terminal settings, especially
with remote. First of all, all the old settings are removed

and the terminals falls back to a kind of standard setting, unknown type of terminal, 72 character buffer etc. If you issue a second QIO wait for a bigger buffer or anything like that, than what happens in reality is that, the first QIO wait runs over the second one, it takes about, well maybe 1/2 second or something like that before the interface itself reacts and data terminal ready gets high, we noticed that by putting a tester on the interface itself. The second QIO wait is long since is gone, so everything, you did with 2nd QIO wait is lost. I think its more a problem with the terminal driver that when you issue certain QIOs that the second one will be run over by the first one, in fact it seems that you don't have to wait for anything, it doesn't wait.

A: This is the new feature we have, the QIO wait that doesn't wait.

12. Q: Well I just found in the VMS notes file, the same problems on VMS, it might be related to hardware multiplexor.

A: This is a problem we have quite a lot when handling remote lines, it appears that when you issue a set characteristic to the terminal driver that turns remote off, the QIO sets the necessary bits in the UCB, but it then goes into the time-out state in the normal remote line handling part of the terminal driver that checks the conditions, I think every 2 sec. So your QIO has completed because it sets the data in the database but fractions of a second or 2 sec. later the terminal driver time-out then picks up that things have been changed and goes off and changes everything else. So if you issue the second QIO that does something, the time-out picks up what happened the first time and totally destroys it again. So some of our applications programms actually have to wait for something like 10 sec to make sure everything has settled down before we can issue any more QIOs to it.

It is a terminal driver problem, it's in the design of the remote module and the way that handles eveything with time-outs.

What you see if you watch the lines from the terminals, things like DTR toggle up and down, maybe a couple of times over the next few seconds, and thats the problem.

13. Q. This would seem to be a TT driver and multiplexor session, I have another problem, I don't know, if you know about time cut off. Thats the device on the remote lines that shuts down to the remote line, but keeps the number to the caller. We are using X.21 type lines as remote on our systems and the purpose is to stop the transmission so as not to pay in the time when there is no input and output going on. But we have a problem as it sometimes drops a line and gets logged off, and we don't know if it could be in the Digital system software or hardware or if it's a fault in time cut-off. Do you have any ideas for that? It works properly normally.

A. You are logging out from M+ I assume.

Q. If the signal from the modem drops, then the session logs out.

A. If you log out with BYE/HOLD then, the terminal driver holds DTR which will keep the terminal on line.

Q. I don't know whats going on, is it the modem that drops the signal to the DZ11 or the DZ11 that drops it to the modem.

A: Does it only happens when you log out?

Q: I see the log out, it logs out and the line goes down.

A. Sounds like the line goes down and logs you out.

Q: The DZ will periodically put the DTR off and on again.

A: In normal use the DZ on the remote line will hold the DTR high to enable the modem and with the DZ the terminal driver will poll, I think it's every 2sec. for carrier-detect, so if you have a communication fault and carrier-detect drops for more than a certain period then the RSX terminal driver presumes that you disconnected the line, forces a log out, effectively by BYE and drops DTR to make sure the modem is properly disconnected and ready for use again.

So, if you have a communications fault, you loose your line and log out.

Q: But if you don't have carrier-detect present, it puts the line on remote and will poll every 5 minutes, something like that. So you should have carry detect ready if you want to use it.

A: You can fool it, we use some types of communication equipment where if we have SET /REMOTE and work the normal way, we cannot use it, we actually zap the bits in the CSR of the DZ to change DTR and whatever else we like, and we can handle the equipment that way, but there are cases where you get CD and DTR toggling every 2 or 3sec. continously and then we have to fiddle around with the software, zap the DZ directly to avoid it.

A. It sounds like that, in this case, you might want to make sure that your data carrier-detect signal coming from the communications interface to the DZ, is in fact there and stable all the time, because if it goes away the DZ sees it that it is gone, and as we said it will log you out, it assumes you hung up the line.

14. Q. When you try to mount a disk without a pack, a removable disk, it takes ages before MOUNT says the disk isn't present and MOUNT fails, it takes about 2 minutes, a very long time, what do you suggest to overcome that.

A: Put a disk in.

Q: But the disk is not there, can you shorten the time out.

A: No the point was to keep it there long enough, to put the pack
in and let it come up with speed and for the types of devices,
we see 2 minutes does seems a very long time, but is actually
fairly useful, so no, it's not likely to change.

15. Q: Could there be a minimum time on the signals that check for
volume validity.

A: We are going to say no. We are not quite sure where the volume
valid check is done, whether it is to the QIO each time it is
issued in which case you can't wait ever, it is simply has to
back it off and go.

16. Q: Occasionally we loose volume valid on a disk, a CDC 9762,
whether this is due to noise on the signal lines or a
momentary loss of speed, we don't know. We can sometimes get
it back by setting it non-public, dismounting it and
remounting it.

Aud: I can say, we have just seen the same problem, RP07 disks with
a slight power failure. I found a task on a DECUS tape that
would set the bit again, it's named VVC, I don't remember which
tape.

A: Thanks, you are right, it's certainly useful to have such a
task, but the problem is that you want to do it as soon as you
notice and re-validate the disk.

Q: I don't want to get a call from 200 miles away saying that the
disk has gone down, I want it to come back on it's own.

A: The danger for us, we would have to go through the entire
automatic mount procedure to varifying the packs and keep the
information from the last mount in order to reset volume valid
and we wouldn't do that.

Q: If volume valid is dropped on an interrupt from the controller,
could you then reset it if it reappears within a fraction of a
second.

A: If we can identify that situation, Yes.

Q: It's no good resetting it after say 10 secs, because in that
time you've lost the QIO and probably aborted the tasks.

17. Q: I have a DECNET problem, I don't think you would like to
answer it, but you could take it back home, because, I don't
know really if it is FAL or net file transfer, probably FAL,
that causes the problem. What happens was that due to a nice
feature in RSX the system kept crashing, I had about 15 crashes

the in same day, while doing massive network transfers over
ethernet. I booted it and it came up and every thing was fine,
except I thought that the number of files on the disk didn't
really fit, so I ran verify. That was the worst system disk
I've ever seen in my life, everything was wrong. Every
possible error message you could get from verify was put out,
and actually I managed to repair the disk, in not too long a
time, using the verify manual, because I guessed it had
something to do with that net file transfer, probably with the
crash that oborted the program. The problem, it seems to me is
that it actually updates the whole directory first, and then
starts to do something to do with the files and at least there
should some documentation warning of doing massive network
file transfers over ethernet. At least warning that you have
to fix things at once if it crashes.

A: Thank you, noted.

Q: Is it true that this is what happens?

A: I don't know.

18. Q: A little question, could you use a TU58 as a crash device.

A: Is it big enough.

Q: I don't know, is it too small.

A: It is for an M+ system I believe, if you have as you said, an
11M system I think will fit on it by a few blocks, but it's
very slow.

Q: Yes, but it's the only thing I have.

A: It should, I think it will fit certainly fit 11S system, I've
had to us it for that, 11M systems up to 124K we think are OK,
over that or M plus, NO.

19. Q: I have a question on the remote system, when I log in it
usually takes hours before the system responds, probably
caused by SET /INQUIRE to the remote system, but I never know
what should I do, should I give returns to awake it before the
prompt comes or just wait. Sometimes the line goes down and I
loose the line other times it works. Sometimes you don't know
whats going on.

A: We noticed that, setting host back home this week.

Q: It's not setting host but just modem lines.

A: It's approximately the same thing.

Q: It should be like in EDT "....working", you know, ...every
second, it's crazy, I know, you should be able to see that
something is going on.

A: I agree, but it won't happen, it's going to take that long, I'm afraid the set enquire takes at least six seconds to respond.

Q: But it does'nt matter whether it's VAX or PDP11.

A: No, not much.

A: You could do something in your loggin command file while you're doing the set enquire.

Q: I don't do set enquire, I'm logging in on the remote system and it can take ages before the system responds.

A: Oh, okay.

20. Q: I have two small questions, one, I don't know if the problem is already solved yet using RSX11 plus version 3.0, but we are using disk cacheing and when you log out with BYE you can get yourself a cup of coffee, and when you come back, BYE is finished. I know that our OEM has solved the problem, small patch or something like that, I think there is a small fault in BYE.

A: We have got at least 3 suggestions that it has been fixed, but we are not exactly sure what the problem is yet.

Q: One way to fix it is to disable overlay cacheing, at least with V 3.

Q: I know but we would like to use overlay cacheing.

A: That particular problem has been fixed for V 4.

21. Q: Second question, when you buy an PDP11/73 it's a very nice Micro, it's very nice to have floppy disks, you can go to local shops and buy yourself a couple of floppies but you can't format them. That's a bit strange, I mean I can buy myself a small PC for a few hundred guilders or dollars and format the floppies but I can't buy myself an 11/73, God knows how expensive, and format the floppies, or even the hard disks.

A: I know!!

A: Hard disks you can format, but not the floppies. You mean to tell me that you are going to take you or your employers hard earned money, and invest it in a quality Digital product and then go down to the local corner store to buy those cheap floppies!!!!

Q: Ah well the floppies can be excellent. I do know that Digital buy some outside the door and don't produce themselves.

Q: Do you want me to transcribe you some.

Q: But I could also buy myself an old Rainbow because thats
capable of formatting them, I know, once I needed a lot of
floppies so I went to an old Rainbow we had and made a lot of
floppies......

A: You can get the rainbow cheap too.

Q: I know, I know, there are lot of ....

Q: But it's not possible to do that, or I mean we don't use really
that many floppies, but it can be useful for instance if you
have just one winchester on a PDP 11/73 it's always wise to use
a scratch disk for verify, because if you don't when something
happens you may have nasty problems, so we always use a scratch
disk and that should be the floppy. But well, when your
floppies are all gone, you have to buy, you have to phone
Digital, send me a box of new floppies, they will do that and
ask for a lot of money, but we have a lot of floppies for PC's,
it would nice if you could format these on the machine itself.

A: Let us put it this way, as a business matter, it's probably not
in our best interest to do that, it would probably be better if
somebody like DECUS did something like that because from our
point of view the problem is solved.

22. Q: Well the RQDX controller is so intelligent it doesn't really
like floppies, prefers Winchesters. But we don't need to
format floppies just need to format Winchesters.

Q: I think the whole business of moving the heads around is not a
part of the RSX system anymore in those Winchesters. You can't
see the amount of cylinders it moves on RMD, so I suppose you
buy the controller and the whole thing somewhere else and then
give it all the information it needs. You can't really get the
machine to control the actual drive. Is that true.

A: Yes. As far as we know,

23. Q: Second Question. I don't know if anyone here does a lot of
printing especially forms or something like that but we also
use printers made by Data Products. We could buy from Digital
in other colour it would have a different name on it but it's
the same printer. We use VFU printing, it's not documented by
Digital, I don't know, I think big printers have it, I saw it
in documentation of the printers but it's not documented in
RSX11. You can save a lot of time with it, I think it should
be supported or at least mentioned in the manuals.

A: I think, generally, what we do in the printer support is
attempt to provide the basic printing capability, a basic
capability to print 80 or 132 column, 60, 66 or whatever the
right number is, of lines and rely on the applications
programmer to integrate any extra things which the hardware may
provide, graphics capability, you know, all kinds of stuffs.
Also saves us from chasing every printer in the world and it's

unique characteristic. What you use for VFU on that printer and what you do on a different printer would be different, and printers are a pain. I know, we even have inconsistencies between certain LN type printers like that. Okay.

A: I have good news and bad news. The good news is that there is actually a project withing Digital looking at VFU and the bad news it that it's a VMS project.

Q: We found a solution with RSX, you put it in COBOL and it functions beautifully.

24. Q: I have one question about the printers. Is there any way you think to implement what they did on the, I think most recent version of VMS, where you can prevent people from putting out all sorts of escape sequences and when the next file comes the printer is garbled completely. I think that the last version of VMS or the recent version fixed it by resetting the characteristic of the printer after each file is printed.

A: VMS puts a reset in before printing every file now?

Q: You can do it on VMS if you wish.

A: Actually we did just the reverse on version 4 or actually it was on version 3.1. We added the adjacent switch so we would not put out a reset escape sequence. If you use the adjacent switch on serial printers especially because you are wasting a piece of paper which in some cases was people wasting a numbered cheque or invoice or something like that and people are really uptight about that so they requested a /ADJACENT switch which meant we omitted sending the escape sequence. If thats a general problem, a generally encountered problem that doing a reset would be good we can take a look at it, we can't promise the world on it though, since we just eliminated it.

A: Another side note to that is the reset switch actually is not very useful when you doing ethernet printers, we're discovering that that's actually very unhelpful because VMS thinks it has a terminal the next time around. If you particularly get an RSX printing job coming through then VMS grabs ethernet again and prints it leaves same characteristic it had around before and your next job is actually in very bad shape and it's just a mess.

We really are not sure what the utility of that is, it's somewhat debatable and I think the answer we'll give you is the same thing as the last one. We tried to give you the basic support to let you handle those kind of details more at your own level.

25. Q: I have a nice question for you. A problem with a DAC converter in our PP11, it's doubled buffered, when the machine takes you to other buffer the output is steady for short moment, because of the overhead of RSX, and I want to know how I can get my

signals continuous. A kind of interleaving would be nice.

A: It's more the overhead of the driver, do we own the DA driver any more.

Q: K lab series.

A: I'm afraid, we aren't really the right people to ask this question. This particular series of drivers used to be bundled with RSX and since it became I think separate products or layered product of some sort, we really haven't looked at the driver in 5 years. So I suspect you going have to send it in and ask the question through them and not from us.

Q: It's still under RSX11M.

A: Which version?

Q: The latest.

Q: It has improved, I had problems when I started with I think 3.2 or something like that and I couldn't get started now I have some sequence coming out but still not what I should like to see.

A: We know that 'they have certainly kept supporting it and there is a version out there, it's just that we haven't seen the sources in our division if you will, for years so we can't really make a guess at what is doing internally, sorry.

26. Q: Who's using M+ version 4.0?

3 or 4 people. You don't have any problem with 4.0 as far as executive timing or anything is concerned.

Is everybody programming properly because there's has been a change in 4.0 concerning the declaration of significant events and I was just wondering if any people are running into that problem, task synchronisation using event flags might not work like it use to work in the older version.

This is also has to do with round robin scheduling. That's right!

A: This particular problem that he's talking about is that up unitl this time, this particular release, all tasks within a given priority range that was subject to round robin scheduling within your particular system. At the time at which the task completed or I guess just became no longer the most active task it declared a significant event to identify the particular situation and force the rescheduling of the tasks and now what we have come to discover is that most people do that and they'll wait on the particular situation rather than waiting for completion of some kind of IO flag. Historically, we don't know why, it's some philosophy from 15 years ago, we

do not declare significant event when IO completion sets this flag. What we have discovered is that we changed so as to reduce the amount of system overhead by eliminating that significant event. We're running into people actually specifically waiting on that circumstance and we had some vocal people that have noticed it and some never noticed anything, it's been completely transparent to them. We like to get a good sense of whether you are noticing that and whether you are waiting on that particular situation or if you ever knew that it occured.

If this has come as a surprise to you that happens would you rather have the increased or decreased system overhead by not declaring the significant event or would you expect it to stay exactly the way it is?

You got three tasks all priority 50, an IO completion occurs (there all doing IO) and round robin scheduler is set up so that one task becomes no longer available through an IO situation and drops out of the list the next task declares significant event it schedules the next one and does the same thing and they go in circles bascically based upon that completion of the IO or at least upon the declaration of the significant event based upon that event What we decided to do is no longer wait upon that, to have a significant event occur at the time of round robin scheduling occurs. What tends to happens is that the tasks that used to immediately come in and starts to run is now still back in the queue of the round robin scheduling so there is some occasionally noticeable differences in timing which will occur between tasks of the same priority and the order in which you expect them to run, they no longer necessarilly do. Everything still falls under the same category of priority scheduling, if you set your prioritites correctly as much as you can the scheduling is still identical, it is just based upon the round robin scheduling and the tasks as they come up.

Significant event simply just resets the active task pointer to rescan down through the task list, so you're right, on some occasions it will simply continue on downd.

A: You have two tasks on the system, just two tasks, no IO, one is waiting for the event flag from the other, it's clear that setting an event flag does not, I repeat DOES NOT declare significant event, so in the past those tasks have worked, because at every tick it will round robin and it will declare a significant event for you and start scanning the task list from the top and the second task waiting the event flag would run, now those two tasks will hang because you never learn about the significant event if you have no IO going on and the round-robin scheduler is not going to declare significant event for you. So it's not going to slow the system down, it will stop it, if it hasn't been programmed properly like we have always said, declare significant event after you have set an event flag, if you programmed properly, there is no

problem. Thats all.

A: What you might do for a change, is you can set event various ways, you can use set event flag directory which is very ordinary way of doing it, you could for example do mark time with the zero interval and AST routine and in that case as far as I remember the significant event is declared or you do an IO which is ready immediately.

So few people are using V4.0, no-one has come across this problem apparantly.

Q: If we have an M+ system stopping, just slowing down for something, then goes running, that could be that reason, I think.

A: That could be one of the 3000 guesses.

Q: But with a task that worked before... 4.0

A: But to follow up that, this really is a philosopy question, it's understandbly behaviour we have had before but it's also understandbly the incorrect behavour, as he says if you have good coding practices it should work, what we are trying to do is, to determine whether it's worth the impact it would have on all your tasks and the possible situations we could see to try to reduce the impact on the system and to cut down the system overhead. So this is truely performance issue and we are trying to decide whether this is something important enough to you to recognise the performance impact improvement for the possibly insignificant change you will see and thats what we are trying the feeling for it, otherwise we are going to make the decision based on what we feel like next week... literally.

Q: Is it worth a note in the software dispatch.

A: That is inevitable. One way or the other it will have to be done that way what we trying to decide if it's worth the effort to take it out and risk the impact to the users systems. Historically it's just been there and as bad as it is it's RSX.

Well it hasn't been changed yet, it will be, maybe.

27. Q: One problem you may get is third party software which stops working and it could be difficult for users to get that corrected.

A: That's right, that's why we're trying to get some sense if that happens.

28. Q: I've seen in TSC you might take it out and get 2 or 3 percent change in CPU perforamnce.

A: Yes you can use the old version of it, the change wasn't so great in the code, so you can use the old version of the code,

and well I found some software application which did this,
rebuilt RSX, to change the module. Changed one branch.

29. Q: Could have an MCR command to change behaviour.

   A: Don't laugh too hard, We've, actually that is an alternative
   suggestion, we've actually considered putting in the sysgen
   options. But we're very reluctant to do that these days, we
   prefer not to have it and real question after you do that is
   in the fully functional executive it turned on or off.

   Q: An MCR command would avoid a SYSgen option

   A: I know, you have no idea how reluctant people are to do those
   commands. Another set-command is really unhappy it may turn
   out to be that way. This is very much a pitched battle at the
   moment.

   A: Since you're asking question we get to ask a few too. We're
   always cares to see what our customer base is doing and what
   their plans are for upgrading, certainly you've seen the point
   release mechanism, one of the things we're trying to determine
   is how often people are interested in seeing point releases,
   particularly under 11M and 11S where the number of corrections
   are going to be fairly small and fairly insubstantial, we
   hope. Our current goal is six months is, but that also for
   many people claims to be too short of a period for the number
   of upgrades you have to do for the period of year. What is
   your opinion on this, is someting more like a year, year and a
   half, two years alternative ways of getting your patches, what
   do you feel best ways for your needs?

30. Q: For me it depends on two reasons, what new features does the
   next version have and what errors are found in the running
   release?

   A: One of our alternative is to only start to produce 11M and 11S
   distribution kits when we decide that the problems have built
   up sufficiently enough to actually warrant a new release and
   that causes a lot of problems with licensing and people
   getting service but we don't know if that's truly a problem
   with people if having something that's truly worthwhile come
   out at appropriate times without a way being able to telling
   your boss that you're getting current service over a long
   period of time. We don't know and we need to have that kind
   of information, it needs to come from as many people,
   particularly in Europe, as we can get because this we find is
   one of our biggest markets so I do recommend that all of
   Europe who does RSX come up with a consistent thing and let us
   know.

   A: Would you get the kits and scan them to see what changes
   before you upgrade?

31. Q: Depends if you make them available then you can decide what do.

But it is in the software contracts so you pay anyway.

A: One comment on that could you put your request in writing we'll try and get it in the leaders digest.

RT

RT-11 MINITASKER
April, 1990

Contents

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From the Editor:

As I put this issue together, in the last week of February, I am also frantically getting ready for my trip to Las Cruces for the New Mexico D-CUS Symposium in a few weeks. It'll be over by the time you read this, so I hope I saw a lot of you there at the RT-11 sessions.

This month, Bob Schor has detailed his changes to the DY handler to accomodate double-sided floppy drives. Bob Peckham is looking for volunteers to test disk performance for a talk at an upcoming DECUS Symposium. I'll see to it that his results appear in the Minitasker as well. Billy Youdelman and Bob Walraven provide a couple of communications war stories.

Send your war stories and other interesting tidbits to me:

> John M. Crowell
> RT-11 Newsletter Editor
> P.O. Box 128
> Davis, CA 95617

I'm hungry for things to print.

Next month, Scott Harrod will give us a Wish List success/failure report; and John Firestone has some more DECUS C hints and kinks. Keep the stuff coming.

February 13, 1990

Dr. John M. Crowell
RT-11 Newsletter Editor
P.O. Box 128
Davis, CA 95617

          Re: Sites wanted to contribute to
                Disk Testing project

Dear Jack:

        I have been talked into doing my "Real World Disk
Comparisons" paper again for 1990.

        Apparently, people interested in hardware are
interested in my paper. Of course, the manufacturers who
have products with great price/performance ratios, or great
absolute performance, love me. The other manufacturers seem
to be on the verge of hiring a hit man in order to be rid of
me.

        I think that this year, to a certain extent, we will
go back to the 1984 format which was to have actual DEC user
sites with interesting hardware run the benchmark programs.
Therefore, anyone with an interesting disk that hasn't been
tested in the past, and who would like to participate, can
drop me a line and I will send them an RX02 and some data
sheets.

        I would like to mail out most of these flops and data
sheets by about June or July and I'd really like to have all
the results back by September.

        Please note that these programs are not very user
friendly. The instructions have to be followed exactly if the
performance figures are to mean anything. Therefore,
interested parties should figure on running the tests
themselves rather than delegating the responsibility.

        I think if you can publish this letter in the Minitasker,
that might cause many people with interesting hardware to
give me a call.

        Please feel free to call if you have any questions.

                              Sincerely,

                              COMPUTER PROGRAMMING SERVICES
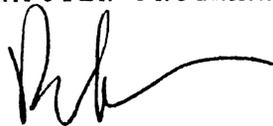
                              Robert C. Peckham

RCP/ldk
encl.

Editor's note:
At a recent product announcement by a large three-letter computer company, I
overheard a colleague say, "Those benchmarks are meaningless because they
aren't mine."   Bob has put together some good tests of disk performance and he
pulls no punches when talking about price/performace ratios. If you are using an
unusual disk arrangement, please help him acquire some useful data. He or I will
get the test suite to you on whatever medium you require. Thanks.

A Double-Sided Double-Density 8" Floppy Disk Handler

Bob Schor
Eye and Ear Institute
203 Lothrop Street
Pittsburgh, PA 15213

Most users of DEC 8" floppy drives know about the RX01, the single-density, single-sided 8" floppy drive, with 494 formatted blocks, and the RX02, the double-density, single-sided 8" floppy, with 988 (twice as many) blocks. There is some evidence that an RX03 was contemplated, namely the RX02, using double-sided media (and, of course, two read/write heads), but DEC never implemented such a drive (to my knowledge).

If one buys DEC-compatible hardware, however, it is possible to buy double-sided drives, and controllers capable of selecting both heads. Some controllers even directly support 22-bit Q-Bus addressing, easing their use on 11/73 systems.

This article describes modifications to the DY handler, DY.MAC, which will enable double-sided floppy use. It has been used and tested with floppy controllers from Data Systems Design (DSD, now Qualogy) and Sigma Information Systems (Sigma). These changes have been installed in RT-11 since Version 5.0; they have been field-tested in RT-11 5.5 (pre-release), and should be continue to be portable through future versions. Modifications to enable the handlers to be used under TSX-Plus (S&H Computer Systems) will also be described.

To aid in making changes, code segments will be divided into several classes. Code will be presented in the following sections: header comments, DSD-specific code, Sigma-specific code, double-sided code, and TSX-specific code. Code sections will be presented, along with a description of the code location within the handler; this should provide the most flexible means of dealing with various handler versions.

Header Code

The following code should be placed on the "Conditional Assembly Summary" page; you could also include specific definitions here to enable desired versions:

```
;*********************** Insert *****************************************
;The following conditionals are available --

;       tsx$p   = 1             ;modify handler for TSX
;       dsd$    = 1             ;modify handler for DSD-880
;       sis$    = 1             ;modify handler for Sigma RXV31
;       dy$ds   = 1             ;modify handler for double-sided operation

;The original code modifications were courtesy of S&H Computer Systems (TSX),
;Data Systems Design (DSD), and Sigma Information Systems (SIS).  Code
;consolidated, maintained, and tracked through successive RT-11 versions
;by Bob Schor.  Current version (August, 1989) tested with RT-11 5.4 and
;RT-11 5.5 DY.MAC handlers.  Attempts made to keep changes simple, logical,
;and understandable.

;To generate a specific version, choose some combination of the above
;conditionals.

;Note minor error in DY handler -- extra word allocated in DYRBUF.  Total
;space required = 6 words, two registers + 4-word error block, only first word
;of which returned to ERRLOG.
```

```
;The following code sets undefined defaults, ensures conditional values are
;0 or 1:

.iif ndf tsx$p    tsx$p   = 0       ;if undefined, default to 0
.iif ndf dsd$     dsd$    = 0
.iif ndf sis$     sis$    = 0
.iif ndf dy$ds    dy$ds   = 0


.iif ne  tsx$p    tsx$p   = 1       ;ensure 0 or 1
.iif ne  dsd$     dsd$    = 1
.iif ne  sis$     sis$    = 1
.iif ne  dy$ds    dy$ds   = 1


;If compiling TSX version, use memory-management code

.iif ne  tsx$p    mmg$t   = 1
.iif ndf mmg$t    mmg$t   = 0
.iif ne  tsx$p    bf      = 1
.iif ne  tsx$p    tim$it  = 1

;Ensure both dsd$ and sis$ are not specified

.iif ne dsd$&sis$ .error ;Cannot choose both dsd$ and sis$

;If neither dsd$ nor sis$ specified, do not generate double-side code

.iif eq dsd$!sis$ dy$ds   = 0
;*********************** End Insert ********************************
```

DSD-specific Code

The only DSD-specific code concerns returning the extended error registers to the error-logging routine; apparently the DSD protocol differs slightly from the RX02 specification. The change, below, consists of conditionally removing part of the standard DY handler, located in the error-handling section of the handler, in the conditional code guarded by the conditional ".IF NE ERL$G". Locate the request for access to the extended registers ("MOV #CSMAIN!CSGO, @R4"). Following it are normally two wait loops, one testing CSTR, the second CSDONE. The second loop should be conditionally removed by replacing it with the following:

```
;*********************** Replace **********************************
.if eq dsd$                          ;skip if DSD controller
61$:    BIT       #CSDONE,(R4)
        BEQ       61$
.endc ; eq dsd$
;*********************** End Replace ******************************
```

Sigma-specific Code

The Sigma controller has 22-bit capability, which is easily utilized, allowing the floppy disk to be used in systems with more than 256 kB, and without clumsy remapping games to keep the buffers in low memory.

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The first change is to add a definition to the command/status register bits, located near the start of the handler, along with the other definitions. Add the following:

```
;*********************** Insert ***************************************
.if ne sis$                          ;Sigma controller
        cs22 = 2000                  ;22-bit addressing
.endc
;*********************** End Insert ***********************************
```

The second change follows the Driver Request Entry Point. Locate the label DENPTR:. Following that, find the two instructions

```
BIT  #1700, R4
BNE. DYERR
```

Replace them with

```
;*********************** Replace ***************************************
.if eq sis$                              ;alternate code for Sigma controller
        BIT     #1700,R4
        BNE.    DYERR
.iff                                     ;Sigma code
        mov     r4, -(sp)                ;put high address (shifted) on stack
        asr     (sp)                     ;shift right 4
        asr     (sp)                     ;to put high bits in bits 0-5
        asr     (sp)
        asr     (sp)
        mov     (sp)+, extadr            ;save extended address
        bic     #1700, r4                ;clear unneeded bits
.endc ; eq/iff sis$
;*********************** End Replace *********************************
```

The above code fragment saves the high six address bits.

The next fragment, located in Start Transfer or Retry, increments the high address if a transfer "rolls over" the 16-bit boundary. Locate the label BUFRAD:. Replace

```
BUFRAD:  .WORD   0
         .IF NE  MMG$T
         BCC     8$
         ADD     #10000,r0
         .ENDC
```

with the following:

```
BUFRAD:  .WORD   0
         .IF NE  MMG$T
         BCC     8$
         ADD     #10000,r0
;*********************** Insert ***************************************
.if ne tsx$p!sis$                        ;handle possible 22-bit address
        bic     #40000, r0               ;forbid carry out of bit 18
.endc ; ne tsx$p!sis$
.if ne sis$                              ;for Sigma controller
        inc     extadr                   ;adjust extended bus address
.endc ; ne sis$
;*********************** End Insert *********************************
         .ENDC
```

The first instruction, which is also needed for TSX, guards against incrementing addresses across an 18-bit boundary and inadvertantly setting bit 14 in the CSR (bits 12 and 13 are the 18-bit extended address bits). The second instruction increments the Sigma's 22-bit extended address.

Twenty-two bit operation is enabled in the DOSILO routine. Change

```
DOSILO:  MOV        (SP)+,INTRTN
         MOV        WRDCNT,R2
         BIC        #6*2,R0
```

by adding an insertion:

```
DOSILO:  MOV        (SP)+,INTRTN
         MOV        WRDCNT,R2
;*********************** Insert ***************************************
.if ne sis$&mmg$t                       ;Sigma controller, 22-bit mode
         bis        #cs22, r0            ;enable 22-bit addressing
.endc ; ne sis$&mmg$t
;*********************** End Insert *******************************
         BIC        #6*2,R0
```

The end of the DOSILO routine should be a branch to DYDOFN (either a BR or a .BR instruction, depending on version). Replace it with the alternate code (illustrating the .BR version, adjust as appropriate):

```
;*********************** Replace ***********************************
.if ne sis$&mmg$t                       ;Sigma controller, 22-bit mode
         br         dydof2              ;do 22-bit command protocol
.iff
         .BR        DYDOFN
.endc ; ne sis$&mmg$t
;*********************** End Replace *****************************
```

The final code section for the Sigma controller provides the alternate protocol just requested to handle 22-bit data transfers. Locate the RETURN following the DYDOFN: label. (It may actually be RTS PC in early versions.) Replace

```
         MOV        R2,@R5
         RETURN                  ; (or RTS PC)
```

with the following:

```
                MOV         R2,@R5
;********************** Insert  **************************************
.if ne sis$&mmg$t                          ;Sigma controller, 22-bit mode

;alternative protocol for 22-bit fill buff, empty buff, read error code

dydof2:  bitb      #cstr!csdone, @r4 ;transfer or done?
         beq       dydof2
         bpl       dyerr2                    ;controller should want data
         mov       r3, @r5                   ;send command
1$:      bitb      #cstr!csdone, @r4 ;transfer or done?
         beq       1$
         bpl       dyerr2                    ;more data should be needed
         mov       r2, @r5                   ;continue protocol
2$:      bitb      #cstr!csdone, @r4 ;transfer or done?
         beq       2$
         bpl       dyerr2                    ;more data should be needed
         mov       (pc)+,@r5                 ;load bus address extension register
extadr:  .word     0                         ;extended address goes here
         return                              ;successful completion
.endc ; ne sis$&mmg$t
;********************** End Insert  *********************************
                RETURN
```

Double-sided Floppy Code

The following code handles the actual double-sided floppy addressing and head selection logic. Basically, a double-sided floppy is treated the same as a single-sided one, except that blocks higher than 988. (assuming double density) are placed on the second side. Note that this scheme provides for maximal interchangability between single-sided RX02 and double-sided RX03 disks -- if you less-than-half-fill a double-sided disk, your colleagues with single-sided drives will have no trouble reading the information (be sure you SQUEEZE the disk to keep all blocks below 988!). What will ultimately determine whether a disk is treated as single or double-sided will be DUP, which initializes the directory (and thereby sets the total number of blocks present). Code below will test for double-sided media (identifiable by a changed location of the index hole) and will return the proper size when queried with .SPFUN #SIZ$FN.

The initial changes are definitions, near the top of the handler. The first defines the "side-two present" bit in the error/status register.

```
;********************** Insert  **************************************
.if ne dy$ds                          ;double-side code
        essid2    = 2
.endc ; ne dy$ds
;********************** End Insert  *********************************
```

The second definition should follow the definition of DDNBLK, and defines the number of blocks for double-sided (double-density) devices:

```
;********************** Insert  **************************************
.if ne dy$ds                               ;double-side code
        dsnblk    = ddnblk*2                ;twice as big
.endc ; ne dy$ds
;********************** End Insert  *********************************
```

The next code, near the start of Start Transfer or Retry, dynamically adjusts the size if a double-sided floppy is installed. After the label DYINIT:, locate code where #DYDSIZ is pushed on the stack. Before the next instruction,

```
            BIT        #ESDN,@R5
```

insert the following:

```
;*********************** Insert **************************************
.if ne dy$ds                            ;double-side code
            bit        #essid2, @r5     ;see if double-sided floppy
            beq        2$
            asl        @sp              ;in which case, double the size
2$:
.endc ; ne dy$ds
;*********************** End Insert *********************************
```

In Error Handling -- Change Density, Retry, alternative code is included to handle double-sided capability. Locate the label DYERR2: and change

```
DYERR2:
            .IF EQ     DY$DD
            BIT        #ESDNER,@R5
            BEQ        5$
```

to the following:

```
DYERR2:
            .IF EQ     DY$DD
            BIT        #ESDNER,@R5
;*********************** Replace ************************************
.if eq dy$ds                            ;single-side code
            BEQ        5$
.iff                                    ;double-side code
            bne        1$               ;skip ahead if density error
            bit        #escrc, @r5      ;CRC error?
            bne        5$               ;yes, report error
            bit        #cshead, r0      ;see which side active
            beq        5$               ;report error if first side
            bit        #csdn, r0        ;single or double density?
            bne        5$               ;report error if double
1$:         bit        #cshead, r0      ;density error or SDDS
            beq        2$               ;if double-sided,
            add        #dsnblk, dylsn   ;adjust logical sector number
2$:         bic        #cshead, r0      ;use first side
.endc ; eq/iff dy$ds
;*********************** End Replace ********************************
```

At the start of DOXFER, Start a Sector Read or Write, the logical sector number must be tested to see if the desired block is on the first or second side. This routine is entered with the desired status register in R0, a pointer to the CSR in R4 -- you will replace the code loading the CSR and loading registers. Replace

```
DOXFER:     MOV        (SP)+,INTRTN
            MOV        R0,@R4
            MOV        WRDCNT,R2
            MOV        DYLSN,R3
```

with the following. (Note that the change in the order of loading the registers is inconsequential.)

```
DOXFER:   MOV       (SP)+,INTRTN
          MOV       DYLSN,R3
;********************** Insert  *****************************************
.if ne dy$ds                          ;double-sided code
          cmp       r3, #dsnblk       ;see if it fits on first side
          blt       1$                ;skip if so
          sub       #dsnblk, r3       ;adjust location on side 2
          bis       #cshead, r0       ;and set second head
1$:
.endc ; ne/iff dy$ds
;********************** End Insert  **********************************
          MOV       R0,@R4
          MOV       WRDCNT,R2
```

The final change in the handler is to modify the Bootstrap Read Routine to use the appropriate head (depending on the logical sector requested) for the read. Locate the instruction which loads the bootstrap CSR into R5.

```
2$:       MOV       (PC)+,R5
BOTCSR:   .WORD     DY$CSR
```

Replace the first instruction as follows:

```
;********************** Replace  **************************************
2$:
.if ne dy$ds                          ;double-sided code
          cmp       r0, #dsnblk       ;skip if requested block number
          blt       12$               ;on first side
          sub       #dsnblk, r0       ;second side, adjust block number
          bis       #cshead, redcmd   ;and enable second side
12$:
.endc ; ne dy$ds
          MOV       (PC)+,R5
;********************** End Replace  ********************************
BOTCSR:   .WORD     DY$CSR
```

Code for TSX-Plus

For TSX-Plus, a few changes need to be made. First, some of the SET code in the handler does not appear to be necessary (the .SLP files which come with TSX conditionally omit part of it -- I have omitted a never-used subroutine as well). Second, a change is made to allow a smooth transition across 16-bit address boundaries. Finally, a change in the use of the PAR registers (TSX uses PAR 6 instead of PAR 1) is required.

The first changes are suggested by DYxxx.SLP, the files which come with TSX-Plus. They conditionally remove code in the handler which would otherwise cause SET options to change the in-core loaded handler. Two pieces of code are involved. The first is a routine labeled FINDRV, which ends with a BR instruction (probably "BR 0.GOOD"); the following location following the removed code is labeled DAREA. Insert the following just before FINDRV:

```
;********************** Insert  ****************************************
.if eq tsx$p                     ;RT only; TSX ignores loaded handler
;********************** End Insert  *****************************************
```

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At the end of the routine, insert the following (probably right before DAREA):

```
;*********************** Insert  ***************************************
.endc ; eq tsx$p
;*********************** End Insert  **********************************
```

This routine is called near the end of the Set Options. Locate the label O.WPF: and remove the following call to FINDRV for TSX. Change

```
O.WPF:    .BLKW    1
          CALL     FINDRV
```

to

```
O.WPF:    .BLKW    1
;*********************** Insert  ***************************************
.if eq tsx$p                        ;RT only; TSX ignores loaded handler
;*********************** End Insert  **********************************
          CALL     FINDRV
```

After the FINDRV, there should be a BCS instruction, probably to O.GOOD; the code which would be taken if the carry were clear should be eliminated. This can best be accomplished by locating the unconditional branch to the BCS target (or the target itself, if it should immediately follow), and eliminating all of the code in between. In Version 5.4, this would mean inserting the following just before a "BR   O.GOOD" instruction, about seven lines after the "CALL FINDRV":

Change

```
          BR          O.GOOD
.IIF GT, <.-1000>              .ERROR
```

to

```
;*********************** Insert  ***************************************
.endc ; eq tsx$p
;*********************** End Insert  **********************************
          BR          O.GOOD
.IIF GT, <.-1000>              .ERROR
```

The next modification is in the Driver Request Entry Point. Locate the second call to $PTWRD. Following it is an increment of R0, which is being used as a buffer pointer. For TSX, this instruction is modified to handle carries into the higher address bits in the CSR. Replace

```
          CALL     @$PTWRD          ; (may be JSR PC,@$PTWRD)
          TST      (R0)+
          MOV      (SP)+,R4
```

with the following conditional code:

```
            CALL        @$PTWRD
;*********************** Replace ************************************
.if eq tsx$p                              ;RT/TSX difference
            TST         (R0)+
.iff                                      ;for TSX,
            add         #2, r0            ;increment bus address
            bcc         41$               ;check for 16-bit overflow
            add         #10000, (sp)      ;adjust high bits on stack
            bic         #40000, (sp)      ;prevent 18-bit carry
41$:
.endc ; eq/iff tsx$p
;*********************** End Replace *******************************
            MOV         (SP)+,R4
```

Note that this above change appears to be an out-right "bug" in the handler, which perhaps should be also included in the RT-11 versions. DEC has been notified of the potential problem.

The final change is in Start Transfer or Retry, and concerns the use of PAR 6 by TSX. Locate the instructions which compare the buffer address with the end of PAR 1. After the label DYINIT:, locate the instructions:

```
            CMP         Q.BUFF-Q.BLKN(R4),#20000
            BHIS        55$
```

replace the comparison as shown:

```
;*********************** Replace ************************************
.if eq tsx$p                                  ;RT/TSX use of PAR registers
            CMP         Q.BUFF-Q.BLKN(R4),#20000
.iff                                          ;for TSX,
            cmp         q.buff-q.blkn(r4),#140000  ;use PAR 6 instead of PAR 1
.endc ; eq/iff tsx$p
;*********************** End Replace *******************************
            BHIS        55$
```

The above code changes for TSX-Plus assumes that you are working with compatible versions of RT-11 and TSX, for example, RT-11 Version 5.2 to 5.4, and TSX Version 6.3 to 6.4. At this particular time, the two systems are slightly out-of-synch; the soon-to-be-released RT-11 Version 5.5 contains a few handler features which have not yet been incorporated into the current TSX Version 6.4. Once this version of RT-11 is released, an update can be obtained from the author regarding these (minor) changes; this may not be necessary, however, as S&H may also announce a compatible release of TSX.

Assembly and linkage

Install the above changes into the handler; in this example, I will assume that the revised double-sided handler is called DYDS.MAC. Decide which version (or versions) you wish. For the sake of discussion, suppose you wish a double-sided handler, tailored for the Sigma controller, and wish Single Job, Extended Memory, and TSX versions. Create three .MAC header files, here called SJDYDS, XMDYDS, and TSDYDS, with contents as follows:

SJDYDS	XMDYDS	TSDYDS
sis$ = 1	sis$ = 1	sis$ = 1
dy$ds = 1	dy$ds = 1	dy$ds = 1
	mmg$t = 1	mmg$t = 1
	tim$it = 1	tsx$p = 1

Note that in assembling the TSX-specific handler, code will automatically be generated for device time-out support. Many XM handlers also are genned with this option; you would need to include the line "tim$it = 1" in XMDYDS to be compatible with these handlers.

Assemble the relevant object modules, using the following commands:

```
MACRO/OBJ:SJDYDS  SJDYDS+DYDS
MACRO/OBJ:XMDYDS  XMDYDS+DYDS
MACRO/OBJ:TSDYDS  TSDYDS+DYDS
```

Link the actual handlers with

```
LINK/NOBITMAP/EXE:DY.SYS  SJDYDS
LINK/NOBITMAP/EXE:DYX.SYS  XMDYDS
LINK/NOBITMAP/EXE:DY.TSX  TSDYDS
```

These should all now work with the appropriate operating systems. Note, however, that in order to get twice the storage on your floppies, you must have
   (a) a drive with two read/write heads (several third-party half-height drives fulfill this requirement)
   (b) a controller which supports two heads (such as the one from Sigma)
   (c) a floppy "recognizable" as double-sided (sold by most major vendors, recognizable from the two head cut-outs, the altered position of the index hole, and frequently by a designation like DS/DD, or similar indication)
   (d) a double-sided floppy handler, such as described herein.

Good luck.

Autobauding and TSX-Plus

Billy Youdelman

Having noticed mention of auto-bauding of TSX-Plus at 2400 in the report on last Fall's Symposium, I'd like to offer my own experience with that. Specifically, the only problem I've ever had with it is with the DZV-11. In that case, there was a problem with ports starting sometimes at 19.2kb when return was used, and I found ^C was more effective quite by accident when I decided to bail out of the program I was using to call and saw the TSX system start up ok from it. This was solved by replacing the DZ with a DHV-11, which works great, as does the DLV-11E. I also received patch info to remove 19.2k from the autobaud table, which was done and worked well until the new board went in.

There are also numerous modems (in general those using the Rockwell chip set) which occasionally (once in every 50-100 calls) glitch upon completion of the connect handshake sequence, which glitch looks quite like a return at 19.2kb. This glitch only occurs when these modems are operated in the "dumb" mode, usually at 2400, sans the "Hayes" style CONNECT message. I went thru about twenty varieties of these before finding one that didn't do it. This group includes almost all the cheap pc-type units, as well as (at least the older) Hayes, US Robotics, etc. I finally wound up with modems (no longer) made by Anchor, using (I believe) a Hitachi cpu and in-house software and phase tables. These work extremely well, but I've been told by the guy who wrote it he'll never go thru all that again, and I've heard their newer modems aren't quite the same.

I have some custom software in the modems on my own system, with which I can send whatever I want to the system upon connecting (the Rube Goldberg method of auto-starting at any speed), and I've found it takes 250ms after dcd goes true before the first return and at least 175ms between them to reliably autobaud at 300/1200/2400. I also have 9600 and 19.2k terminals on the same multiplexor, all of which work so well (with no patch to TSX) I haven't even thought about this for a long time, until seeing it mentioned in the Newsletter..

Billy Youdelman
28-Jan-90

On the Subject of Communication Problems . . .

Robert Walraven
Multiware, Inc.

Recently I moved the business into my house and started working at home. As part of that move I had an additional phone line added and did some major reworking of the phone wiring in my house. About a week later, when I used the modem for the first time since the move, I had terrible problems communicating with DCS. Since there were major storms on the east coast at the time, I accounted the problem to noisy lines, but when the problem persisted for several days, I began to suspect a problem at my end. I then noticed that the RD light on the modem was blinking briefly about once a second, and on the two old phone lines (but not the new one) there were faint regular clicks that matched the modem blinks.

I've told people for years that the best way to track down the cause of complex problems is to devise experiments that cut the potential sources of the problem in half. You don't have to do many of these kinds of experiments before you find what is really causing the problem. Since my house is fairly new, it has a telephone company box outside where the telephone company wiring attaches to one side (behind a locked door) and the house wiring connects to the other side with modular jacks that can be unpluged. I could obviously cut the problem in half by unplugging the jacks - this would determine whether the problem was house wiring or the phone company equipment.

When I unplugged the all three house lines and plugged a phone in at the connection box, I could not hear the clicks on any of the lines, but when I plugged in one of the old lines, I could hear the clicks on the other old line. So the problem seemed to be in my house.

After several hours of disconnecting various pieces of house wiring and getting inconsistent results, I could not find anything that could be causing the clicks, so I bit the bullet and called the phone comany for assistance.

The Pac Tel repairman showed up the next day, but told me I had the wrong phone company - I wanted Pac Bel. However, this fellow was nice enough to take a quick look at the problem at no cost and found now that when he disconnected the house wiring he could still hear the clicks, so he declared that the problem was definitely in the phone company's circuits, not in my house.

The Pac Bel repairman showed up the following day and he got more confusing results: he said the problem was not coming from the phone company's circuits, but he couldn't see how it was coming from my house either unless my wiring was acting as an antenna and picking up some large source of radiation nearby. I couldn't think of anything nearby that could be putting out that much radiation, so I left him there scratching his head and muttering something about "the MTU".

A half-hour later there was a knock on the door and the repairman said he had found the problem. Sure enough, the lines were clean and I have had no problems using the modem ever since. How did the repairman solve the problem?

When both sides of the box on the outside of my house are opened, it looks just like just a glorified connection block. However, buried someplace deep in the plastic box is a processor called the Modular Test Unit (MTU). Normally the telephone circuits run at +48 volts, but when the voltage is reversed to -12 volts or more, the modular test unit starts putting out a regular click. The purpose of the MTU is to allow the phone company to test the wiring up to your house when phone lines are first installed. The person who recently installed the new third line, had reversed the TIP and RING wires, so the MTU was activated. The problem was cured by simply reversing the connection on the new line. Even though the repairman seemed to be very experienced, he said he had never heard an MTU before because it isn't something used for making repairs, so it took him a while to figure out what the problem was. (I'm still not sure why I could only hear the problem when some of my house wiring was connected, but maybe it was because I was using a cheap phone to do the testing and the MTU was having trouble driving it).

Performing an experiment to determine which of two groups of sources are causing a problem is somewhat like flipping a coin to determine which team gets to start a football game. The only problem is this time the coin landed on its edge.

UNISIG

From the Editor

My schedule says that this is the last newsletter that you should definitely have received before the New Orleans symposium. I was hoping to have lots of information about sessions scheduled for New Orleans, but DECUS information passes slowly, and I don't yet have that info to pass along. Perhaps it will make it into next month's newsletter.

Instead we have a bunch of stuff from Usenet. Continuing excerpts from "Frequently Asked Questions - with Answers", this month we have

- How Do I Get a Recursive Directory Listing?
- How Do I Get the Current Directory Into My Prompt
- How do I redirect stdout and stderr separately in csh?
- What does {awk,grep,fgrep,egrep,biff,cat,gecos,nroff,troff,tee,bss} stand for?

And lastly, what Usenet is best at: a question and an answer. John Gilmour was having trouble getting DECwindows running on his SparcStation, and Ken Lee of DEC's Western Software Lab in Palo Alto was kind enough to supply a solution. For more information, you can contact Ken at

klee@decwrl.dec.com (Internet)
or at
uunet!decwrl!klee (uucp)

As you can see, there is plenty of room in the newsletter for your letter or article :-).

Send hardcopy to:
Sharon Gates-Fishman
NDC Systems
730 E. Cypress Ave.
Monrovia CA 91019
or e-mail to:
...amdahl!cit-vax!ndc!sgf

Frequently Asked Questions

How do I get a recursive directory listing?

One of the following may do what you want:

```
ls -R
```
(not all versions of "ls" have -R)

```
find . -print
```
(should work everywhere)

```
du -a
```
(shows you both the name and size)

If you're looking for a wildcard pattern that will match all ".c" files in this directory and below, you won't find one, but you can use

```
% some-command `find . -name '*.c' -print`
```

"find" is a powerful program. Learn about it.

How do I get the current directory into my prompt?

It depends which shell you are using. It's easy with some shells, hard or impossible with others.

C Shell (csh)

Put this in your .cshrc - customize the prompt variable the way you want.

```
alias setprompt 'set \
    prompt="${cwd}% "'
setprompt
# to set the initial prompt
alias cd 'chdir \!* && \
    set prompt'
```

If you use pushd and popd, you'll also need

```
alias pushd 'pushd \!* && \
    setprompt'
alias popd 'popd \!* && \
    setprompt'
```

Some C shells don't keep a $cwd variable - you can use `pwd` instead. If you just want the last component of the current directory in your prompt ("mail% " instead of "/usr/spool/mail% ") you can use

```
alias setprompt 'set \
    prompt="$cwd:t% "'
```

Some older csh's get the meaning of && and || reversed. Try doing:

```
false && echo bug
```

If it prints "bug", you need to switch && and || (and get a better version of csh.)

Bourne Shell (sh)

If you have a newer version of the Bourne Shell (SVR2 or newer) you can use a shell function to make your own command, "xcd" say:

```
xcd() { \
    cd $* ; PS1="`pwd` $ "; }
```

If you have an older Bourne shell, it's complicated but not impossible. Here's one way. Add this to your .profile file:

```
LOGIN_SHELL=$$ export \
    LOGIN_SHELL
CMDFILE=/tmp/cd.$$ export \
    CMDFILE
PROMPTSIG=16 export \
    PROMPTSIG
trap '. $CMDFILE' \
$PROMPTSIG
```

and then put this executable script (without the indentation!), let's call it "xcd", somewhere in your PATH

```
: xcd directory - change direc-
: tory and set prompt by
: signalling the login shell to
: read a command file
cat >${CMDFILE?"not set"} \
    <<EOF
cd $1
PS1="\`pwd\`$ "
EOF
kill -${PROMPTSIG?"not set"}
${LOGIN_SHELL?"not set"}
```

Now change directories with "xcd /some/dir".

Korn Shell (ksh)

Put this in your .profile file:

```
PS1='$PWD $ '
```

If you just want the last component of the directory, use

```
PS1='${PWD##*/} $ '
```

How do I redirect stdout and stderr separately in csh?

In csh, you can redirect stdout with ">", or stdout and stderr together with ">&" but there is no direct way to redirect stderr only. The best you can do is

```
( command >stdout_file ) \
    >&stderr_file
```

which runs "command" in a subshell; stdout is redirected inside the subshell to stdout_file, and both stdout and stderr from the subshell are redirected to stderr_file, but by this point stdout has already been re-directed so only stderr actually winds up in stderr_file.

What does {awk, grep, fgrep, egrep, biff, cat, gecos, nroff, troff, tee, bss} stand for?

awk = "Aho Weinberger and Kernighan"
This language was named by its authors, Al Aho, Peter Weinberger and Brian Kernighan.

grep = "Global Regular Expression Print"
grep comes from the ed command to print all lines matching a certain pattern
   g/re/p
where "re" is a "regular expression".

fgrep = "Fixed Grep".
fgrep searches for fixed strings only. The "f" does not stand for "fast" - in fact, "fgrep foobar *.c" is usually slower than "egrep foobar *.c" (yes, this is kind of surprising. Try it.) Fgrep still has its uses though, and may be useful when searching a file for a larger number of strings than egrep can handle.

egrep = "Extended Grep"
egrep uses fancier regular expressions than grep. Many people use egrep all the time, since it has some more sophisticated internal algorithms than grep or fgrep, and is usually the fastest of the three programs.

cat = "catenate"
catenate is an obscure word meaning "to connect in a series", which is what the "cat" command does to one or more files. Not to be confused with C/A/T, the Computer Aided Typesetter.

gecos = "General Electric Compre hensive Operating System"
When GE's large systems division was sold to Honeywell, Honeywell dropped the "E" from "GECOS". Unix's password file has a "pw_gecos" field. The name is a real hold over from the early days. Dennis Ritchie has reported:

"Sometimes we sent printer output or batch jobs to the GCOS machine. The gcos field in the password file was a place to stash the information for the $IDENT card. Not elegant."

nroff = "New ROFF"
troff = "Typesetter ROFF"
These are descendants of "roff", which was a re-implementation of the Multics "runoff" program.

tee = T
From plumbing terminology for a T-shaped pipe splitter.

bss = "Block Started by Symbol"
Dennis Ritchie says:

"Actually the acronym (in the sense we took it up; it may have other credible etymologies) is 'Block Started by Symbol.'"

It was a pseudo-op in FAP (Fortran Assembly [-er?] Program), an assembler for the IBM 704-709-7090-7094 machines. It defined its label and set aside space for a given number of words. There was another pseudo-op, BES, "Block Ended by Symbol" that did the

same except that the label was defined by the last assigned word + 1. (On these machines Fortran arrays were stored backwards in storage and were 1-origin.) The usage is reason ably appropriate, because just as with standard Unix loaders, the space assigned didn't have to be punched literally into the object deck but was represented by a count somewhere.

biff = "biff"

This command, which turns on asynchronous mail notification, was actually named after a dog at Berkeley. I can confirm the origin of biff, if you're inter ested. Biff was Heidi Stettner's dog, back when Heidi (and I, and Bill Joy) were all grad stu dents at U.C. Berkeley and the early versions of BSD were be ing developed. Biff was popu lar among the residents of Ev ans Hall, and was known for barking at the mailman, hence the name of the command.

Confirmation courtesy of Eric Coo per, Carnegie Mellon University

Don Libes' book Life with Unix con- tains lots more of these tidbits.

From Usenet:

Question: How does one run DECwindows from a DECstation on a Sparc- Station? The SparcStation is running the X11R4 server. "dxwm" starts up eas- ily, but "dxsession" dies with a protocol error:

```
Failed request major op code 111 X_SetAccessControl
ResourceID 0x8006d in failed request
```
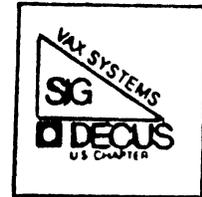
Answer: You should login to the SparcStation (machine running the server) and run the xhost program to add the name of the DECstation (machine running the clients) to the server access control list.

NEWSLETTER OF THE VAX SYSTEMS SIG

Pageswapper

Our Mascot

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VAX

EDITOR'S NOTE

David Santistevan
Pageswapper Editor

Well how about that !!! I will probably be able to order a TV set from DEC Direct soon with the rumor of the hostile take over of Digital by Mitsubishi. I wonder what changes are in store for the DEC community if this takeover takes place ? One thing is for sure, with the announcement of DEC's first quarter in the red, a first in their history, along with the general softness of the computer industry, it may be time for a change. Maybe the "Lunch Server 100" carousel oven is not too far out after all.

The 1989 Fall VAX , L&T, and RSX tapes are now available through the DECUS Library. The tape are a consolidated effort between the VAX SIG and L&T SIG to help reduce duplication of entries. However, the distribution is still two tape (one VAX SIG and one L&T) and both tapes are required for the complete set.

Until next month

Dave

THE ART OF TROUBLESHOOTING
by Bill Smith
Goldman, Sachs & Company
New York, New York

In the era of CASE tools and Artificial Intelligence, computers themselves are playing an increasing role in their own programming. To some people, the computer is taking over their jobs; to others, it is taking over the world. While some feel that the art of programming is in danger, there is one art that will belong to the humans for a long time to come -- the art of troubleshooting.

Although computers are becoming more adept at diagnosing their own faults, an incorrectly designed or written piece of software must - almost by definition - be diagnosed by "Real Intelligence" - humans.

All editorializing aside, this article is presented with three objectives. First, I hope you will find it entertaining. While it may not be funny or terribly dramatic, it is a War Story with the ironic twists that are so characteristic of them. Secondly, since I learned something technical from this exercise, I hope that the reader may as well.

Finally, I hope that a lesson can be learned. Many of us have fallen prey to the 'easy answer'. This is an answer that cannot be totally explained but 'looks right'. I believe we all have succumbed more than once. I have learned, over time, that one must resist this temptation - or pay the penalty down the road. I have often been involved in problem diagnosis when the pressure is great to accept the easy answer. It is difficult, without a concrete example at hand, to convince those involved to press on for the 'right answer'. What you are about to read may provide you with that example.

I was writing a DECnet application in 'C'. It was basically a client server configuration. The server would declare itself as a named DECnet object and clients would connect to it. There were to be many instances of this server - each with a different DECnet object name. The server, although written in 'C', was layered on a suite of BLISS routines which handled all the nitty gritty of DECnet I/O. These routines were well architected and written by someone in-house some time ago but I was fortunate enough to have the source. My server was developed on a workstation running V5.x. To declare itself as an object, the server need only make a call to the lower layer, passing the object name, and the rest was taken care of - including handling connect requests from clients and responding to them.

After development was

complete, I ran a suite of tests in my development environment to shake it down. The server passed with flying colors. However, it was to run in production on a V4.x system for awhile, so I duplicated some of the tests there to make sure. However, neither the server, nor the underlying DECnet code dealt with any documented V5 changes. As expected, no trouble was uncovered on the V4.x system. So I installed it on our six node V4.7 VAXcluster and let some programmers begin beta testing it

While working with a programmer on getting an application going, I discovered a problem. I created an instance of a server with an object name of GRS_WOLF. When I tried to connect to it with a client program, the client would hang and eventually get a "network partner exited" error. Although the server was still running, it would not correctly accept the connect. But it was very strange - other objects worked! There was a GRS_MTN, a GRS_FRN a GRS_BS. And they all worked. But wait! Could it be possible that it is a function of the object name length?! It seemed so.

I soon discovered, much to my chagrin, that I *was* in fact able to connect to the GRS_WOLF server from another node. While I was trying on BACHUS before, I was able to reach him from VENUS. I momentarily threw away my theory on the object name length and took up an new theory: It must be a function of the nodename length. After all, BACHUS was six letters and VENUS was five. VENUS was successful, BACHUS was not. However, it was clear that I

could get to *some* servers from BACHUS. Therefore it must be a function of *both*! Another theory was born: Any combination of source nodename length and server object length adding up to 14 or more would not work. However, it is important to note that I developed this code on a workstation named SCOBEE. SCOBEE has six letters. I was sure that I tested with object specs longer than 8 characters.

Well, only one way to find out: run a client on SCOBEE and connect to a server on BACHUS named GRS_WOLF. The connection was successful! I had a combination that added up to 14 and it still worked. I even added a letter to the object spec and it still worked. I was back at square one -- or was I? I ran some more tests and confirmed that the following was true: VENUS could connect to GRS_WOLF; BACHUS could not. However, BACHUS could connect to GRS_WOL but VENUS could not connect to GRS_WOLFE. Hence, the sum of the two was definitely related. I proved that a combination totalling 14 would not work. There was one problem: it *did* work from SCOBEE. I had to obtain more of an understanding of what was happening at the DECnet level.

Allow me to digress for a moment to explain some DECnet non-transparent task-to-task fundamentals. When a server declares itself as an object, it assigns a channel to NET: and associates a mailbox with it. Since all connect requests are received in the mailbox, the a server must post a read on the mailbox. Typically this is an asynchronous read with an associated AST routine to be executed when the I/O completes. The server then goes

about its business while connect requests are handled at AST level by this AST routine. When a client attempts to connect, DECnet builds a Network Connect Block and writes it into the mailbox thus satisfying the asynchronous read. The server's AST is executed and it then (presumably) accepts the connection by issuing a QIO write to the mailbox using the IO$_ACCESS function code.

At this point it was clear to me that I needed to dig down deeper into those lower layer routines in order to get an understanding of what was going on.

I recompiled everything with debug - including the BLISS routines - and ran a GRS_WOLF server in debug mode. I set a breakpoint at the AST routine that is executed when the mailbox I/O is satisfied via a connect request. I wanted to look at the contents of this Network Connect Block (NCB) that gets deposited in the mailbox. I ran a CLIENT on VENUS which sent a connect request and the AST routine executed as expected in the server. I then examined the NCB that DECnet had deposited in the mailbox.

I discovered that contained in this Network Connect Block, among other things was the source nodename and destination object name - the very two pieces of information I theorized about before. I stepped through and observed the QIO write with IO$_ACCESS thus accepting the connection. I also noticed that the P2 on the QIO write was the address of the NCB. Apparently, when you accept a connection, you need to pass the NCB back to DECnet so it knows which

link you are accepting since all connects come through the same mailbox. Now I was ready to try a failure scenario. I thought that one of two things was possible: 1) the AST routine failed to issue the acceptance I/O, or it issued it with an invalid NCB. I wanted to intercept the errant connect request and see if the acceptance I/O was really issued by the AST routine. If it was, I wanted to see the NCB it was passing back to the QIO.

I ran the GRS_WOLF again, with the breakpoint at the mailbox completion I/O routine and ran a client on BACHUS. I waited for the breakpoint... and waited, and waited. Finally the client exited with "network partner exited". The server was still running but no breakpoint had been reached indicating that the read I/O never completed. Apparently, DECnet never dropped the NCB into the mailbox. The server was not at fault. It appeared as though the connect request never got through DECnet.

I drew a grid on my whiteboard. The pattern became obvious. Given the same exact executables, the following was true:

o A client running on any V4.x system with a nodename greater than six characters could not connect to GRS_WOLF anywhere.

o A client running on any V5.x system with a nodename of any length was able to connect to GRS_WOLF on any node.

It is amazing what writing something down can do for you. The answer jumped out.

Apparently, there must have been some obscure bug in DECnet in V4.x that caused DECnet, on the client node, to fail sending a connect request to the node holding the object (server). This bug must have been fixed in V5 since any connects from V5 work.

It is important to mention at this point that I had been working on this problem for the better part of a couple of days. This solution looked real attractive. It made perfect sense. Also, since we would be upgrading to V5 soon, I wouldn't have needed to worry much about it.

Most of you will agree that the evidence was compelling. Many people may have accepted this and moved on. At another time, I may have done the same. However, my gut told me that I should not go on assumptions. Why would I have been the only one to see this anyhow?! I have always cautioned others not to take the easy answer an so I was going to press on and prove that V4 did - or did not - have a bug that V5 fixed.

I needed to know where the request was getting lost. It was clear that it was getting lost somewhere in DECnet itself. Was it getting lost in DECnet on the client side and never transmitted over the wire to the server side? Or was it arriving in the server side and being dropped?

I ran a failure scenario: a client on BACHUS connecting to GRS_WOLF on VENUS. Using NCP and other utilities I determined that DECnet on VENUS did indeed register a connect since there was a link back to BACHUS present. Similarly, when I tried the same connecting to GRS_WOLF on SCOBEE, the V5.x

system, SCOBEE knew of an incoming link, but DECnet refused to pass it up to te server. If it could be proven that a V4.x system was not initiating a connect at all, it would make the case for a V4 bug stronger. However, we now see that V5 did get a connect from V4 and it dropped it.

Well, it was now time to do it the "macho way" - haul out the source code and read! Well after a bit of reading of the BLISS code, I discovered something. When the BLISS routine creates the network mailbox, it specified a value of 64 for the maximum mailbox message size. Since this is the mailbox that receives the NCB for a connect request, I pulled up a failure mode NCB. Adding up all the bytes, including source node, destination object name and other information, they added up to 65! That was it! The right combination of node and object would put it over the limit.

Apparently DECnet will drop the NCB on the floor if it won't fit in the mailbox. It will do so without warning to the server or client. I changed the code to allow a larger mailbox and the problem disappeared. (I believed, and still do, that this is a DECnet deficiency. I feel the mailbox I/O should complete with SS$_BUFFEROVF or the client should be returned a meaningful status.)

But the quest for the truth was not over. One question remained unsolved. Why was a V5 client able to connect - even with the 64 byte mailbox on the server end? There was definitely a version dependency here
somewhere and I needed to find it.

I looked a little further into the NCBs for an answer. I learned that the NCB is first built by DECnet on the client end and then shipped to DECnet on the server end to be passed up to the server mailbox. Closer examination of the NCBs generated by the V4 client and V5 client showed that there was a subtle and undocumented change in DECnet for V5 of VMS. In addition to information mentioned above, the NCB also contains the source username. Since I was running from username SMITH in all cases, this should have been a constant. However, I determined that when a V4 client issues a connect, DECnet sends an NCB to the server node with the username padded with spaces to 12 characters. V5 clients generate an NCB with spaces trimmed. Hence, a V5 generated connect, sent an NCB 7 characters shorter than a V4 generated request for a username of SMITH. This allowed the V5 request to work in all of my testing cases.

However, it is important to realize that, the username changing from fixed length in V4 to variable length in V5 simply added a third variable to the equation. Hence, if I had accepted the fact that it was a V4 bug, upgraded and forgot about it, the problem would indeed have reoccurred on V5 for usernames of 12 characters on a node of 6 characters to an object of 8 characters. In fact, any combination of source username, source node and destination object name totalling more than 25 would fail! You would have to agree that that would be an order of magnitude harder to track down. I am certainly glad

to have spent the extra time now and put that all behind me.

All in all, I hope you enjoyed the War Story; I hope you learned to provide enough mailbox space for DECnet and above all, I hope you will avoid being led down the primrose path by the 'easy answer' and continue searching for the 'right answer'. Sometimes the 'easy answer' *is* the 'right answer'. However it does not become the 'right answer' until it is proven. Don't overreact and throw away the easy answers -- just try to prove them.

SIG TAPE REVIEW

This is to announce that the Fall 1989 VAX, L&T, and RSX tapes have now been sent to the DECUS library and to the top level distribution for local user group distribution. Additional copies will be going out as quickly as they can be made.

Thanks to those who contributed this time.
Any contributions for next time will be gratefully accepted; send   email if interested.
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Fall 1989 VAX / L&T SIG TAPE CONTENTS

The L&T and VAX Systems SIGs are again producing a combined collections for Fall 1989 to reduce duplication between the two. The collection has been split, rather arbitrarily, into an L&T part and a VAX part for purposes of packaging it for the DECUS Library. The NLC / Tree distribution is combined but the collection is too large for a single TK50 and thus is split across two DECUS Library part numbers. Please be aware that you only have the complete collection for Fall 1989 by obtaining both parts.

CONTENTS and TOOLS ([.89BVAXLT...] Tree)

This tree contains the index files and descriptions of the rest of the collection, plus a [.tools] subdirectory containing utilities handy in unpacking some of the archives contained here; a AAAREADME.1ST file there gives further instructions.

DECUS LIBRARY Catalog ([.DECUSLIB...] tree)

Complete machine readable text of the DECUS Library catalog, plus all available machine readable descriptions of older material not in print in the current catalog. Browser tool also included.

VAX Fall 1989, Part 1 ([VAX89B1...] Tree)

Directory	Description
[.aepsc]	Virtual disk driver (contiguous files containers). Disk data caching driver. From Paul Sorenon
[.asu]	B-Tree (on disk) package in Pascal. Computable process priority controller (for CPU hogs). Ethernet monitor. Queue monitor. From Greg Wilson and others.
[.atg]	Callable EDT and poor man's LSE. Sixel print for HP LaserJet. Automatic VAX C .h files. VMS symbiont for LaserJet. Many kernel mode examples for affecting other processes (set name, prompt, dump process, force deallocate, etc.) Alternate protocol stubs for MAIL. Util to talk to NETACP direct. User written debugger template. XE ethernet monitor. From Nick de Smith.
[.blosser]	Set prompt to default dir. BASIC number converter. Computer user interface routines. From Victor Blosser.
[.bruread]	BRU tape reader in native mode for VMS, with source, from Adrian Weiler.
[.bzl]	Network tracker cmds. Callable MAIL examples. Cmds to rebuild Rdb databases, mem. monitor, etc. From Bart Lederman.
[.cdvms]	Routines to read ISO 9660 and "High Sierra" format CDRoms in VMS. From Mark Holomany.
[.ci]	Concatinate Sixel (side by side). Dialup modem setup. DROIDS game. ENPAGE util. for LN03. FORCEX utility to force exit. Lock terminal. REMINDER appt. printer and rescheduler. SYSTATUS for VMS 5.2. From Ken Richardson.

[.cjfall89]   Utilizing VMS from COBOL Notes, VBN error Notes
                               (VA103), Command files to report on fragmentation.
                               From John Claxton

[.ctlsmb]   Multithreaded control symbiont for VMS from Greg
                               Wonderly.

[.faust]   Guide to using SYSMAN and helpful command files. From
                               Richard Faust.

[.finger]   Network/local show users/images/idletime/etc.
                               display; also good account name server. From
                               Terry Kennedy.

[.flowers]   MENU - DCL menu system with timeouts. Disk space
                               monitor. Fragmentation checker. Check open files on
                               system. From Harry Flowers.

[.fullerton]   Directory movement command files and fortran include
                               library. From James Fullerton.

[.gcef89]   AnalytiCalc spreadsheet update & new docs. Numerous
                               items from Internet, including REMOTE VIRTUAL
                               MAGTAPE DRIVER from W. Moeller, laserwriter
                               symbionts, sixel, VMS TAR, mail tools, innumerable
                               others. VMS virtual disks. Includes contig. file
                               disk, mem disk in process mem, cryptodisk, remote
                               virtual disk, shadow disk, more. C Kermit for VMS,
                               sliding windows. PGPLOT 3D plot pkg for multiple
                               devices. Update to MDdriver memory virtual disk (in
                               nonpaged pool). Submitted by Glenn Everhart.

VAX Fall 1989, Part 2 ([VAX89B2...] Tree)
--- ---- ----- ---- -

[.anglia]   Articles from UK VAX newsletter. Ethernet monitor
                             and terminal server utility (poor man's TSM).
                             Extract symbols from .OBJ or .STB, making .h files.
                             Software driver to simplify clusterwide spools. Fast
                             load display in cluster. VAXnotes utilities DEC
                             doesn't provide. From Ian Kitching.

[.decmons]   Monitor routines for LAT, LAVC, and hardware address
                             traffic on Ethernet, from DEC.

[.dec_windows]   DECwindows applications: menu manager, performance
                             meter, show network user, window create. From Robert
                             Heller.

[.diskcharge]   Disk usage chargeback accounting system. From Almon
                             Sorrell and Shari Dishop.

[.dspqm]   Utilities to manage large numbers of DECserver based
                             print queues. From Pasquale Scopelliti.

[.dtrsig]   Latest DTR/4GL SIG collection; many DTR functions,
                             plus ACCENT-R and Rally submissions. From DTR/4GL SIG.

[.hunter]   Save/restore/flush DCL command buffer. Patch DCL
                             recall to 60-odd lines. Get_input code allowing
                             cmd recall. Login program. From Hunter Goatley.

[.kooker]   TREK Games, Spreadsheet in Pascal, Calendar Utility,
                             System monitoring and Performance Analysis Tools.
                             From Don Kooker.

[.levine]   Checksum /CRC utility for checking changes in .SYS
                             programs, File Compression /Exp util. INDEX Fortran
                             static analyzer & flowcharter. Macro preprocessor,
                             Newsread Util. VT3xx Utilities incl. font builder and
                             340 paint utility. From Mike Levine.

[.lomasky]   SYSUAF tailorable report util. Virtual memory access
                             in HOLs routines. VMSMAIL_PROFILE.DATA dump utility.
                             From Brian Lomasky.

[.rxs]   Routines for manipulating LAT application ports from
                      high level languages without using QIO interface.
                      From Robert Simon.

[.sessindex]   Table of contents of most session notes for last few
                      years. From John Stitzinger.

[.sit]   Chain batch w/o mods to procs. Software load in heter.

                      cluster. Printer symbiont mods; new burst/flag pages.

                      C modules lib. Commandfile activation util not needing

                      numerous symbols. Queued mail system. From David
                      Stevens.

[.sjbrown]   Rewrite of SWING in C (directory maintenance util).
                      Queue monitor. From Simon Brown.

[.snap]   System and user monitor system from Dan Graham.
                      Includes WATCH which allows observing/control
                      of other terminals.

[.swan]   Datatrieve forms & Menu Interface (poor man's FMS),
                      BANNER. From David Swan.

[.sxes_source]   Desk Top Calendar update and hardcopy appointment
                      calendar print utility. From Phil Deatherage.

[.tedder]   Procedures to find the holders of an identifier and
                      to find the identifiers held by a user. From Mr.
                      Tedder.

[.ualr]   ETAPE - IBM tape access,complete! GETUAI - Authorize
                      show clone. Show queue enhancement. Many print posters.
                      From Dale Miller.

[.xmodem]   XMODEM Protocol for VMS. From Alan Jedlow.

[.ymodem]   YMODEM protocol for VMS, plus unifying command
                      proc. to select which program to run. From Earle
                      Ake.

[.arta]   Fortran Programming Tools. KERMIT utilities for VAX
                     to PC access incl. checking for new mail, printing on

                     VAX printer, sending mail, etc. KRONOS timed cmds.
                     Viewgraph generator. Misc. sys mgt utils. From Art
                     Ragosta.

[.bulletin]   Message bulletin board; works like VAX MAIL (also
                     across DECnet). From Mark London.

[.epubs]   TeX related material. Includes DVIPS, BIBTEX for
                     Mac, how to include Mac drawings in LaTeX docs,
                     and TeXx for DECwindows. From Ted Nieland.

[.eri]   Programs and Images relating to rendering of the CIE
                     color chart. From Robert Goldstein.

[.eveplus]   4 level superset of EDT from Glenn Fleming

[.gplot]   Graphics utility to process graphics files or DVI
                     TeX graphics output for various devices. From Phil
                     Andrews.

[.news59]   Source to ANU NEWS Usenet news reader for VMS V5.9c,
                     obtained from Geoff Huston.

[.spain]   VMSINSTAL kit building utility. Timesheet (work time
                     record) utility. Command file debugger. Docs re
VMSINSTAL.
                     From Harrison Spain.

[.xeve]   Extended EVE editor with spelling checker, large
                     dictionary. From Thomas Wolfe.

L&T Fall 1989, Part 2 ([lt89b2...] Tree)

[.cca]   Examples - VAX TPU Programming inside EVE - PSS
                            examples. From Robert Tinkelman.

[.dbryant]   Global search and replace. (Source, Helplib, Msgfile,

                            Kitinstal.com) Tetris game for VAX. Source and .EXE.
                            From David Bryant.

[.flex]   Gnu version of LEX lexical scanner generator.
                            For VMS. From Vern Paxon.

[.gnusoftware]   Free Software Foundation code done since Spring '89
                            tapes. Includes GCC and G++ for VMS, high quality C
                            and C++ compilers for VMS (from Angel Li), more.

[.poot]   Changebars for RUNOFF files,DSR document builder.
                            From Terry Poot.

[.stp]   EVE extensions. Example of an editor environment on top

                            of EVE. Includes rectangular functions (Cut, Paste,
                            Copy, Fill, ChangeCase...) From Paul Boudreaux.

```
Directory          Description
---------          -----------

[265,001]          Three contributions by Hans Hamakers.
                   MCE V4.22, the much beloved EDT-style RSX Commandline editor.

                   EFN, a utility to set/reset/show global, group-global and
                   local event flags of all tasks;
                   RCV, a utility to show and/or delete SEND/RECEIVE and
                   SEND/RECEIVE BY REFERENCE packets;
                   SEN, a utility to send data and send data by reference to a
                   specified task;
                   VSEN, a variable send data utility for RSX-11M systems, and
                   VRECEVE, the receive version.
                   Plus a compilation of all RSX-11M sysgen symbols.


[266,001]          Two contributions by Peter Vergeer.
                   SEARCH searches for a string in on or more files.
                   STRAP removes the comment sections from MACRO-11 source
                   listings to speed-up the assembly process; especially useful
                   when re-assembling large programs.


[267,001]          Three contributions by Erik Beumer.
                   BRUDIR is an improved version of the well-known BRUDIR on
                   the Spring 1986 tape.
                   LCU is a utility to locate the users of a common area.
                   TPC is a an enhanced version of the TPC tape-to-tape utility

                   present on each SIG tape.


[300,001]          General description of tape contents.


[300,002]          BIGTPC and VMSTPC and other utilities for tape copy of these
                   tapes.


[300,003]          Updated index of most RSX SIG tapes between 1979 and this one.

                   Starting point was the index prepared by Annamaria Szentgali
                   of the German RSX SIG which appeared on the European 1984
                   RSX SIG tape.
                   Added to the European distribution by Jan belgraver.
```

[356,040]   Kermit-11 update (V3.60). Complete Kermit-11 distribution for
                 communications with other systems. Also includes binaries
                 for Kermits for VAX/VMS, IBM PC. From Brian Nelson.

[373,100]   MAP allows examining mapping information for a file, useful
                 for checking disk fragmentation. SWATCH is a stopwatch to
                 time execution of command lines. From Adrian Bottoms.

[374,100-117]   Cargill Utility library for Pascal, including invoking RSX
                 directives from Pascal, a string handling package, and format
                 conversion routines. From Jim Bostwick.

[374,121]   Multi-Tasker Runoff sources. From Bruce Mitchell, Jim
                 McGlinchey, and Jim Bostwick.

[374,122]   Cache tape driver, adds caching to tape drives not internally
                 buffered. From Dave Mischler.

[374,123]   BRUDIR in Macro. Directory listing of BRU tapes. Fixes
                 problems with named directories and large numbers of files
                 and with octal versions. From Dave Mischler.

[374,124]   RSX11M+ Symbolic Debugger. From Dave Mischler.

VIRTUAL NEWS

Staff Writers
Western Data Technologies

All The News........
That's VIRTUAL News!

VAX SYSTEMS SIG SIR

SUBMISSION FORM ANAHEIM 89

Descrine in 1 to 4 lines the subject of the SIR.

ABSTRACT:

Give a brief description of the SIR including features and
capabilities. PLEASE DO NOT WRITE SYNTAX.

Place in the SIR box in the VAX SIG campground.

Thank You.

Bill & Ted II : 'THE CADILLAC TIME MACHINE"

It has been discovered by our movie review crew that plans
are underway to produce a sequel to the movie "Bill and Ted's
Excellent Adventure". However, the first movie was such a success
that the group plans to upgrade the device used for time travel.
The original telephone booth will be replaced by a VAX 6240 fully
equipped with "Mr. Photon" warp drive, bucket seats, a VAXStation
console, a new DECnet "lightyear lookahead" feature and the ability
to zip across the future ethernet standard for time travel
(802. 8023) at over 100 SOLM's (Speed of Light Multiples). To quote
a phrase used repeatedly by our heros in this new film: "This is
a most bodaciously excellent machine.....Party on Dudes!"

DIGITAL ANNOUNCE COMBINED SUPPORT OFFERING

Digital has announced a combined hardware/software support
services. This service will allow your Digital Field service rep
to now be your software support specialist. This is said to
decrease down time by not trouble shooting software problems but
rather to just swap VMS out.

LUNCH SERVER 100 SHIPPING NOW !!!

Digital's new "Lunch Server 100" has been released for
shipment this week. Digital has some eighty thousand orders pending
this innovative product and they are finally shipping. This new
Ethernet based server is based on the technology devised by the
*McDonalds restaurants for serving mass quantities of food and
beverages to Digital users. This new product is capable of a full
"1. 5 Mega Bytes (or Mega Slurps)" transfer rate and can handle
transmission of shakes and *McDLT with equal ease. * McDonalds and
McDLT are both trademarks of the McDonalds Corp.

Woman gives birth to human laser printer !!!

A women in Lexington KY has a baby who is capable of writing
ten pages a minute in what looks like a modified Helvetica font.
The women , a CAD operator, attributed this unusual talent of the
baby, to radiation doses she received from her workstation at work.
When asked if she planned to file lawsuit on the manufacturers of
the equipment she said no, but she plan to patent the process.

The
DECUS LIBRARY
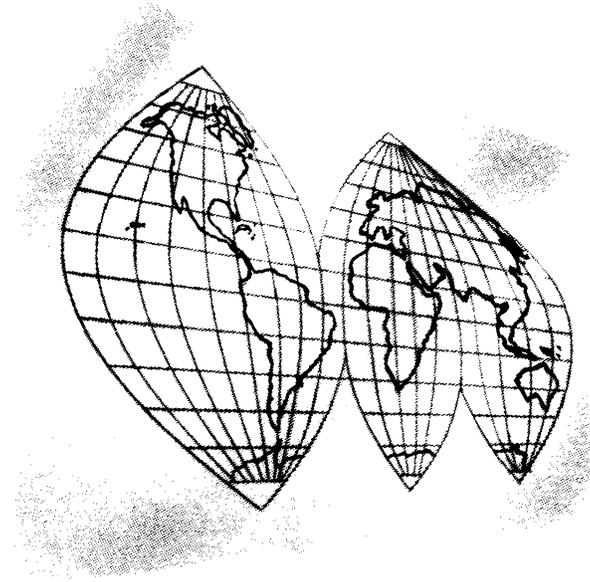
Software News

U.S. Chapter Edition

"Solving Your Everyday Problems"

Henry Moore
Public Health Services
National Institutes of Health

Encapsulated Review

Rated on a scale of 1 to 5 with 5 being excellent		
Ease of Installation:	4	Basically straight-forward and fully documented. See body of review for deviations from documented procedures that are necessary to install the system.
Documentation:	5	The distribution includes files suitable for impact printers, Postscript printers, and LN03 printers. The documentation is complete and has a polished appearance.
Intended Audience:		The system is designed as a tool for use by those people responsible for capacity management of a VAX or a VAXcluster.
Ease of Use:	5	The system is very easy to use. The documentation contains useful examples.
Usefulness:	5	This package should be very useful in situations where managers must document the need for system enhancements or predict the impact of anticipated applications.
Sources:	Yes	Source code in BASIC and MACRO as well as command files are supplied. These were not tested.
Objects Supplied:	Yes	

Introduction

The MISRESOURCES VAX Capacity Management System is a graphical utility for evaluating the state of utilization of a VAX or a VAXcluster. It was submitted by DIGITAL. The author was Grant Davis of the South Pacific Region Information Processing Group in Australia. The system can run interactively on a graphics terminal (VT240, VT241, VT330, or VT340) or run in batch. Color devices are supported and the system can produce REGIS or SIXEL hardcopy output.

The documentation states that MISRESOURCES requires VMS V5.1 and RETOS V1.0 to operate. However, since the distributed program references the COBOL run time library, some sites may find that the DISPLAY program cannot function under VMS 5.1. VMS V5.2 does contain the correct version of COBRTL.EXE.

Once installed, MISRESOURCES operates as documented. The graphs it produces are nicely structured and easy to read. No problem was encountered with any of the options during the review. Overall this a professional package which should serve the needs of the intended audience.

Test Configuration

MISRESOURCES was tested on a MicroVAX II with 9 MByte of memory and an RA-81 disk drive. The required version of COBRTL.EXE was not available under VMS

```
┌─────────────────────────────────────────────────────────────────────────────────────────┐
│ V00314          VAX Capacity Management Tool        Version: 3.2, September 1989          │
│ Submitted by: Digital Equipment Corporation                                               │
├─────────────────────────────────────────────────────────────────────────────────────────┤
```

Operating System: VAX/VMS Source Language: MACRO-32, VAX BASIC, VAX COBOL Memory Required: 102KB Software Required: VAX RETOS if hardcopy graphs to spooled sixel printers is required. Hardware Required: VT240 Terminal, VT330 Terminal or VT340 Terminal Keywords: System Management - VMS

Abstract: This system is designed as a tool for use by those people responsible for capacity management of a VAX or VAXcluster. It is not necessary to have VMS internal knowledge or system management knowledge to make use of this package. It is mainly designed for medium or large scale VAX installations.

This package collects statistics on the utilization of CPU, memory and disk devices on the monitored VAX or VAXcluster. It also collects information on the CPU response of the machine and the number of processes executing. In addition to the VAX wide and VAXcluster wide information collected, this package also collects information for each UIC group. If your VAX system is arranged with each application in a separate UIC group then this allows the total system utilization to be broken down by application.

The information collected can be displayed in a graphic form on VT240, VT330 or VT340 terminals. The capacity manager uses an interactive display program that has a DCL-like command syntax. The user can display histograms or frequency diagrams with hourly, daily or monthly information. The UIC group statistics can be added or subtracted from system wide statistics so graphic answers to questions like, "What will happen to the system if I take that application off", can be seen.

Hardcopy output to printers that handle ReGIS is possible. If the Digital Equipment Corporation product RETOS is available, output to printers like the LA100 that support sixel graphics can be performed.

A machine uptime subsystem is included which records VAX uptime accurate to five minutes. These statistics can be reported between date and hour ranges, and weekends can be either included or excluded from the calculation.

Complete user documentation, help text and installation documentation is included on the media.

Notes: Executable and/or object code is included.

Changes and Improvements: Support of VMS V5 and multi-processing.

Media (Service Charge Code): 600' Magnetic Tape (MA) Format: VMS/BACKUP, or order VL0009

Figure 1: DECUS Library Abstract for VAX Capacity Management Tool

V5.1-1 so the review procedures, other than the installation, were accomplished under VMS V5.2. A VT340 with a LJ-250 slave printer was used for interactive graphing. An LN03 Plus was also used for graphical output.

Installation

Installation is basically straight-forward and well-documented. To proceed more efficiently, obtain a copy of the documentation before reading in the entire distribution. The documentation details the remaining procedures. Since the MISRESOURCES system expects specific accounts and directories to be established, there is no advantage to initially reading in the entire distribution.

To obtain a copy of the documentation from a DECUS distribution, use the command:

```
$  BACKUP/SELECT= -
_$ [VAX314.MISRESOURCES.DOCUMENTATION]MISRESOURCES.* -
_$ dev:V00314/SAVE_SET [destination_directory]*.* /LOG
```

Chapters 9 through 12 of the manual detail the installation process. If this system is being installed under VMS V5.2, the account MISRESOURCES should be established as RESTRICTED rather than CAPTIVE.

After establishing a suitable account, read in the distribution with the command:

```
$  BACKUP/SELECT= -
_$ [VAX314.MISRESOURCES...]*.* dev:V00314/SAVE\_SET  -
_$ [destination_directory]*.* /BY_OWNER=MISRESOURCES
```

Be sure to carefully follow the instructions in Chapter 11 to make sure that the command files reflect the correct system logicals.

In order to function, the VMS ACCOUNTING utility must be enabled.

Documentation

The MISRESOURCES distribution has three versions of the documentation. Two of these (MISRESOURCES.LINE for impact printers and MISRESOURCES.LN03 for LN03 printers) were reproduced at the test site. The test site did not have a printer suitable for printing the third. (MISRESOURCES.PS for Postscript printers.) The documentation is complete and accurate. The only significant discrepancy noted is that the system, specifically the DISPLAY program, does not run under VMS V5.1 due to a mismatch with COBRTL.EXE. This problem may not surface

at sites that have COBOL installed. The typeset version of the manual has an excellent appearance.

The documentation describes the measurement methods, features of the software, interpretation of results and the installation process.

Ease of Use

These programs perform effortlessly. The documentation fully explains the choices available and provides a number of complete examples. No special expertise is required to fully realize the potential of the MISRESOURCES system.

Usefulness

The MISRESOURCES system measures the following items:

- Utilization of VAX CPU resources.
- Utilization of VAX memory resources.
- Process counts of VAX machines.
- Relative response times of VAX machines.
- Disk I/O statistics per disk volume.
- Usage of VAX CPU resources by an application.
- Usage of VAX memory resources by an application.
- Usage of Disk I/O by an application.
- Process counts per application of VAX machines.
- Application response time.
- Machine availability.

These items may be displayed as histograms, frequency distribution or cumulative frequency diagrams on VT240, VT241, VT330, and VT340 terminals. Batch generation of graphs can also be performed. Hardcopy output to printers that support the sixel or regis graphics protocols is available.

This information could be of interest to a manager who is either trying to quantify the impact of installing additional applications on a system or trying to isolate the cause of deteriorating system performance.

Summary

MISRESOURCES is a tool for evaluating the capacity of a VAX. When a major change in computer utilization is being considered, a system such as MISRESOURCES can provide convincing evidence of the capability of the system to accommodate increased utilization or to document the need for additional computer resources.

This system should be of great interest to managers in the process of recommending system enhancements. Consultants and marketing representatives might also find this system to be useful for demonstrating the need for systems and/or peripherals.

NEW LIBRARY PROGRAMS AVAILABLE
FOR THE
VAX/VMS FAMILY OF COMPUTERS

DECUS NO: VS0111 **TITLE:** Symposium Collection from the RSX SIG, Fall 1989, Anaheim **Version:** 1, January 1990

Author: Various

Submitted by: Glenn C. Everhart, Ph.D.

Operating System: IAS, RSX-11M, RSX-11M-PLUS **Source Language:** FORTRAN IV, MACRO-11 **Keywords:** Symposia Tapes - VMS

Abstract: This is the RSX SIG Tape from the Fall 1989 DECUS Symposium in Anaheim. It is available in either BRU format or VMS/BACKUP format. See DECUS Program No. 11S110 for a description of the program.

Complete sources may or may not be included.

Media (Service Charge Code): 2400' Magnetic Tape (PS) **Format:** VMS/BACKUP, TK50 Tape Cartridge (TC) **Format:** VMS/BACKUP

DECUS NO: VS0110 **TITLE:** PRO Public Domain Tape **Version:** 1.0, September 1989

Author: Various

Submitted by: Gary Rice, McDonnell Douglas, Westminister, CA

Operating System: P/OS, RSX-11M, RSX-11M-PLUS, VAX/VMS **Source Language:** BASIC-PLUS-2, FORTRAN 77, FORTRAN IV-PLUS, MACRO-11, PASCAL **Memory Required:** 512KB **Keywords:** Business Applications, Data Communications, Games, Tools - Applications Development, Utilities -P/OS

Abstract: The PRO Public Domain Tape contains the following programs. For a complete description of each program refer to the

"DECUS NO." and "TITLE" in the DECUS Library Catalog. VAX running VMS is required in order to read this tape.

DECUS NO.	TITLE
PRO101	TECO, COPY, SRD, MCR and RNO for P/OS V1.7
PRO102	BFGUSER
PRO117	GRASP: Graphics Applications Processor
PRO118	Work Order Record System
PRO121	Real-Time Interface Support for the Nicolet Explorer via RS232 for the Professional-300 Series
PRO122	General Purpose Database Package
PRO123	BASIC, PASCAL, PortaCalc, KERMIT and a Desk Top Calendar
PRO124	C Language System with Native Toolkit
PRO125	DDT: A Symbolic Debugger for P/OS
PRO127	BBASE: A Small Database Program
PRO129	DOB and FORTH for P/OS

PRO131	FSTATS: Statistical Analysis Package for P/OS
PRO132	RUNOFF M02.4H for P/OS V2
PRO133	Astronomical Ephemerides
PRO134	RSX-P/OS Tar for Floppy Diskettes
PRO135	Easycom/PRO for the Professional - 350/380 Series
PRO136	PRO/VLINK for the Professional - 350/380 Series
PRO137	Adventure for the Professional-300 Series
PRO138	Airplane Lander for the Professional - 300 Series
PRO139	DBMS: Data Base Management Package for the Professional 300 Series
PRO141	TTLIB: VT100 Library Sources for the Professional-300
PRO147	WFPROC - Wildcard File Expansion Routine
PRO148	KERMIT for P/OS
PRO149	CAMERA - Test of a Hamamatsu C1000 Camera on the PRO's RTI
PRO150	APFELM - Mandelbrot Set Explorer
PRO152	DIGITIZING - Graphical I/O Using a Tablet and HPGL-Plotter
PRO153	LISSA2-A Painting Game
PRO154	DELPHIN
PRO156	FORTRANUM
PRO158	Bonner Labs RUNOFF - Pro-350/380
PRO162	GRAPHIC UTILITIES
PRO163	PROPLOT
PRO164	Selective Copy/Sort a Directory
PRO165	Technical Graphics Programs for the Pro-350
PRO167	FUNCTIONS
PRO169	PRO 2780/3870 Communications Applications
PRO170	P/OS V2 Extensions
PRO171	DSKDIR: Diskette Directory Utility
PRO172	SIDE: Development Improvements for the PRO
PRO173	SIXELPRINT

Also included on the tape are programs which have been done at Florida State University. Included are their famous "Ye Olde Font Shoppe", PRO Bitmap Manipulation tools, and PRO Basic to Basic-Plus-2 tools.

There is also a miscellaneous collection of RSX programs that are either PRO specific or PRO adaptable.

Notes: Executable and/or object code is included.

Complete sources not included.

Media (Service Charge Code): 2400' Magnetic Tapes (PB) **Format:** VMS/BACKUP, 2400' Magnetic Tape (SB) **Format:** VMS/BACKUP, TK50 Tape Cartridge (TB) **Format:** VMS/BACKUP

DECUS NO: VS0106 **TITLE:** Symposium Collection from the VAX SIG, Fall 1989, Anaheim **Version:** November 1989

Author: Various

Submitted by: Glenn Everhart & Ted Nieland

Operating System: MicroVMS, VAX/VMS **Source Language:** Various **Keywords:** Symposia Tapes - VMS

Abstract: This is the VAX SIG tape from the Fall 1989, DECUS Symposium in Anaheim. The Fall 1989 VAX and the Fall 1989 Languages and Tools SIG tape are two parts of a single collection. Users are advised to order both in order to have the complete set. Refer to DECUS No. VS0105 for a description of the Fall 1989 Languages and Tools SIG tape. The following is a brief summary of highlights:

DECUS Library Catalog	Complete machine readable text of the DECUS Library catalog, plus all available machine readable descriptions of older material not in print in the current catalog. Browser tool also included.
[.AEPSC]	Virtual disk driver (contiguous files containers). Disk data caching driver. Submitted by Paul Sorenson.
[.ASU]	B-Tree (on disk) package in PASCAL. Computable process priority controller (for CPU hogs). Ethernet monitor. Queue monitor. Submitted by Greg Wilson and others.
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[.BZL]	Network track cmds. Callable MAIL examples. Cmds to rebuild RDB databases, mem. monitor, etc. Submitted by Bart Lederman.
[.CDVMS]	Routines to read ISO 9660 and "High Sierra" format CDROMS in VMS. Submitted by Mark Holomany.
[.CI]	Concatenate Sixel (side by side). Dialup modem setup. DROIDS game. ENPAGE util. for LN03. FORCEX utility to force exit. Lock terminal. REMINDER appt. printer and rescheduler. SYSTATUS for VMS 5.2. Submitted by Ken Richardson.
[.CJFALL89]	Utilizing VMS from COBOL Notes, VBN error Notes (VA103), Command files to report on fragmentation. Submitted by John Claxton.
[.CTLSMB]	Multithreaded control symbiont for VMS. Submitted by Greg Wonderly.
[.DECMONS]	Monitor routines for LAT, LAVC, and hardware address traffic on Ethernet. Submitted by Digital Equipment Corporation.
[.DEC_ WINDOWS]	DECwindows applications: menu manager, performance meter, show network user, window create. Submitted by Robert Heller.
[.DISKCHARGE]	Disk usage chargeback accounting system. Submitted by Almon Sorrell and Shari Dishop.
[.DSPQM]	Utilities to manage large numbers of DECserver based print queues. Submitted by Pasquale Scopelliti.
[.DTRSIG]	Latest DTR/4GL SIG collection; many DTR functions. Submitted by DTR/GL SIG.
[.FAUST]	Guide to using SYSMAN and helpful command files. Submitted by Richard Faust.
[.FINGER]	Network/local show users/images/idle-time/etc. display; also good account name server. Submitted by Terry Kennedy.
[.FLOWERS]	MENU - DCL menu system with timeouts. Disk space monitor. Fragmentation checker. Check open files on system. Submitted by Harry Flowers.
[.FULLERTON]	Directory movement command files and FORTRAN include library. Submitted by James Fullerton.
[.GCEF89]	AnalytiCalc spreadsheet update & new docs. Numerous items from Internet, including REMOTE VIRTUAL MAGTAPE DRIVER submitted by W. Moeller, laserwriter, symbionts, sixel, VMS TAR, mail tools, innumerable others. VMS virtual disks. Includes contig. file disk, mem disk in process mem, cryptodisk, remote virtual disk, shadow disk, more. C KERMIT for VMS, sliding windows. PGPLOT 3D plot pkg for multiple devices. Submitted by Glenn Everhart.
[.HUNTER]	Save/restore/flush DCL command buffer. Patch DCL recall to 60-odd lines. Get_input code allowing cmd recall. Login program. Submitted by Hunter Goatley.
[.KOOKER]	TREK Games, Spreadsheet in PASCAL, Calendar Utility, System monitoring and Performance Analysis Tools. Submitted by Don Kooker.
[.LEVINE]	Checksum /CRC utility for checking changes in .SYS programs, File Compression /Exp util. INDEX FORTRAN static analyzer & flowcharter. Macro preprocessor, Newsread Util. VT3xx Utilities incl. font builder and VT340 paint utility. Submitted by Mike Levine.
[.LOMASKY]	SYSUAF tailorable report util. Virtual memory access in HOLs routines. VMS-MAIL_PROFILE.DATA dump utility. Submitted by Brian Lomasky.
[.MEADOWS]	BITNET utils. DECNET QIO examples. FILE - display /change file hdr info. A MUST-HAVE! Find - Locate files by criteria (e.g. zero length, lbn, crea.date, etc.). KFE - access known file database. MAIL - callable mail examples incl. CHECKMAIL. MENU - nifty menu system. OBJECT - example of getting info out of .obj. Sd. Status - clusterwide. UAF - search SYSUAF for criteria. Also guess-

password checker. UNSDL - generate includes for many languages. Submitted by Joe Meadows.

[.MPCALC] "Infinite" precision, programmable scientific calculator modified to work in VMS. Original submitted by Markku Heikkinen.

[.NFREED] DELIVER VAXmail delivery agent (allows selective forward, mail lists, etc.). Submitted by Ned Freed.

[.NIELAND] Password checker; ensures passwords are not in a dictionary. Submitted by Ted Nieland.

[.NSWC] NSWC RUNOFF - An alternative to Digital Standard RUNOFF, MAILUAF - An aid to maintaining VMSMAIL__ PROFILE.DATA. Submitted by Al Zirkle.

[.PAVLIN] DISM32 VMS disassembler update. ETHERMON ethernet monitor enhancements. Submitted by Andy Pavlin.

[.POTTER] DCL Pipe, DECNET Copy, LAT host help, RENAME__BY__FID, SETUSER, TAIL, VMS__COMPRESS, WHERE__ AM__I, NETWHAT and ACE Scrubber. ACE scrubber will remove ALL ACEs for an identifier you remove. Submitted by Andrew Potter.

[.RANKIN] EXTRACT - get records from start, end, middle of file. XSHOW - fill some missing SHOW commands. Fast Ethernet monitor. Sixel to PostScript filter. Count records. UNO game. SMG support for terminals. Submitted by Pat Rankin.

[.RUCKER] MAINT sys management utility. Backup/ restore front end. OPLOG extract SIG events. PMON, a free alternative to VPA and SPM. DECnet monitor stats. Batch production scheduling tool. Queue utility. Flexible number conversion & banner page builder. Operator doc. Misc., incl. tape conv. between VAX, IBM S/38, AS/ 400, Sperry 1100. Submitted by Roger Ruckert.

[.RXS] Routines for manipulating LAT application ports from high level languages without using QIO interface. Submitted by Robert Simon.

[.SESSINDEX] Table of contents of most session notes for last few years. Submitted by John Stitzinger.

[.SIT] Chain batch w/o mods to procs. Software load in heter. cluster. Printer symbiont mods; new burst/flag pages. C modules lib. Command file activation util not needing numerous symbols. Queued mail system. Submitted by David Stevens.

[.SJBROWN] Rewrite of SWING in C (directory maintenance util). Queue monitor. Submitted by Simon Brown.

[.SNAP] System and user monitor system. Includes WATCH which allows observing/control of other terminals. Submitted by Dan Graham.

[.SWAN] DATATRIEVE forms & Menu Interface (poor man's FMS), BANNER. Submitted by David Swan.

[.SXES__SOURCE] Desk Top Calendar update and hardcopy appointment calendar print utility. Submitted by Phil Deatherage.

[.TEDDER] Procedures to find the holders of an identifier and to find the identifiers held by a user. Submitted by Mr. Tedder.

[.UALR] ETAPE - IBM tape access, complete!GETUAI - Authorize show clone. Show queue enhancement. Many print posters. Submitted by Dale Miller.

[.XMODEM] XMODEM Protocol for VMS. Submitted by Alan Jedlow.

[.YMODEM] YMODEM Protocol for VMS, plus unifying command proc. to select which program to run. Submitted by Earle Ake.

Complete sources may or may not be included.

Media (Service Charge Code): 2400' Magnetic Tapes (PD) **Format:** VMS/BACKUP, 2400' Magnetic Tape (SD) **Format:** VMS/BACKUP, TK50 Tape Cartridge (TD) **Format:** VMS/ BACKUP

DECUS NO: VS0105 **TITLE:** Symposium Collection from the Languages and Tools SIG, Fall 1989, Anaheim **Version:** November 1989

Author: Various

Submitted by: Glenn Everhart & Ted Nieland

Operating System: VAX/VMS **Source Language:** Various **Keywords:** Symposia Tapes - L & T

Abstract: This is the Languages and Tools SIG tape from the Fall 1989, DECUS Symposium in Anaheim. The Fall 1989 VAX SIG tape and the Fall 1989 Languages and Tools SIG tape are two parts of a single collection. Users are advised to order both tapes in order to have the complete set. Refer to DECUS No. VS0106 for a description of the Fall 1989 VAX SIG tape. The following is a brief summary of highlights:

[.ARTA] FORTRAN Programming Tools. KERMIT utilities for VAX to PC access incl. checking for new mail, printing on VAX printer, sending mail, etc. KRONOS timed cmds. Viewgraph generator. Misc. sys mgt utils. Submitted by Art Ragosta.

[.BULLETIN] Message bulletin board; works like VAX MAIL (also across DECnet). Submitted by Mark London.

[.CCA] Examples - VAX TPU Programming inside EVE - PSS examples. Submitted by Robert Tinkelman.

[.COY] WPE WPS-PLUS Emulator for TPU, V5.2. Submitted by Dale Coy.

[.DBRYANT] Global search and replace. (Source, Helplib, Msgfile, Kitinsal.com) Tetris game for VAX. Source and .EXE. Submitted by David Bryant.

[.EPUBS]	TeX related material. Includes DVIPS, BIBTEX for Mac, how to include Mac drawings in LaTeX docs, and TeX for DECwindows. Submitted by Ted Nieland.
[.ERI]	Programs and Images relating to rendering of the CIE color chart. Submitted by Robert Goldstein.
[.EVEPLUS]	Four level superset of EDT. Submitted by Glenn Fleming.
[.FLEX]	GNU version of LEX lexical scanner generator. For VMS. Submitted by Vern Paxon.
[.GNUSOFTWARE]	Free Software Foundation code done since Spring '89 tapes. Includes GCC and G++ for VMS, high quality C and C++ compilers for VMS and more. Submitted by Angel Li.
[.GPLOT]	Graphics utility to process graphics files or DVI TeX graphics output for various devices. Submitted by Phil Andrews.
[.NEWS59]	Source to ANU NEWS Usenet news reader, V5.9. Submitted by Geoff Houston.
[.POOT]	Changebars for RUNOFF files, DSR document builder. Submitted by Terry Poot.
[.STP]	EVE extensions. Example of an editor environment on top of EVE. Includes rectangular functions (Cut, Paste, Copy, Fill, ChangeCase..). Submitted by Paul Boudreaux.
[.XEVE]	Extended EVE editor with spelling checker, large dictionary. Submitted by Thomas Wolfe.

Complete sources may or may not be included.

Media (Service Charge Code): 2400' Magnetic Tapes (PB) Format: VMS/BACKUP, 2400' Magnetic Tape (SB) Format: VMS/BACKUP, TK50 Tape Cartridge (TB) Format: VMS/BACKUP

DECUS NO: V00468 TITLE: RESETV Version: 1.0, January 1990

Submitted by: Thomas Edward Chenault, U.S. Gov't, WSNM, NM

Operating System: VAX/VMS V5.2 Source Language: DCL Memory Required: 2.5KB Keywords: File Management

Abstract: This program purges and renames a given file as if the version of the file kept were the first version created. The program will use any wildcard which is recognized by VMS. This program is not to be used on the system device, since error log, accounting file, etc., are expected at fixed locations.

Notes: Executable and/or object code is included.

Media (Service Charge Code): 600' Magnetic Tape (MA) Format: VMS/BACKUP

DECUS NO: V00467 TITLE: QMAN Version: 2.2, January 1990

Submitted by: David Cathey, DSC Communications, Plano, TX

Operating System: VAX/VMS V5.1-1 Source Language: MACRO-32, PASCAL Keywords: Utilities - VMS

Abstract: QMAN is a VMS utility to assist in the management of queues. It can be used in the system startup to start all queues that are local to the node. It will automatically search for candidate queues based on wildcard queue name, and queue type (if /BATCH or /DEVICE qualifiers are used). Queues that match the search criteria are started. Only local and generic queues are started to avoid complications of starting queues in a VAXCluster when not all nodes are available. As new queues are added into the system, QMAN will start them automatically with no further changes in the startup command procedure. A STOP command is available as well.

The other main feature of QMAN is the ability to generate a command file that can be used to recreate the entire queue file. All form and queue qualifiers are maintained (including ACL's on queues). The /FORM, /CHARACTERISTICS, /DEVICE, and /BATCH qualifiers are available to generate commands only for those selected components. By default, all queue components are generated. A /OUTPUT qualifier can be used to direct the output to a file. Corrupted queue files can be restored by initializing a new queue file and executing the QMAN generated command file.

Notes: Operating System VAX/VMS V5.0 or later is required. Executable and/or object code is included.

Media (Service Charge Code): 600' Magnetic Tape (MA) Format: VMS/BACKUP

DECUS NO: V00465 TITLE: TEKED Version: 1.0, January 1990

Submitted by: Thomas E. Chenault, U.S. Govt., WSMR, NM

Operating System: VAX/VMS V5.0 through V5.2 Source Language: DCL Memory Required: 1.2KB Keywords: Editors, Tektronix, VT100 Routines

Abstract: This command procedure sets up Tektronix 4105 and 4109 terminals to use EDT, the Digital Equipment Corporation full screen editor. The TEK 4105 terminal must be known to the VAX as a device type FT4 and the TEK 4109 terminal must be known to the VAX as a device type FT3, at the time the user logs on to the terminal.

Notes: Executable and/or object code is included. Operating System VAX/VMS V5.0 or later is required because of changes in foreign terminal designations.

Media (Service Charge Code): 600' Magnetic Tape (MA) Format: VMS/BACKUP

DECUS NO: V00464 **TITLE:** LOOK - A BASIC Language File Browser **Version:** 1.0, October 1989

Submitted by: George Mc Duffee, Midland Brake, Iola, KS

Operating System: VAX/VMS V5 **Source Language:** BASIC-PLUS **Hardware Required:** VT100, VT200, VT300 series of ANSI terminals **Keywords:** BASIC, Language Interpreters

Abstract: LOOK is a VAX/VMS utility written in BASIC to determine parameters for a RMS data file and to examine its contents by "scanning" a "window" of twenty rows by seventy columns across the file using the cursor control [arrow] keys.

A graphics or XWINDOW terminal is NOT required, however ANSI escape codes to set the normal, highlight, inverse and blink modes and cursor position are used.

The RMS file parameters are extracted using an adaptation and extension of the example code in the VAX BASIC Reference Manual [p. 4-120/121] for the FSP$ function.

The rows and columns are identified by numbers to the left and top using the inverse display mode. Maximum number of columns is currently 999 and maximum number of rows is currently 65,536, however this may be easily extended if memory/disk space is available.

This utility has been found to be particularly useful when data is to be downloaded to a PC in that the file organization can be definitely defined and identified and the length/location of fields within a data string and other items such as actual or implied decimal points, types of delimiters if any, etc., can be verified.

This helps avoid problems when there have been slight changes in the VAX file format, such as change in a field length from six to eight characters, so the data "translation" at the PC end can be adjusted before the PC data files are updated.

The maximum data line length is determined and displayed. If the line is longer than 999 characters the actual length is displayed, however only 999 characters can be seen in the "window".

Line termination is indicated by one or two blank screen characters indicating CR, LF, or CR/LF.

The major differences from other programs of this type are:

. Determination and display of the RMS file parameters.
. Identification of the row/column location of each character in the data display "window".

Not all RMS file types can be examined.

Notes: Executable and/or object code is included.

Documentation not available.

Media (Service Charge Code): One RX50 Diskette (JA) **Format:** VMS/BACKUP, 600' Magnetic Tape (MA) **Format:** VMS/BACKUP

DECUS NO: V00463 **TITLE:** X11TEK **Version:** 3.1, December 1989

Submitted by: Dr. Gerd Kobschall, Inst. Fur Keruphysik, Becherweg 45; D6500 Mainz, West Germany

Operating System: VAX/VMS V5.1-1 **Source Language:** C **Memory Required:** 500KB **Software Required:** DECwindows **Keywords:** Emulators, Tektronix

Abstract: X11TEK is a Tektronix emulator for DECwindows and X Windows 11. It provides 4010 Tektronix capability and nearly full 4014 capability including some Retrographics extensions. The emulator runs as a user subprocess and receives its input and sends its output via a mailbox from/to the Tektronix code generating application program.

Notes: Executable and/or object code is included. Operating System VAX/VMS V5.1 or later is required.

Media (Service Charge Code): 600' Magnetic Tape (MA) **Format:** VMS/BACKUP

DECUS NO: V00462 **TITLE:** CD__ACCESS **Version:** 2.01, November 1989

Submitted by: Peter A. Stockwell, Department of Biochemistry, Dunedin, New Zealand

Operating System: VAX/VMS V5.1-1 **Source Language:** PASCAL **Hardware Required:** VAX system equipped with RRD40 or RRD50 Compact Disc Reader **Keywords:** Data Communications, Utilities - VMS, CDROM

Abstract: CD__ACCESS provides an interface to ISO 9660 standard CDROMs which are not currently accessible directly from VMS. VMS like commands allow setting of default directories and file transfers from the CD. On line help is provided along with comprehensive documentation.

Notes: Executable and/or object code is included.

Media (Service Charge Code): 600' Magnetic Tape (MA **Format:** VMS/BACKUP

DECUS NO: V00458 **TITLE:** LeafWare and Graphics **Version:** 4.0, December 1989

Author: Doug Wamack, Interleaf

Submitted by: Kim White, Interleaf

Operating System: VAX/VMS V4.7 **Software Required:** Interleaf version 4.0 or greater **Keywords:** Utilities - VMS

Abstract: LeafWare is provided to serve as a guide to writing your own LeafWare scripts. The LeafWare cabinet contains a useful set of Lisp scripts. This cabinet also embodies a convention for sharing and managing Lisp programs among individual users.

The LeafWare cabinet contains four cabinets:Library, Leaf-Scripts, Examples, as well as a Documentation cabinet. The LeafScripts cabinet contains scripts that can be pasted into your own Custom-}Selection and No Selection cabinets. The Library cabinet contains supporting Lisp code for LeafScripts (note that not all of the LeafScripts require supporting code from the Library). This supporting Lisp code is loaded automatically the first time you run one of these LeafScripts. The

Documentation cabinet has supporting documents that describe how to use LeafWare. The installation instructions automatically append a "defautoload" line into your users profile. This will allow the LeafScripts to load Lisp from the Library cabinet.

The graphics cabinet is a set of graphic files from Doug Wamack, an InterLeaf graphics' specialist. The cabinet contains examples of a bit of everything from technical and commercial illustrations to cartoons to clip art.

Notes: Operating System VAX/VMS V4.7 or later is required. Interleaf is intended for use with a TPS release V4.0 or later on the VMS operating system. It contains two parts:LeafWare cabinet and Graphics cabinet.

Media (Service Charge Code): 2400' Magnetic Tape (PA) **Format:** VMS/BACKUP

DECUS NO: V00451 **TITLE:** DECserver - Print Queue **Version:** 1.0, November 1989

Submitted by: Pasquale F. Scopelliti, Corning Incorporation, Corning, NY

Operating System: VAX/VMS **Source Language:** DCL **Software Required:** Terminal Server Manager (TSM) for Debugger **Keywords:** Utilities - VMS

Abstract: This package consists of files needed to manage large numbers of DECserver-based print queues. It contains .TXT files containing escape sequences for various devices, especially the LN03 printer. The following is a brief summary of highlights:

SETUP__LAT__ | DEVICES.COM
| Reads the definition file LAT__PRINTERS.DEF, and defines all the queues and LAT ports. Some user editing might be needed in the RESET sequences in the queue initialization commands and in the SET TERMINAL settings.
CHECK__QUEUE. |
COM | Checks all aspects of a DECserver based queue. In particular, it goes out to the DECserver and verifies that its name and port are setup properly. It requires that TSM (Terminal Server Manager) be installed.
MAINT.COM | Maintains the entries in SYS$LIBRARY:SYSDEVCTL.TLB.

Some of the setup escape sequences included are:

. LN03__80COL__PORTRAIT__3HOLE.TXT, LN03__132COL__ LANDSCAPE__3HOLE.TXT, these sequences leave room for a three hole punch.

. LN03__200__80.TXT, used for landscape printing at 200 characters by 80 lines. This is about as tight as can be, and still be readable.

. LN03__BOX.TXT, draws a box around the page.

. LN03__TCS__LANDSCAPE.TXT, LN03__TCS__PORTRAIT.TXT, used for documents containing Technical Characters.

Notes: Operating System VAX/VMS V4.6 through V5 is required.

Complete sources may or may not be included.

Media (Service Charge Code): 600' Magnetic Tape (MA) **Format:** VMS/BACKUP

DECUS NO: V00445 **TITLE:** Text Formatter for LN03 Printer **Version:** 1.0, August 1989

Submitted by: Digital Equipment Corporation India Ltd

Operating System: MS-DOS V3.0 **Source Language:** TURBO C **Memory Required:** 256KB **Hardware Required:** LN03 Laser printer to be connected with PCs or PC/XTs through serial port **Keywords:** IBM, Text Formatting

Abstract: This package consists of the following utilities for document preparation on the LN03 Laser Printer:

. Screen dump routine | Simulates the MS-DOS Prtsc routine for LN03 Laser Printer.
. Save screen routine | Graphics generated on the screen can be saved to a file for further formatting purposes.
. Text formatter | WORDSTAR compatible document files can be formatted with additional features like downloading fonts, selection for printing, table formatter, special and mathematical symbols printing, formatting external data created by utility, save screen routine.

In general, the utilities provide a user friendly menu driven interface between IBM Compatible Personal Computers' family and an LN03 Laser printer.

Notes: The programs in the package make use of dot commands and control character sets similar to WORDSTAR, table handling features similar to NROFF and MACROS for Math symbols similar to TeX. Operating System MS-DOS V3.0 or later is required.

Restrictions: Complicated mathematical expressions and graphic language features are not supported with this version. This software has to be run on an IBM compatible PC for interfacing an IBM compatible PC with an LN03 Laser Printer. Please note the media is an RX50 diskette. IBM Compatible Personal Computers cannot read RX50 diskettes, so it would be necessary to transfer the data on the RX50 diskette to a diskette compatible with IBM Personal Computers.

Documentation available in hardcopy only.

Media (Service Charge Code): User's Manual (EA), One RX50 Diskette (JA) **Format:** VAX/ANSI

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DECUS NO: 11S110 TITLE: Symposium Collection from the RSX SIG, Fall 1989, Anaheim Version: 1, January 1990

Author: Various

Submitted by: Glenn C. Everhart, Ph.D.

Operating System: IAS, RSX-11M, RSX-11M-PLUS Source Language: FORTRAN IV, MACRO-11 Keywords: Symposia Tapes - RSX-11

Abstract: This is the RSX SIG Tape from the Fall 1989 DECUS Symposium in Anaheim. It is available in either BRU format or VMS/BACKUP format. The VMS Tape is DECUS Program No. VS0111. Following are brief descriptions of the contents of the directories on the tape.

[265,001]	MCE V4.22, the much beloved EDT-style RSX Command line editor. EFN, a utility to set/reset/show global, group-global and local event flags of all tasks; RCV, a utility to show and/or delete SEND/RECEIVE and SEND/RECEIVE BY REFERENCE packets;SEN, a utility to send data and send data by reference to a specified task; VSEN, a variable send data utility for RSX-11M systems, and VRECEVE, the receive version. Plus a compilation of all RSX-11M sysgen symbols. Submitted by Hans Hamakers.
[266,001]	SEARCH searches for a string in one or more files. STRAP removes the comment sections from MACRO-11 source listings to speed-up the assembly process; especially useful when re-assembling large programs. Submitted by Peter Vergeer.
[267,001]	BRUDIR is an improved version of the well known BRUDIR on the Spring 1986 tape. LCU is a utility to locate the users of a common area. TPC is an enhanced version of the TPC tape-to-tape utility present on each SIG tape. Submitted by Erik Beumer.
[300,001]	General description of tape contents.
[300,002]	BIGTPC and VMSTPC and other utilities for tape copy of these tapes.
[300,003]	Updated index of most RSX SIG tapes between 1979 and this one. Starting point was the index prepared by Annamaria Szentgali of the German RSX SIG which appeared on the European 1984 RSX SIG tape. Submitted to the European distribution by Jan Belgraver.
[356,040]	KERMIT-11 update (V3.60). Complete KERMIT-11 distribution for communications with other systems. Also includes binaries for KERMITS for VAX/VMS, IBM PC. Submitted by Brian Nelson.
[373,100]	MAP allows examining mapping information for a file, useful for checking disk fragmentation. SWATCH is a stopwatch to time execution of command lines. Submitted by Adrian Bottoms.
[374,100-117]	Cargill Utility library for PASCAL, including invoking RSX directives from PASCAL, a string handling package, and format conversion routines. Submitted by Jim Bostwick.
[374,121]	Multi-Tasker Runoff sources. Submitted by Bruce Mitchell, Jim McGlinchey, and Jim Bostwick.
[374,122]	Cache tape driver, adds caching to tape drives not internally buffered. Submitted by Dave Mischler.
[374,123]	BRUDIR in Macro. Directory listing of BRU tapes. Fixes problems with named directories and large numbers of files and with octal versions. Submitted by Dave Mischler.
[374,124]	RSX-11M-PLUS Symbolic Debugger. Submitted by Dave Mischler.

Complete sources may or may not be included.

Media (Service Charge Code): 2400' Magnetic Tape (PS) Format: BRU, TK50 Tape Cartridge (TC) Format: BRU

DECUS NO: 110924 TITLE: HEATH Version: 1, February 1989

Submitted by: John M. Crowell, Davis, CA

Operating System: RT-11 V5.5 Source Language: MACRO-11 Memory Required: 8KB Hardware Required: Heathkit Model GC1000 Digital Clock and DL11-Type Serial Port Keywords: Clock, Heath-11

Abstract: This program sets the RT-11 date and time from the ASCII string produced by the Heathkit GC1000 WWV clock connected to a DL11 type serial port. It may be run from a startup command file to set the system date and time at bootstrap.

Notes: Operating System RT-11 V5.0 or later is required. Executable and/or object code is included.

Media (Service Charge Code):One RX50 Diskette (JA) Format: RT-11, One RX01 Diskette (KA) Format: RT-11

DECUS NO: 110540 HP9872 Plotting Package for use with MINCs Version: 2.0, August 1982

Submitted by: Rangarajan Jayaraman, Stanford University, Stanford, CA

Operating System: MINC, RT-11 V4 Source Language: FORTRAN IV V2.5, MACRO-11 Memory Required: 64 KB Hardware Required: IBV11-A (IEEE-488 Instrument Bus Interface), HP9872 Graphics Plotter with HP-IB Interface. Keywords: MINC/RT-11 Software, Plotting

Abstract: This powerful and comprehensive plotting package consists of a number of FORTRAN callable subroutines for using a HP9872 Graphics Plotter with MINC computers. The main objectives of the package are to free the user from having

to acquire detailed knowledge of the hardware and software aspects of the plotter for its effective usage and to provide routines which generate

'standard plots' of 'report quality' with minimal input from the user while assuming on the part of the user minimal knowledge of the package itself.

Some of the many features of this package are: Linear or logarithmic mapping along either or both axes, numerical labels along axes, tic marks, grid lines, axes titles, plot title, character strings with super and subscripts, symbols at data points, different types of lines between data points, five different types of single frames, fourteen different types of multiple frames with shifted origins, line type legend blocks, informative legend blocks and auto ranging.

Media (Service Charge Code): User's Manual (ED), One RX01 Diskette (KA) **Format:** RT-11, 600' Magnetic Tape (MA) **Format:** RT-11

REVISIONS TO LIBRARY PROGRAMS

DECUS NO: VS0053 **TITLE:** KERMIT Distribution **Version:** January 1990

Author: Various

Submitted by: Glenn C. Everhart, Ph.D.

Operating System: CP/M, IAS, MS-DOS, Micro/RSX, MicroVMS, OS/278, OS/78, P/OS, RSTS/E, RSX-11M, RSX-11M-PLUS, RT, RT-11, TOPS-10, TOPS-20, ULTRIX, VAX/VMS, VENIX **Source Language:** BLISS-16, BLISS-32, BLISS-36, C, FORTRAN 77, FORTRAN IV, LISP, MACRO-10, MACRO-11, MACRO-32, PASCAL, VAX BASIC **Keywords:** Data Communications, KERMIT

Abstract: This tape collection contains a VMS Backup saveset made from the KERMIT distribution from Columbia University dated January 28, 1990. The tape collection contains all KERMITS known to Columbia as of that date plus a large amount of documentation.

The Columbia distribution is on five (5) reels of tape. To reduce costs, this distribution has been placed on TWO (2) reels of tape for DECUS, in VMS/BACKUP format at 1600 BPI, one tape at 6250 BPI. All KERMITS are here as distributed by Columbia University. Complete KERMIT documentation and booting instructions are on the tape. No paper documentation is needed.

Files beginning with AA*.* should be looked at first for an overview of what's here.

Changes and Improvements: New MS-DOS KERMIT V3.0 added plus others.

Media (Service Charge Code): 2400' Magnetic Tapes (PB) **Format:** VMS/BACKUP, 2400' Magnetic Tape (SB) **Format:** VMS/BACKUP, TK50 Tape Cartridge (TB) **Format:** VMS/BACKUP

DECUS NO: 110736 **TITLE:** DV: Virtual Device Handler for RT-11 **Version:** November 1989

Submitted by: R. Tapp, University of Victoria, Victoria, B.C., Canada V8W 2Y2

Operating System: RT-11 V4.00 or 5.01 **Source Language:** MACRO-11 **Memory Required:** 32KB **Software Required:** See Notes **Keywords:** Data Communications, Device Handlers

Abstract: A patch for the RT-11 file DD.MAC creates the source file for a new device handler DV that can access virtual devices on a host computer using a standard serial terminal line. These virtual devices can be used either for file communication with the host system or as backup storage for RT-11 files. Included are an RT-11 terminal emulator program for establishing communication with the host system, a stand-alone bootstrap loader program for DV, and a set of server programs for a VAX/VMS host that support virtual devices compatible with the VMS EXCHANGE utility and emulate TU58, RK05, RL01, RX01 and RX02 devices.

Notes: Includes a companion server program for a VAX/VMS V4.4 host with both PASCAL V3.4 and object files. This program must be customized for other host operating systems. Supplied patches require RT-11 V4.00 or V5.01 source files. Other versions may not be compatible.

Changes and Improvements: RT-11 V5 handler now supports special function call to return the device size and SET commands for timeout period and retry count.

Media (Service Charge Code): User's Manual (EA), One RX01 Diskette (KA) **Format:** RT-11, 600' Magnetic Tape (MA) **Format:** RT-11

DECUS NO: V00336 **TITLE:** FTX **Version:** 5.0-2-A, November 1989

Submitted by: C.J. Chapman, Philips Defence Systems MEL, Crawley, Sussex, England, RH10 2PZ

Operating System: MicroVMS V5.0, VAX/VMS V5.0 **Source Language:** MACRO-32 **Memory Required:** 143KB **Keywords:** System Management - VMS, Utilities - VMS

Abstract: FTX - Foreign Tape Extension utility is a systems management tool that enables ASCII or EBCDIC data files to be written, or read from unlabelled magnetic tape using combinations of block and record format.

Features include:
. Automatic tape mount and dismount with no unload.
. Forward tape mark skipping before read begins.
. Full wild card file processing.
. Record padding and stripping.
. Read while spooling option.
. Character translation checking.
. Data I/O checking.
. Tape erase option.
. Tape test option

Release notes are distributed with each order.

Notes: Operating System VMS V5.0 or later is required. Executable and/or object code is included.

Changes and Improvements: Program has been revised for Operating System VAX/VMS V5.0.

Media (Service Charge Code): 600' Magnetic Tape (MA) Format: VMS/BACKUP, or order VL0009

DECUS NO: V00301 **TITLE:** DVIOUT - DVI Output Driver **Version:** 1.2, January 1990

Submitted by: Scott Campbell, PAR Government Systems Corporation, Colorado Springs, CO

Operating System: VAX/VMS V5.2 **Source Language:** C, MACRO-32 **Memory Required:** 2MB **Software Required:** TeX, METAFONT, and associated utilities **Hardware Required:** PostScript laser printer or Tektronix 4014. Print symbiont requires Apple LaserWriter **Keywords:** Conversions, Graphics

Abstract: DVIOUT is a program for converting DVI files produced by TeX for use by specific output devices, including laser printers and high resolution graphics devices. Features include:
. Support for multiple output devices. The currently supported devices include the Apple LaserWriter (and PostScript in general), and the Tektronix 4014. An untested IMAGEN driver is also included. The PostScript driver should work with the LN03R. Additional output devices can be supported by providing a few low-level routines to perform the basic device output functions.
. Inclusion of PostScript, Tektronix 4010/4014 and MacPaint graphics files in the formatted output. The output resulting from the graphics file interpretation can be scaled, translated and rotated (in any of four orientations).
. Line, arc, point and filled polygon graphics operations.
. Automatic top and bottom page markings.
. Command line options for page selection and collating order.
. Landscape page orientation and various paper sizes.
. Support for PostScript native fonts.
. Support for preloaded TeX fonts.
. Support for TeX-XeT, right-to-left text within left-to-right text.
. Support for change bars in the left or right margins.
. Pixel, packed or generic font pixel files can be used.

Also included is a print symbiont designed to control the Apple LaserWriter printer. Features include:
. Capability to drive up to four LaserWriters simultaneously.
. All PostScript-generated output is printed at the end of job.
. A special exitserver mode that allows for the semi-permanent downloading of fonts to the printer.
. Detection of errors and machine problems from the LaserWriter.
. Generation of flag, trailer and burst pages.
. Inclusion of modules from the device control library.
. Notification to the print operator of special form required and/or manual feed options, and of machine problems.

A utility program (QUERYLW) is provided that will allow the font metric information for the LaseWriter fonts to be obtained.

A utility program (PSFONT) is provided that will convert TeX fonts to PostScript fonts that can be downloaded to the printer.

Notes: Operating System VAX/VMS V5.2 or later is required. Program can be relinked on version 5.0 or higher.

Changes and Improvements: A new utility is provided to generate PostScript fonts from TeX fonts and to use them from DVIOUT. Other improvements are the ability to include PostScript pictures in the output, to generate and use preloaded TeX fonts, and to output margin change bars. Site dependent information is now contained in options file.

Assoc. Documentation: Descriptions of PXL, PK, GF, TFM and DVI file formats are with the TeX distribution, DECUS No. VS0058, but are not required to use this program.

Restrictions: Print symbiont requires READALL, TMPMBX, ALLSPOOL, SHARE, LOGIO and PHYIO privileges.

Media (Service Charge Code): 600' Magnetic Tape (MA) Format: VMS/BACKUP, or order VL0008

DECUS NO: 110795 **TITLE:** GRAPHKIT: Graphics Routines for the HP-7221C/T Plotter **Version:** 4, January 1990

Submitted by: R. E. Beverly III Ph.D., R. E. Beverly III and Associates, Columbus, OH

Operating System: RSX-11M V4.1, RT-11 V5.1, VAX/VMS V4.5 **Source Language:** FORTRAN 77 **Memory Required:** Largest program requires 28KW **Software Required:** Hewlett-Packard PLOT/21 software library **Hardware Required:** Hewlett-Packard 7221C/T plotter **Keywords:** Graphics, Scientific Applications

Abstract: GRAPHKIT is a collection of software tools designed to supplement Hewlett-Packard's PLOT/21 library by providing routines to easily plot linear, semilogarithmic and logarithmic graphs in standard scientific/engineering formats of publication quality. Additional routines are provided which permit rapid layout and production of viewgraphs and transparencies, bar graphs and pie charts.

The user is given full control over the x- and y-axis minima and maxima, the generation of axis labels and major and minor tick marks and curve legends. Multiple curves can be drawn on a single plot. Each curve can consist of data symbols only, data symbols connected by continuous lines, or lines connecting the data points with no symbols. The user selects the pen number, symbol type (if any), and line type for each curve.

Notes: Due to many similarities between calls to PLOT/21 and other plotter libraries (e.g. CalComp), it should be straightforward to modify these routines for use with other plotters.

Changes and Improvements: This version includes the capability for curve fitting using a least-squares polynomial or natural cubic spline.

Media (Service Charge Code): One RX01 Diskette (KA) Format: FILES-11, 600' Magnetic Tape (MA) Format: FILES-11
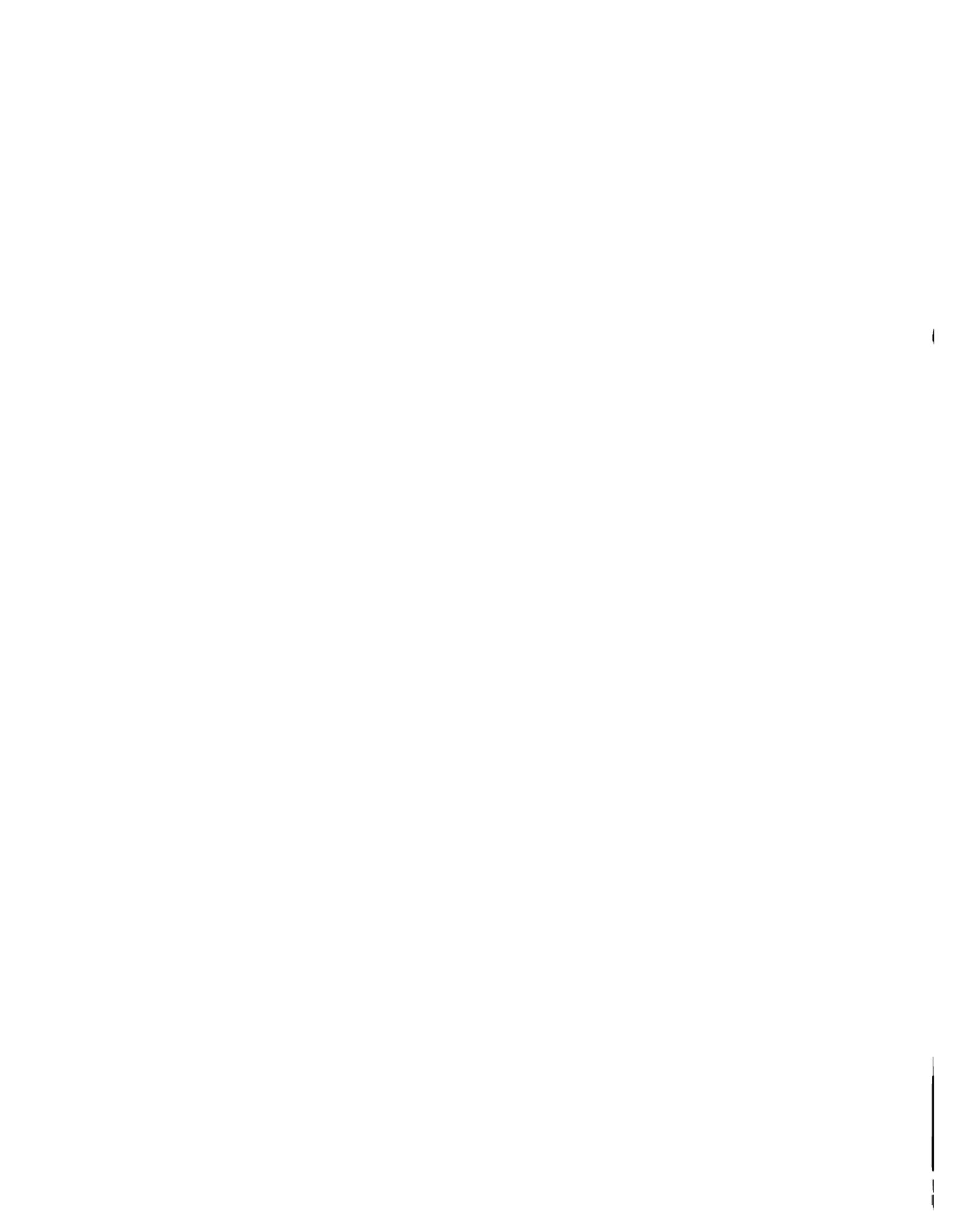
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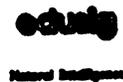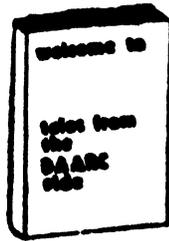
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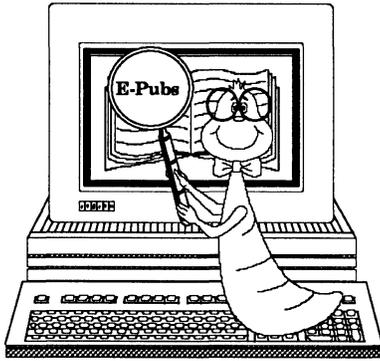
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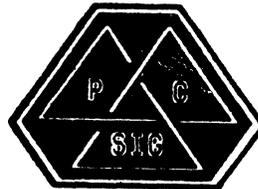
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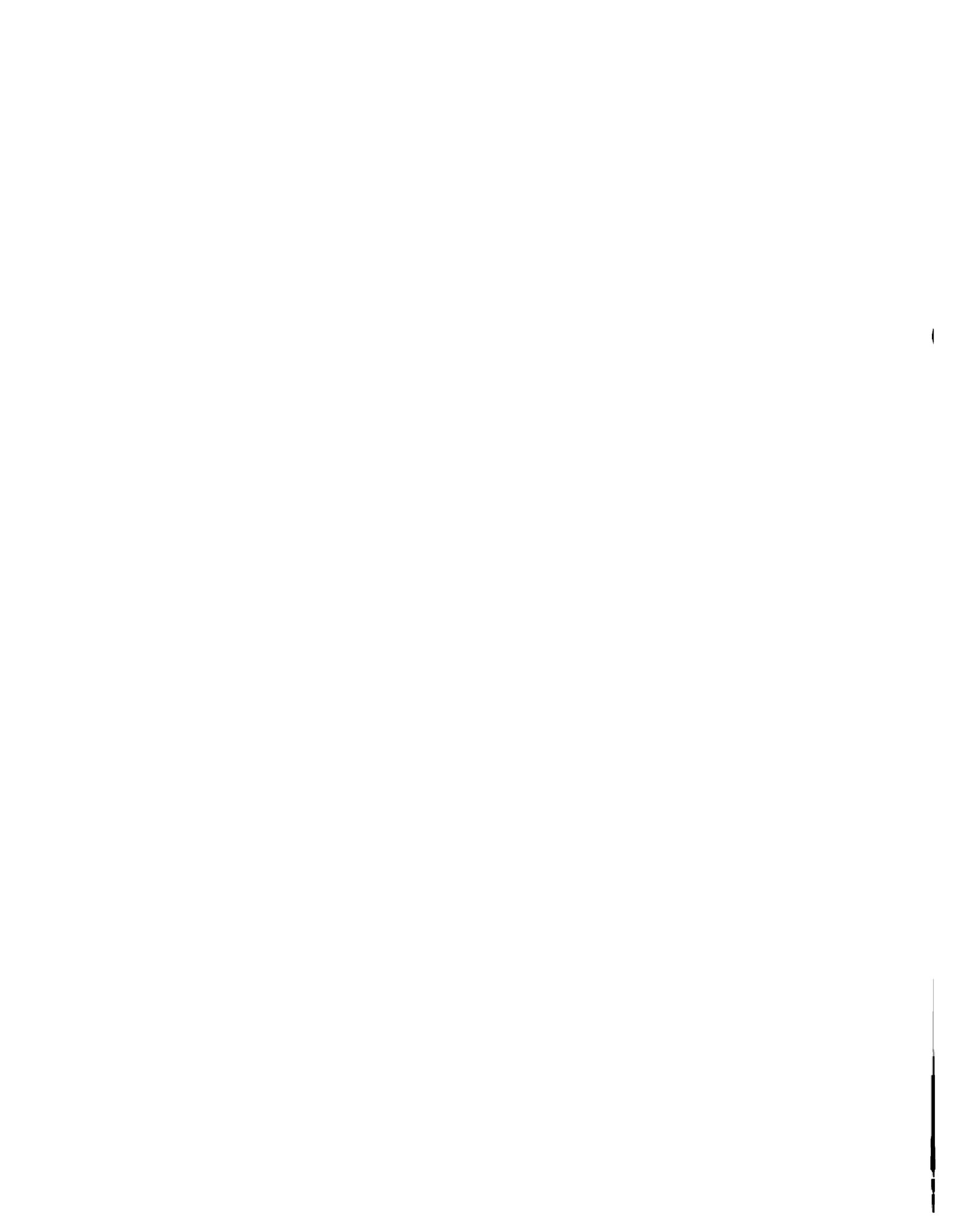
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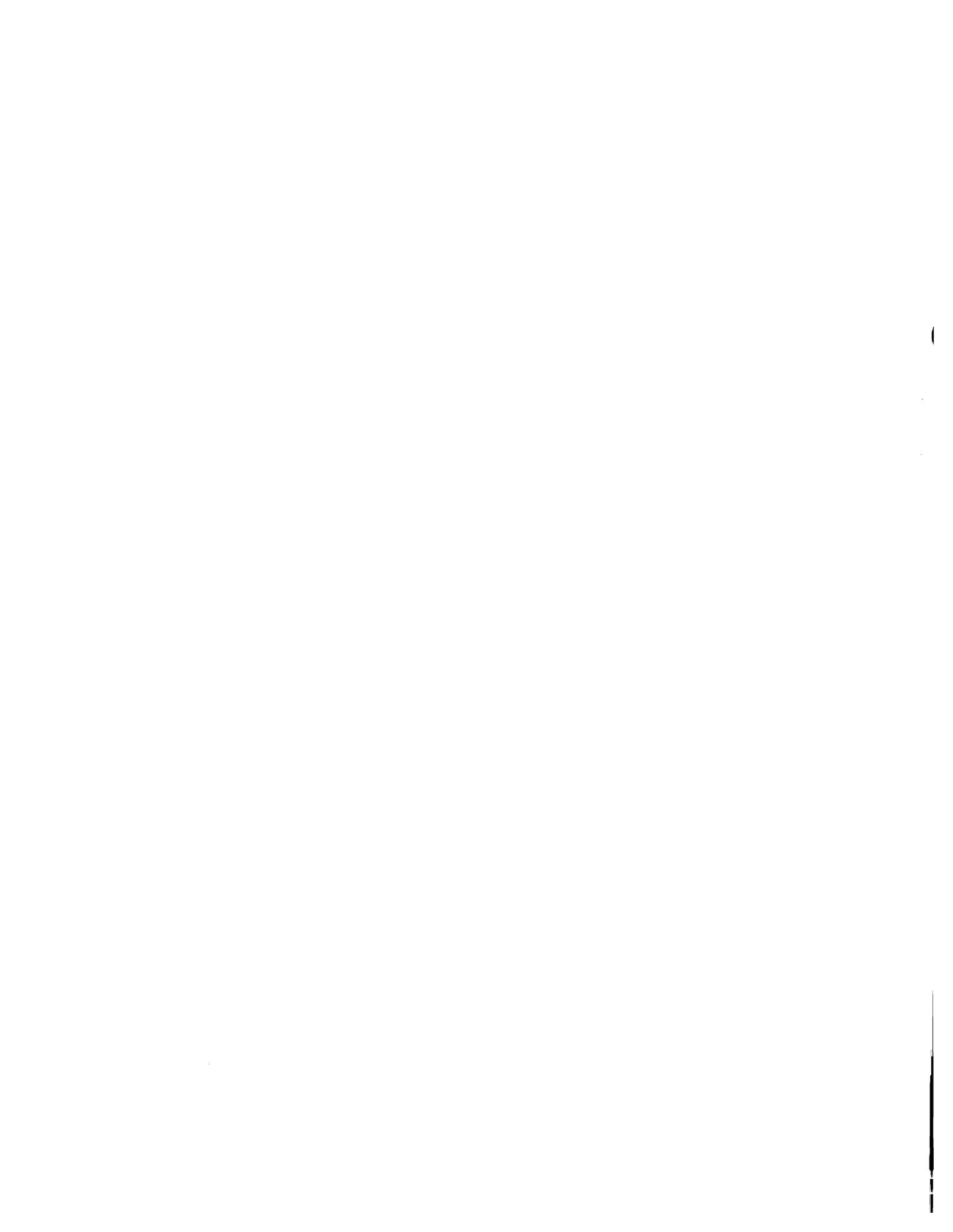
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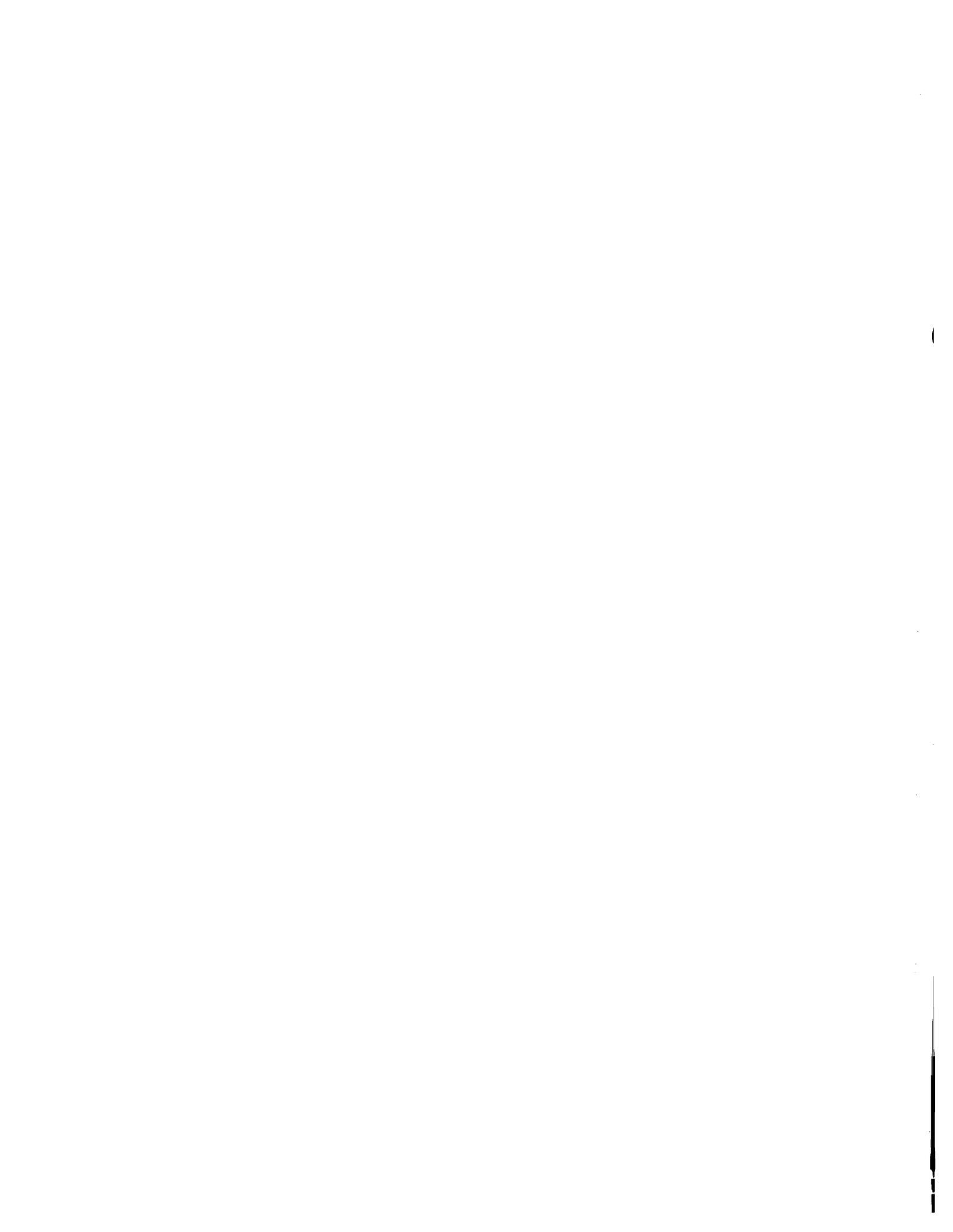
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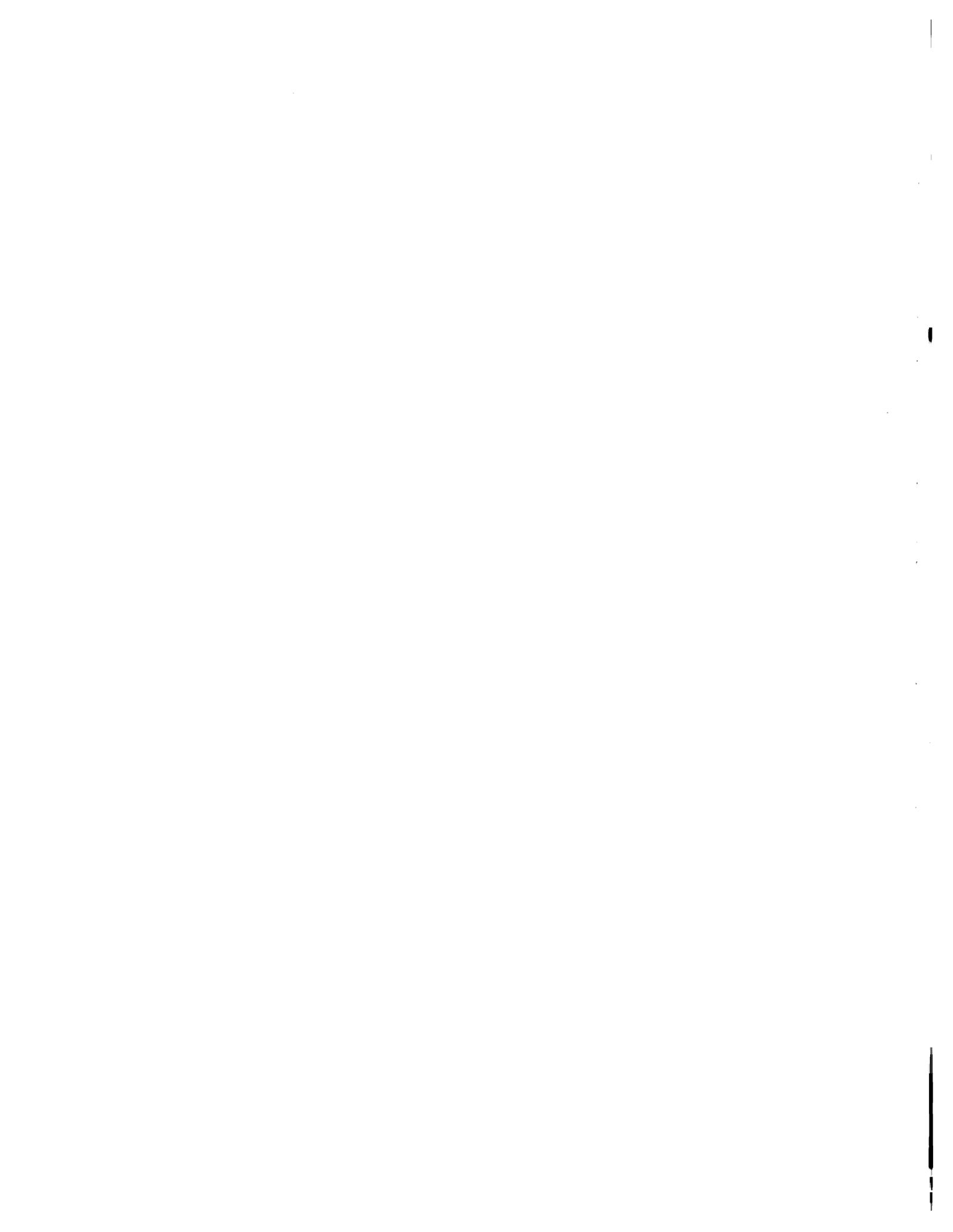
VTX WORKING GROUP
VOLUNTEER APPLICATION

Name:_____ Title:_____

Company:_____

Address:_____

_____

_____

Phone : (   )_____Date:_____

1. When do you attend symposia?

   ___ Always   ___ East coast only   ___West coast only   ___Irregular

2. a) Would you like to see the working group do something in

   particular? Please specify on the back of this form.

   b) Would you be willing to coordinate the activity you have

   listed?   ___ Yes   ___ No

3. Please check if you are interested in any of the following activities:

   ___ Submit Newsletter article   ___ Session chair

   ___ Present a session   ___ Hold a campground clinic

If you would like to volunteer please fill out this form and send to:

   Albert DeBlieck

   70 Quentin Rd.

   Rochester, New York 14609
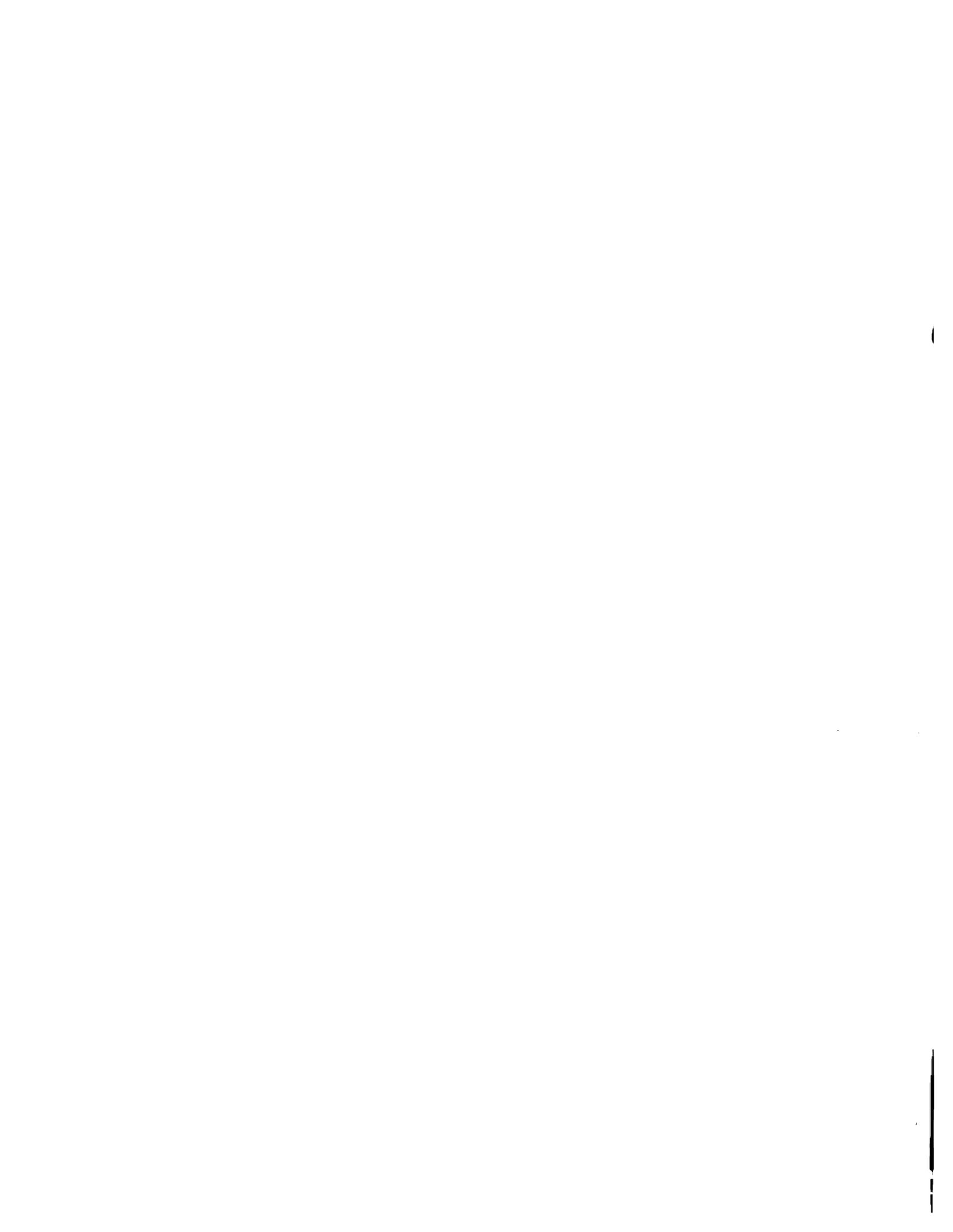
VTX WORKING GROUP
WISHLIST QUESTIONAIRE

Name:_____ Title:_____

Company:_____

Address:_____

_____

_____

Network Address:_____

Phone : (   )_____Date:_____

Wishlist Request - brief description:_____

_____

Wishlist Request - please explain you request thoroughly; don't
assume that the details are known of other products or services; give
examples:_____

_____

_____

_____

_____

_____

_____

_____

Return this form to:
          Albert DeBlieck
          70 Quentin Rd.
          Rochester, New York 14609

VTX WORKING GROUP
MASTERS APPLICATION

Name:_____ Title:_____

Company:_____

Address:_____

_____

_____

Network Address:_____

Phone : (   )_____Date:_____

A VTX Masters list is being assembled and will be mailed out to the VTX Working Group members. It will also be available to interested parties at the Symposia in Anaheim. A Master is a person who is knowledgeable enough in VTX to be comfortable to answer questions about it. The qualifications are: expertise in VTX, a willingness to have his/her name published as a Master. If you would like to serve as a Master please fill out this form and send it to:

Albert DeBlieck

70 Quentin Rd.

Rochester, New York 14609
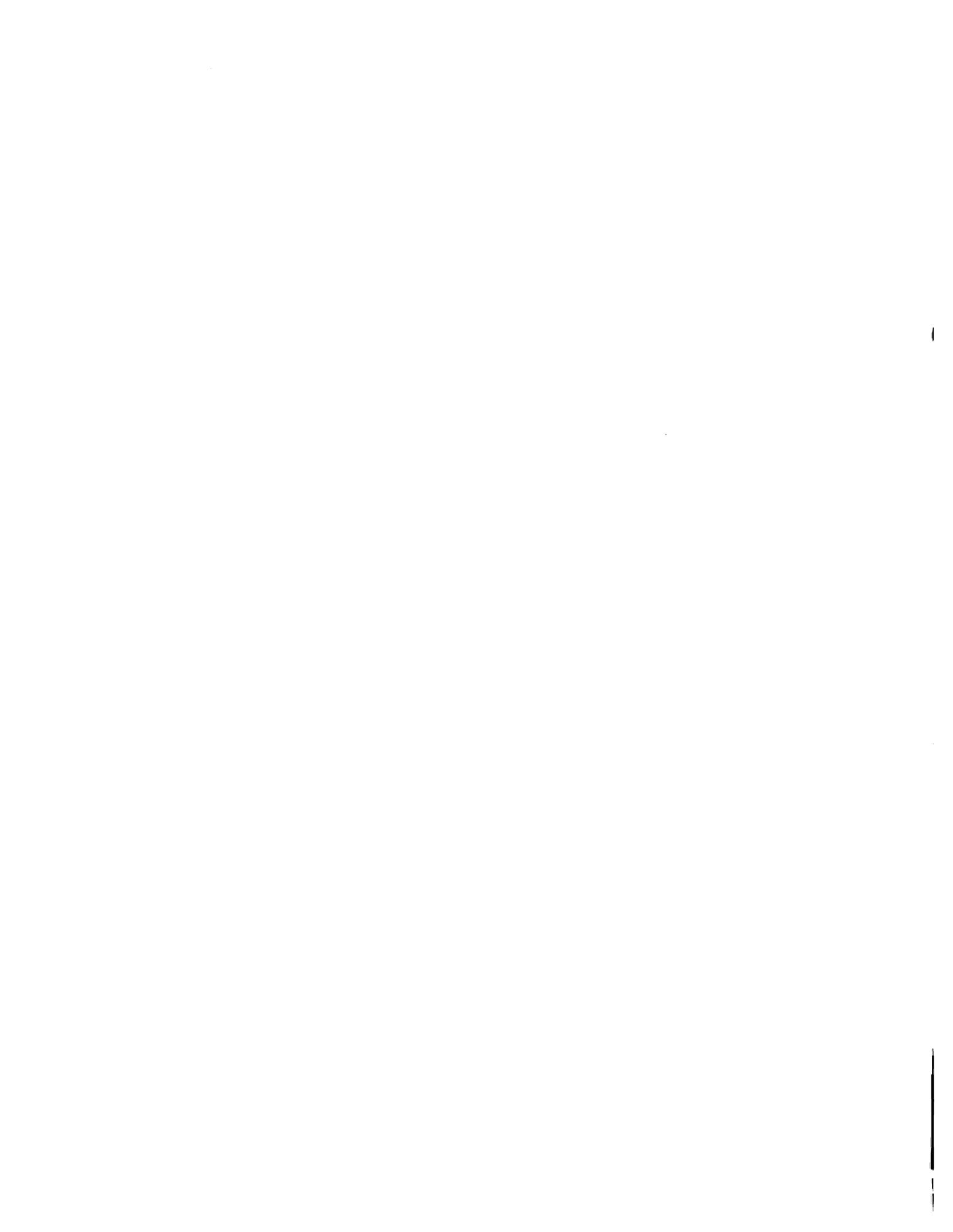
Questionnaire for Macintosh/VAX Interconnectivity
PC SIG Macintosh Working Group
February thru April, 1990

The following questionnaire was designed from questions asked at the Macintosh Working Group meeting, and at various sessions throughout the DECUS Fall 1989 symposium. Please read the question and then check one or more of the possible answers.

Network

1. Do you have any Macintoshes on your DECnet network? ○ Yes ○ No

2. What Network software do you use on your Macintosh? ○ Alisa ○ Pacer ○ LocalTalk ○ TOPS
(Check all that apply) ○ Others:_____

3. What network hardware do you use on your Macintosh? ○ PhoneNet ○ Ethernet ○ GaterBox
(Check all that apply) ○ Fast Path ○ NetModem ○ NetBridge
○ Others:_____

4. What type of network are your Vax(s) and Macintosh(s) ○ LAN ○ WAN ○ In Building
connected? (Check all that apply) ○ Campuswide ○ U.S. ○ Worldwide
○ Others:_____

5. What protocols are co-resident on your network? ○ AFP ○ TOPS ○ LAT
(Check all that apply) ○ NFS ○ DECnet ○ TCP/IP
○ Others:_____

6. What would you like to see in network software/hardware from Digital or Apple?

Backup

7. Do you perform your Macintosh backups over the network? ○ Yes ○ No
If you answered NO to question 7, skip to question 8.

7a. Who performs the backup? ○ Mac User ○ Mac Manager ○ Mac Operator
○ VMS Manager ○ VMS Operator
○ Others:_____

7b. If you perform backups, are the backups: ⭘ Automatic ⭘ Manual

8. What would you like to see in backup software from Digital or Apple?

General

9. What are the uses of the Macintosh in your VAX environment?   ⭘ VAX Front Ends   ⭘ Development Systems   ⭘ Others:_____

10. What are the uses of the VAX in your Macintosh environment? (Check all that apply)   ⭘ File server   ⭘ Mail System   ⭘ Others:_____

11. What version of the Macintosh Operating system are your currently using? (Check all that apply)   ⭘ System 5.0   ⭘ System 6.0   ⭘ Most Current (list version):_____

12. What version of VMS are you currently using?   ⭘ Version 3.n   ⭘ Version 4.n   ⭘ Version 5.n   ⭘ Most Current (list version): _____

13. What would you like to see in the operating system software to improve VAX/Macintosh integration from Digital and Apple?

14. Please list as many as 5 of the most pressing issues concerning Macintosh/VAX interconnectivity that you wish to bring to Apple's and Digital's attention. The list will be boiled down to the top ten and both Digital and Apple's feedback will be solicited (use a separate sheet if needed).

1.

2.

3.

4.

5.

15. Do you have any comments on ways to improve the Macintosh Working Group?

If you include your business card or fill out the form below, I will add you to the Macintosh Working Group mailing list. Your participation means a better working group for all of us!

Name:
Company:
Address:
City, State, Zip:
Phone:

Please Mail back completed survey to:
 Kent Anthony Behrends
Macintosh Working Group Chairman
BEHR Consulting
17309 Mapes Ave. Cerritos, CA 90701, U.S.A.

If you have questions, I can be reached "online" via the following services:
UUCP/internet: kent@conexch
Compuserve: [72447,2533]
DCS: BEHRENDS
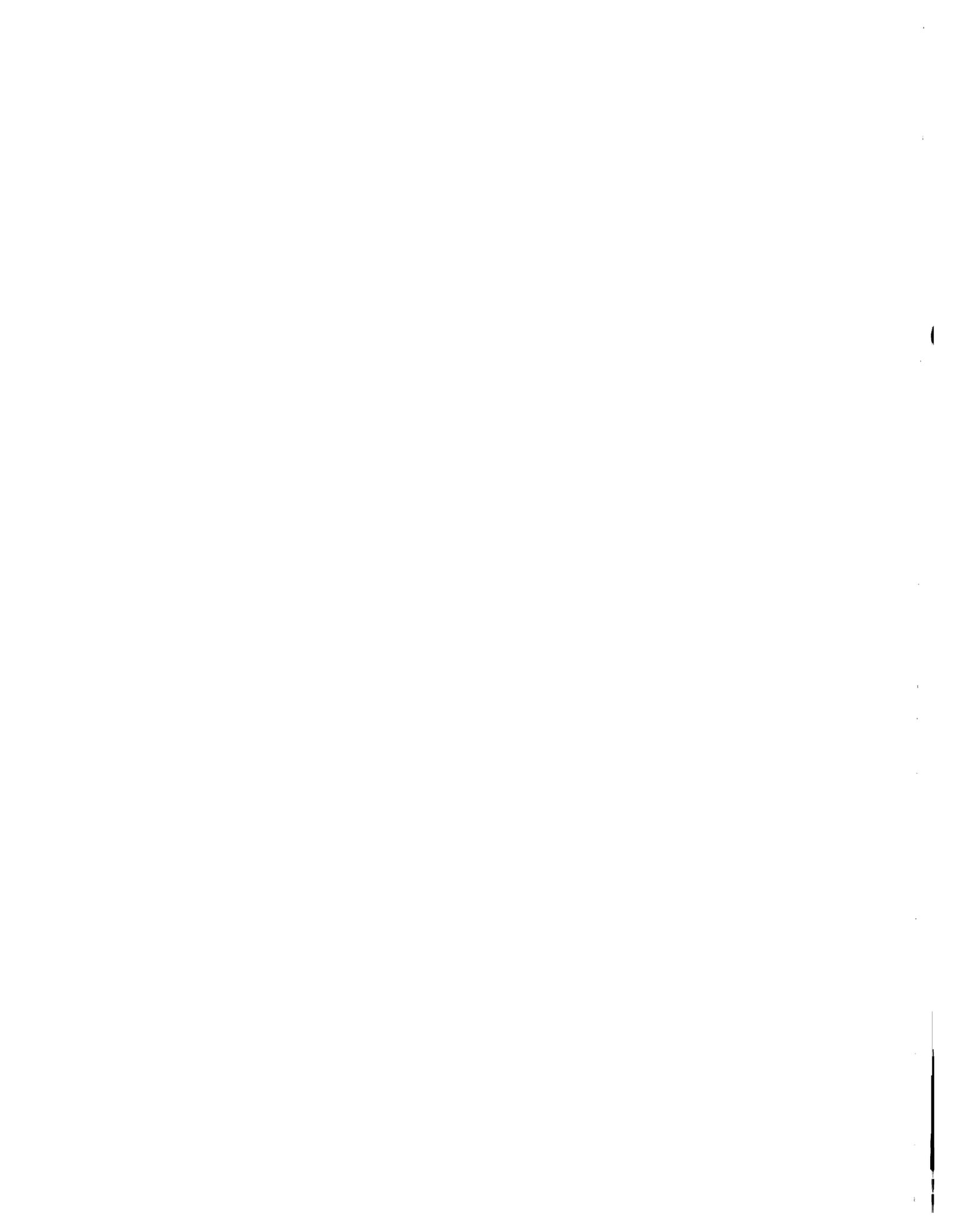
VAX Systems SIG
System Imporvement Request Submission Form

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 (uese additional pages if required):

Dave Schmidt
Management Science Associates
6565 Penn Avenue
Pittsburgh, PA 15206-4490
USA

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(U.S. Members Only)

DECUS

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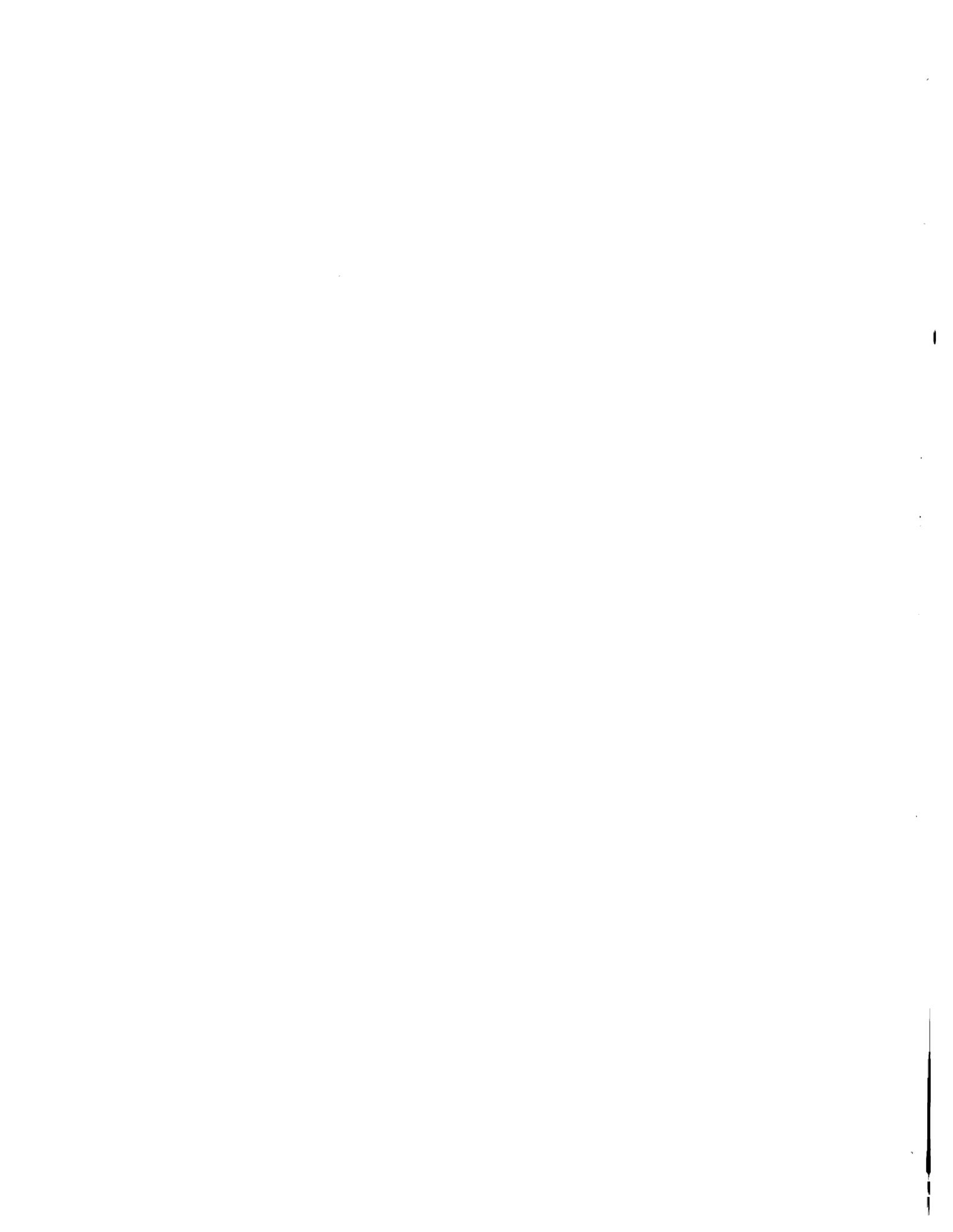
DECUS U. S. Chapter Application For Membership

IMPORTANT! Please provide a complete mailing address, include zip code in accordance with postal regulations for your locality.

☐ New Membership ☐ Update to Current Membership Profile

Current DECUS Membership Number _____

Do you wish to be included in mailings conducted by Digital (for marketing purposes etc.?) ☐ Permission ☐ Refusal

Please print clearly or type!
Name
_____

Company
_____

Address
_____

_____

_____

City _____ **State** _____ **Zip** _____

Phone: Home ( ) _____ **Business** ( ) _____

Are you an employee of Digital Equipment Corporation?

☐ Yes ☐ No

1. How did you learn about DECUS? (check applicable item)

1☐ Another DECUS Member
13☐ Local Users Group
5☐ Hardware Pkg.
8☐ DECUS Chapter Office
12☐ Advertising
7☐ Software Dispatch (Digital Newsletter)

4☐ Digital Sales
2☐ Symposia
14☐ Special Interest Group
6☐ Software Pkg.
10☐ Digital Store

2. Primary business activity at your location: (check one)

Non-Computer Related
31☐ Manufacturing (other)
32☐ Agriculture, Construction
33☐ Energy, Mining, Oil
34☐ Engineering, Architecture
47☐ Transportation
35☐ Utilities
36☐ Government-Local, State
37☐ Government-Non-Military
38☐ Government-Military
41☐ Education
40☐ Medical or Legal Services
39☐ Finance, Banking, Insurance

42☐ Trade (wholesale, retail)
43☐ Research & Development
44☐ Leisure
45☐ Media

46☐ Other_____

Computer or DP related
25☐ Manufacturing (DP Equip.)
26☐ Software Development
27☐ Communications & Networking
28☐ Systems House, VAR/OEM
29☐ Consultant
30☐ Other DP Services

3. I wish to participate in the following DECUS U.S. Chapter Special Interest Group(s):

3☐ Artificial Intelligence
7☐ Business Applications
37☐ Business Practices
6☐ Data Management Systems
5☐ DATATRIEVE/4GL
8☐ Education
9☐ Electronic Publishing
10☐ Graphics Applications
11☐ Hardware and Micro
16☐ Languages and Tools
14☐ MUMPS
31☐ DAARC (Data Acquisition, Analysis, Research, and Control)

15☐ Networks
34☐ Office Automation
36☐ Personal Computer
18☐ RSTS
17☐ RSX/IAS
19☐ RT-11
38☐ Security
21☐ UNIX
26☐ VAX Systems
32☐ Site, Mgmt. & Training

4. Using the classification numbers from question 3, please indicate which SIG would be the primary focus for your interests?
#_____

5. Using the classification numbers from question 3, please indicate which SIG would be of secondary focus for your interests?
#_____

6. Total employees in entire company/institution/government department: (check one)

2☐ 10,000 or More
3☐ 5,000 to 9,999
4☐ 1,000 to 4,999
5☐ 500 to 999

6☐ 250 to 499
7☐ 100 to 249
8☐ 6 to 99
9☐ Fewer than 6

7. Primary job function: (check one)

Organization Management
11☐ General & Corporate
12☐ Financial
13☐ Administrative Services
14☐ Marketing

Computer/Systems Operations
20☐ Management
21☐ Supervisory
22☐ Staff

Engineering/Manufacturing
30☐ Management
31☐ Staff

Science/Research/Development
40☐ Management
41☐ Staff

Other
50☐ Consultant
51☐ Educator

52☐ Other _____

8. Citizen of the United States? ___Yes ___ No

If no: Country _____

Signature _____

S&M-3

rev: 01/90

- -

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