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Featured articles

The Journey to Private Volumes and Back

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This is an attempt to share our site's experience with the Private Volume facility of MPE-III, and give a description of the methods we used and pitfalls that we encountered along the way. It is written with the hope that other sites will benefit from our experience and will be able to avoid the difficulties that we encountered.

First, a description of our site is in order. We are a dual purpose site located at Whitman College in Walla Walla, Washington. The Center services the administrative users with business and record-keeping systems and the faculty and students with computer resources for academic and statistical work, as well as engaging in "extracurricular" computer activities like the HP General Systems Users Group Contributed Library project. When MPE-III was installed at our site, we had plans for converting 3 of our 4 HP 7920 disc drives to Private Volumes, 1 for academic users and 2 for administrative, leaving the necessary 1 for the system's use. This was desirable to us, as it would give us extra security for the administrative data base; we would be able to pull the packs at night. It would also enable us to mount the Library on weekends for work, and not have to maintain the project on the system at all times.

The conversion was done on a weekend when all users could be kept off the system. Several system crashes later, and after quite a bit of experimenting, we were up and running on Monday morning. After only a week at this configuration, it was evident that 3 private volumes and 1 system volume was not at all satisfactory. We deduced that, in order to access the private volume files, both the system directory, on the system pack, and the private volume directory, on the master volume, had to be accessed by the system, and then the file itself. The system disc was killing itself trying to satisfy all the needs of the system (directory access, spooling, etc.) plus all the needs of the users of private volumes. We realized that backward conversion was necessary.

The next weekend, we converted the two administrative packs to the system domain, which left us with three system packs and one private volume. This is the configuration that we have been using ever since (about four months), and have been pleased with it. The one private volume is used serially for data base backup daily, cutting Sysdump time by about a third. Also, we have effectively increased our disc space by placing little-used accounts on separate packs and mounting them only when needed.

With this as background, a description of the procedures used in conversion can be laid out. The example that will be used is a slightly more general application of Whitman's configuration. Refer to the System Manager/System Supervisor and Console Operator Guide for a complete explanation of Private Volume structure. The description here is less complete than can be found in those manuals.

A Private Volume is a disc pack or packs that the operating system regards as being essentially off limits except when it is specifically told to access it. A Private Volume may consist of from 1 to 8 packs, one of which is the Master Volume (which contains the PV directory), the rest Slave Volumes. These can be further subdivided into volume classes, which is a way of referencing only part of the volume set.

An example of the creation of a volume set would be:

```
:NEWVSET ADMINØ1;MEMBERS=ADMINØ1:HP792Ø,
ADMINØ2:HP792Ø;&CLASS=ADMIN:ADMINØ1,ADMINØ2
```

This defines a 2-volume set, ADMINØ1.PUB.SYS (assuming the creator is MANAGER.SYS) residing on HP 7920 disc drives. (Other drives are allowed, see SM/SS or CO Manuals). ADMINØ1 is the Master Volume and must always be mounted when the volume set is accessed. The class name ADMIN defines a subunit consisting of ADMINØ1 and ADMINØ2. In this particular example, this class name is redundant, as MPE would implicitly allow only reference to both volumes. If more volumes were used, this definition might be handy. This entry is made by System Managers or a user with Create Volume (CV) capability. In our case, MANAGER.SYS created the volume set, so the fully qualified name would be ADMINØ1.PUB.SYS. Volume Set definition can be made before or after conversion. It is recommended that careful thought be given to the sets and definitions before conversion starts.

We now come to the conversion of the disc drives from System to Private Domain. We will use an example, one that converts 2 of 6 drives to private domain.

The first step is to do a full Sysdump. This is necessary for conversion, and also a good backup in case something goes wrong. **Make no configuration changes at this time.** In case a reload is necessary, the original configuration will be needed on the tape. When the full dump is done, enter a =SHUTDOWN command from the console, mount tape 1 of the Sysdump, and perform a RELOAD with ACCOUNTS option: (See System Manager/System Supervisor Manual).

Set System Switch Register to %3006, press ENABLE/LOAD, RUN/HALT.

0.1 WHICH OPTION? (COLDSTART/RELOAD/UPDATE) *REL*

0.2 WHICH OPTION? (RELOAD/SPREAD/COMPACT/RESTORE/ACCOUNTS/NULL) *ACC*

1.0 ANY CHANGES? *Yes*

The following is the actual configuration of the drives. Assume LDEV's 5 and 6 are the drives being converted.

2.0 LOAD MAP? *(cr)*

3.0 MEMORY SIZE? *(cr)*

3.1 I/O CONFIGURATION CHANGES? *YES*

3.2 LIST I/O DEVICES? *YES* or *NO* as desired

3.3 LIST CS DEVICES? *NO*

3.4 HIGHEST DRT = ?*NO*

3.5 LOGICAL DEVICE #? *5*

3.6 DRT #? (DRT # of your site. We will use: *4*

3.7 UNIT #? *4*

3.8 CHANNEL #? *Ø*

3.9 TYPE? *Ø* (for HP 7920 disc drive)

3.10 SUB-TYPE? *8* (for HP 7920 disc drive)

3.40 RECORD WIDTH? *128*

3.41 OUTPUT DEVICE? *0*

3.42 ACCEPT JOBS/SESSIONS? *NO*

3.43 ACCEPT DATA? *NO*

3.44 INTERACTIVE? *NO*

3.45 DUPLICATIVE? *NO*

3.46 INITIALLY SPOOLED? *NO*

3.5 DRIVER NAME? *IOMDISC1*

3.70 DEVICE CLASSES? *PVDISC* (or any name besides DISC or SPOOL)

3.71 IS PVDISC A SERIAL DISC CLASS? *NO* (this allows both private volumes and serial usage)

Repeat for #LDEV 6

Reply (cr) to all questions until:

5.3 DISC VOLUME CHANGES? *YES*

5.3.1 LIST VOLUME TABLE? *YES*

For a six drive system, the output might look something like:

VOLUME #	*NAME*	*LOG DEV #*
1	MH792ØU0	1
2	MH792ØU1	2
3	MH792ØU2	3
4	MH792ØU3	4
5	MH792ØU4	5
6	MH792ØU5	6

5.3.2 DELETE VOLUME? *YES*

5.3.2.1 ENTER VOLUME NAME? *MH792ØU4*

5.3.2.1 ENTER VOLUME NAME? *MH792ØU5*

ENTER VOLUME NAME? *(cr)*

This step is very important. It is not explicitly defined in the manuals, and if not done, will cause system failures.

Reply NO or carriage return to the rest of the Initiator questions until:

5.8(R) NON-SYSTEM VOLUME ON DEVICE #5. ADD TO SYSTEM VOLUME SET? *NO*
Repeat for LDEV #6.

The Initiator will then load the directory, system files and the new configuration, but no user files.

At this point, the disc must be conditioned for the private volumes. The VINIT subsystem is used for this.

```
=DOWN 5
=DOWN 6
=SESSION
:HELLO MANAGER.SYS
:VINIT
>SCRATCH 5
>FORMAT 5
```

There will be a 5 to 10 minute wait at this point. Possibly defective tracks may be reassigned. Follow the dialog given by FINIT.

INIT ADMIN01,5,ADMIN01.PUB.SYS
ENTER DIRECTORY SIZE (SECTORS)? *500*

(A slightly higher size is recommended, since making the directory larger in the future is very difficult.)

The above procedure initializes the volume, allocates directory space, and writes a volume label on the disc. The procedure is then repeated for the other pack:

```
>SCRATCH 6
>FORMAT 6
>INIT ADMIN02,6,ADMIN01.PUB.SYS

=UP 6
=UP 5
```

No directory will be asked for, as this is not the master volume.

Now that the discs are initialized and ready to receive the PV files, we must turn on the private volume facility of MPE. This is done from the operator's console, and many combinations are possible (refer to Console Operator Manual). At our site, we use the following dialog almost exclusively:

```
=VMOUNT ON,AUTO
=MOUNT ADMINØ1.PUB.SYS
```

This will turn on the PV facility, prevent all mount requests from printing on the console, and keep the volume set mounted and ready to be used at all times. Users will not have to explicitly ask for a private volume set to be mounted, which allows a greater amount of transparency to the user when a private volume conversion is done. These features are desirably at our site, but may not be at others. Decide which combination of parameters of the =VMOUNT command will work best for the desired results.

The last step in the conversion is to alter the account structure and restore the files. This is perhaps the most difficult step, as there are more variables to consider and deal with. Private volumes are accessed by making a group and account entry in the private volume directory as well as the group entry on the system directory. This must be done for every group that will reside on the private volume. Within the same account, groups may reside on private volume or system volume drives. If the account already exists:

```
:ALTACCT PAYROLL;VS=ADMIN01.PUB.SYS:SPAN;&
:CAP=1A,BA,SF,ND,GL,AL,AM,UV
```

(If other capabilities are desired, they must be added.)

The UV (Use Volumes) is necessary in order to access the Private Volume. Sign on as manager of the account, and alter any group you desire to be placed on the private volume.

```
:HELLO MANAGER.PAYROLL
:ALTGROUP SOURCE;VS=ADMINØ1.PUB.SYS:SPAN
:ALTGROUP DATA;VS=ADMIN01.PUB.SYS:SPAN
```

The :SPAN parameter causes a new entry to be made in the private volume directory.

After all groups have been altered all users must be given UV capabilities:

```
:ALTUSER MANAGER;CAP=1A,BA,SF,ND,GL,AL,
                                  AM,UV
:ALTUSER ENTRY;CAP=1A,BA,SF,ND,GL,UV
```

etc.

This is, basically, a considerable inconvenience, but must be done. It is also recommended that all users on the system be given UV capability, in the event that files must be copied or otherwise accessed.

New accounts and groups can, of course, be created with the :NEWACCT and :NEWGROUP commands. The parameters are the same as for altering these entries. When all users and groups are modified, files must be restored from the Sysdump tape:

```
:HELLO MANAGER.SYS
:FILE T;DEV=TAPE
:RESTORE *T;@.@.@
```

or whatever subset is desired. If all has gone well and all groups have been modified, MPE will place the proper files on the proper drives. Beyond the above steps, nothing remains for a successful conversion to private volumes. Follow the usual procedure for your site following a system reconfiguration.

Converting a drive back to system domain is relatively simple, and follows basically the same procedure:

1. Full Sysdump
2. Reload, Accounts option
3. Reconfigure drive(s) adding class names DISC and SPOOL

Follow the configuration dialog outlined before for conversion, until question 3.70:

3.70 *DEVICE CLASSES? DISC,SPOOL*

As before, the volume name must be added to the system volume table.

5.30 DISC VOLUME CHANGES? *YES*
5.31 LIST VOLUME TABLE? *YES*

VOLUME #	*NAME*	*LOG DEV #*
1	MH7920UØ	1
2	MH7920U1	2
3	MH7920U2	3
4	MH7920U3	4

5.3.2 DELETE VOLUME? *NO*
5.3.3 ADD VOLUME? *YES*
5.3.3.1 ENTER VOLUME NAME? *MH7920U4*
5.3.3.1 ENTER VOLUME NAME? *MH7920U5*
5.3.3.1 ENTER VOLUME NAME? *(cr)*
5.3.4 LIST VOLUME TABLE? *YES* or *NO*

Verify that the discs that are being converted (two in this case) have a volume entry. Then continue the reload.

Before restoring the files, alter every group (not accounts) to remove the volume set entry from the group label in the system directory:

```
:ALTGROUP SOURCE;VS=(cr)
:ALTGROUP PUB;VS=(cr)
```

All that remains is to :RESTORE @.@.@ as before.

The methods outlined above can also be used to alter an account or group from system to private, or vice-versa. Basically the procedure is:

1. :STORE
2. Purge the group or account (see below)
3. Alter the directory labels (as before)
4. :RESTORE

Purging accounts or groups on private volumes is a little trickier than on system volumes. If the account (group) is to be totally purged from the system, two commands must be entered:

```
:PURGEACCT PAYROLL;VS=ACADØ1.PUB.SYS
:PURGEACCT PAYROLL
```

This eradicates the user files and account and group labels from the private volume, and then from the system directory. If only the first is executed, an entry still exists on the system directory, and the account and groups can be altered to reside in system domain, or on another private volume:

```
:ALTGROUP SOURCE;VS=(cr)  (To convert to system)
                OR
:ALTGROUP SOURCE;VS=vsname  (To convert to previously defined vsname).
```

This technique can also be used to maintain multiple versions of the same account on different volume sets. Assume VOLUMEA and VOLUMEB are two previously defined volume sets. Account entries are created on both:

Mount VOLUMEA

```
:ALTACCT PAYROLL;VS=VOLUMEA:SPAN
:ALTGROUP SOURCE;VS=VOLUMEA:SPAN
etc.
```

Mount VOLUMEB

```
:ALTACCT PAYROLL;VS=VOLUMEB:SPAN
:ALTGROUP SOURCE;VS=VOLUMEB:SPAN
etc.
```

Once the private volume entries are created, all that is necessary to access either is

```
:ALTGROUP SOURCE;VS=VOLUMEA
etc.
```

Notice no :SPAN parameter in this command. Only the system directory label is changed with this command. To access either version, all that is necessary is to alter the groups to the desired volume set, and mount the proper volumes.

If this conversion is done often, a job stream can be set up to do the conversion.

Private volumes may also be used as serial backup devices. This can cut Sysdump time by 1/2 to 2/3. The pack which the dump is done must be >SCRATCHed with VINIT (initially) and then made serial (>SERIAL). The pack will remain serial from then on unless processed into a private volume. A sysdump to the serial disc is then performed by the following procedure:

```
=DISMOUNT ADMIN01.PUB.SYS
=DOWN 5
 switch pack 5
=UP 5
=SESSION
 :FILE DISC;DEV=5
 :SYSDUMP *DISC
 sysdump dialog
```

The normal 10 requests will be slightly different. The operator must indicate, in addition to the pin number and a yes/no answer, whether or not a write ring is present. The reply for a serial disc is:

```
=REPLY pin,Y,Y
```

Subsequent volumes may be mounted, as with tapes, on the drive.

PROS AND CONS

Advantages of private volumes are effectively increasing data and account storage capacity, increasing security by being able to store data files on volume sets inaccessible from other users, or entirely off the system. Multiple versions of accounts can be maintained, and serial disc backup is possible.

Disadvantages are numerous. Since more directory entries are present (2), there is twice as much to keep track of. The two entries must be kept in sync as much as possible (especially file security entries) and can sometimes pose problems. Access time increases dramatically, since two directories must be accessed. If a private volume is lost or wiped out, the entries for groups and accounts (fortunately not users) must be rekeyed by hand (in addition to the problem of recovering users' files). In other words, a "reload" of a private volume is not possible as with system packs. Also, there is a limit of 95 groups per account. If creation of more than 95 is attempted, an error is generated that indicates the directory is out of space, which is misleading.

In summary, conversion to private volumes or back is done by following this basic scheme:

1. Sysdump
2. Reconfigure (adding or deleting system volume table entries, and changing configuration)
3. Reload, accounts option

4. Modify accounts and groups
5. Restore

For an account or group:

1. Store
2. Purge (only what is necessary. If PV to system conversion only purge PV files and directory entries)
3. Modify directory entries
4. Restore

Please address your comments or questions to the author.

• • •

Errata: Programming for Regression Analysis

by James P. Schwar and Stan J. Perambo
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Errata: Vol. 2, No. 2, October 1978, Page 7 top of right column – please make the following correction:

The double underlined word is changed from dependent to independent.

$$\begin{bmatrix} r_{01} \\ r_{02} \\ r_{03} \\ \vdots \\ r_{0n} \end{bmatrix} = \bar{r} =$$ vector of intercorrelations of the dependent variable with each **independent** variable

• • •

Tips and techniques

Breaking Free From Restrictions to IMAGE Data-Base Transformations

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The original paper was presented by the author at the Hewlett-Packard General Systems Users Group, Seventh International Meeting, October 30-Nov. 3, 1978, Denver Hilton, Denver, Colorado, and will be printed in the Conference Proceedings. This article, as it is now presented in The Journal, incorporates the latest design updates.

ABSTRACT

A computerized data base should reflect an organization's way of behaving. As real-world circumstances change, forcing the organization to adopt new ways and abandon old ones, the data base itself should also adapt to new requirements.

Hewlett-Packard provides tools, such as DBUNLOAD and DBLOAD, which allow a limited set of transformations to IMAGE/3000 data bases. But these tools do not lend themselves to the easy implementation of the radical transformations that are sometimes necessary.

Taking into consideration that some users need more specialized transformation tools, we have developed a software system called "DATABASE.UTILITY" to help IMAGE/3000 users.

"DATABASE.UTILITY" is an MPE 'group.account' that contains a set of software modules designed specifically to allow a large selection of transformations to IMAGE/3000 data bases without having to deal with magnetic tapes or schema recompilations.

MOTIVATION FOR THE DEVELOPMENT OF "DATABASE.UTILITY"

How can I be ABSOLUTELY sure that my data-base design is perfect? How can I GUARANTEE that I will NEVER have to change it to meet unexpected shifts in my organization's way of doing things?

If I cannot answer these questions to my satisfaction, then what type of tuning (and fine-tuning) tools do I *need* to facilitate the constant and inevitable evolution of my data base?

What type of questions do I ask myself about the tools I *have* currently available to me? And what type of questions linger in my mind as I think of complementary ways to do what I *have* to do anyway?

- Why should I have to spend (a sometimes very long) time to DBUNLOAD my WHOLE data base to magnetic tape before I transform my schema (assuming, of course, that I do not want to lose the live data I presently have!)? Could I skip the whole DBUNLOAD trip? (With "DATABASE.UTILITY" the ANSWER is yes.)
- Why should I have to spend (a sometimes even longer) time to DBLOAD my previous data base, even though I merely want to optimize the storage locations of a primary path's entries? Could I simply reshuffle these entries without having to think and worry about the consequences of having to reshuffle the whole data base as well? (With "DATABASE.UTILITY" the ANSWER is yes.)

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- Why should I have to PURGE my entire data base, when all I want is to change the name of a data item? Could I simply make such changes without having to kill (and then reissue life to) my data base? (With "DATABASE.UTILITY" the ANSWER is yes.)

- Why should I have to EDIT and recompile my schema, when I simply want to change the read/write capabilities of a user class? Could I dynamically do this while the data base continues to earn its living? (With "DATABASE.UTILITY" the ANSWER is yes.)

- Why should I have to CREATE, from the newly produced root file, a brand-new data base, if the old one was just fine except for the capacity of a data set? Could I change the capacity of a data set without having to go through this process once more? (With "DATABASE.UTILITY" the ANSWER is yes.)

- Why am I at the mercy of subtle schema changes that CAN cause very unpleasant surprises, even after my previous data base has apparently been successfully DBLOADed to my new data base? Could I have some 'editor' which would make sure I do not invalidate my schema? Could I know, before I ruin anything, that my data-base transformation request is illegal? Could I have a dialogue with the system to "discuss" the possible consequences of subtle changes in transformation requests? (With "DATABASE.UTILITY" the ANSWER is yes.)

- Why should I have to write special application programs whenever I need to transform my data base in ways that are not supported by IMAGE/3000's transformation utilities? Could I have a flexible, non-procedural system that would even assemble data entries from bits and pieces taken from other data entries of the same data base, or from other data bases, or even from good old MPE files? Could I do data-type conversions (from integer to byte, from integer to double-integer, from byte to real, from integer to logical, from floating-point to byte with decimal-point suppression and decimal-place right-justification, etc. . . .) if the source data type does not match the destination data type? (With "DATABASE.UTILITY" the ANSWER is yes.)

DESCRIPTION OF "DATABASE.UTILITY"

"DATABASE.UTILITY" is an MPE 'group.account' with privileged capabilities assigned to it by the computer installation's system manager.

All our design trade-offs have one main objective: to preserve data-base consistency and integrity. We strongly feel the same way about preserving other user's domains and, of course, about preserving the operating system itself! Therefore, all privileged instructions in "DATABASE.UTILITY" are executed in bracketed fashion (that is to say, the programs execute in user, non-privileged mode 99% of the time; whenever it is imperative that privileged instructions be executed, a dynamic call to the GETPRIVMODE system intrinsic is made immediately BEFORE the privileged instruction; then, a dynamic call to the GETUSERMODE system intrinsic is made immediately AFTER the privileged instruction.)

A good 90% of all module execution times is spent in making reasonably sure that the requested transformations are legal and will not produce unpleasant results. Complete log-on subsystems, analogous to MPE's, check to see that only authorized users access the programs. An IMAGE/3000 data base (of course!) is kept for all programs, users and transformations as applied to the various data bases in an installation.

At the least indication of trouble, the target data base or data set is purged and the old one can be salvaged.

When necessary, the root file is appropriately "updated"; MPE files are created or purged as needed; data sets are reorganized to include or exclude structural information; data sets and data items are renumbered if any intermediate elements have been eliminated, etc.

The Data Base Administrator (DBA) can easily obtain an up-to-date picture of the transformed data base by means of QUERY's "FORM" command and our own "PASSES" program. "FORM" lists data sets, data items and paths as defined within the data base's structure. "PASSES" lists passwords and user read/write classes.

Human Interface

System messages and prompts are displayed to the user in any human language that has a user-defined vocabulary file on disc. (These human languages may include English, Spanish, German, French, Portuguese, or other languages employing the Roman alphabet.) All systems come installed with Spanish and English as standards. Complete and easy-to-follow instructions to add other languages are provided.

Every Program Produces Three Reports:

1) Bits-And-Bytes Report in So Many Words

Designed for the programmer and systems person. Lists all the steps taken, with the times and variables involved. If any unexpected conditions are found, they are reported. If any errors are found in the data base structure, they are analyzed and appropriate diagnostics are given. This is very useful for long-distance diagnostics and recommendations by our maintenance and support personnel. (Equivalent to a private "stack dump" that reflects the internal status of the program's algorithm and tables at every step of its operation.)

2) Auditor's Report

Designed for the data-processing auditors, in order that they be aware of all evolutionary changes made to the data base.

3) Data Base Administrator's Report

Designed for the DBA. Contains useful statistical information about the transformations carried out.

Physical Packaging of the Software: (Shipped by Air)

800 or 1600 BPI, nine-track magnetic tape containing:

—PROGRAM files with stand-alone utilities

—USL file with user-callable procedures

—PRIVILEGED files containing data bases used by the utilities

—ASCII Files, in EDITOR/3000 Format, containing the documentation and operating instructions.

Availability:

Please contact the author for specific information relating to availability schedule and financial/contractual agreements relevant to the installation of this software.

DESCRIPTION OF "DATABASE.UTILITY" FUNCTIONS

The software system provides the following services:

For the Data Base Administrator:

High level, interactive, functionally-oriented data-base transformation utilities that free the DBA from low-level concerns.

For the Programmers:

Many of the procedures used are made available in the form of a USL and are fully documented (calling sequence, parameters, etc.). Programmers can use these procedures in their own programs to facilitate standard accesses to the data base. These user-callable procedures are non-privileged and access the data base through regular IMAGE/3000 user intrinsics.

1) Non-Transformational

ASSEMBLE: Assembles data entries ("records") for master or detail data sets from one or more data sets or MPE files. The source data sets may be mixed from several data bases and may be either details or masters. The source MPE files may be accessed sequentially or directly by key.

The program asks all relevant questions, such as data-item types (integer, byte, logical, etc.), beginning byte or word in the source entry/record, etc. If it detects inconsistencies (for instance, if the source data-item type is byte and the target data-item type is double-integer), it explains them and requests instructions to perform one of several possible actions, depending on the particular circumstances: ignore and retry? do data conversion? . . etc.

INVSCHEM: "decompiles" a schema from a root file. It produces a SCHEMA in EDITOR/3000 format. If compiled by DBSCHEMA, this file will produce a root file; if processed through DBUTIL, CREATE, this root file will produce the same data base structure.

BUILDBASE: Allows interactive data-base definition and creation, with automatic creation of all data dictionary/ directory entries for the created data base (i.e., internal and external descriptions and specifications of (i) data base, (ii) data items, (iii) data sets, (iv) paths, (v) security, read/write capabilities, passwords, (vi) users, (vii) programs, etc.)

At the end of the program the user has (i) a valid root file, (ii) all necessary data sets created and ready for new entries, (iii) a SCHEMA in EDITOR/3000 format, that if compiled by DBSCHEMA, will produce a root file that, if processed through DBUTIL, CREATE, will produce the same database. (This SCHEMA is not necessary for the operation of this system; it is provided only as a convenience to the user. Actually, what we do is to run our own "INVSCHEM" program on the data base just created, by means of "BUILDBASE.")

UNLOAD: one (or more) data set(s), either totally or only certain items; either all data entries or only Boole-anly-selected ones; either serially, chained, or sorted; in any format and including items that are formed as the result of operations on other items. The destination file may be any MPE file.

SPREAD: the data base by copying one (or more) data set(s) from one physical disc unit to another (within the same group/account).

2) Global Data-Base Transformations:

COPY: Copies a data base from a source 'group.account' to a destination 'group.account.'

RENAME: Assigns a new name to a data base. Changes MPE file names as well as internally-kept IMAGE names.

PASSES: For maintenance passwords, read/write passwords and class numbers, this program reports, lists, modifies, assigns, reassigns, or takes them away.

NURSE: Checks, diagnoses and repairs broken chains, bit maps and free-space counters.

JEEP: Changes an automatic master to a manual master.

CADILLAC: Changes a manual master to an automatic master (eliminating all non-key items in the process).

MASTDET: Changes a master to a detail.

DETMAST: Changes a detail to a master.

SHUFFLE: Reorder items within a data set.

SUBITEM: Change the subitem count and/or subitem length of an item (and modify all data sets that reference this item, doing all necessary data conversions, if requested and specified).

BLOCKS: Change the blocking factor and/or block size of a data set.

EXTENTS: Change the extent/number, extent/size of a data set.

AUDIT: Produces a report of the usage of "DATA-BASE.UTILITY" programs by user, program, data base, etc.

3) Transformations of Detail Data Sets

NEWDTAIL: Adds new detail data sets to the data base (with the appropriate new data items, if needed).

CAPDTAIL: Modifies the capacity of a detail data set, preserving all current chains and making sure, in the case of a decrease in capacity, that the target capacity is at least equal to the lowest permissible capacity for the given set's status.

KILLDET: Deletes a detail data set, making sure that it is safe to do so. It optionally dumps the entire set to an MPE file in the format specified by the user (or dumps only those data entries within the data set that meet the Boolean specifications given by the user.

PACKDET: Repacks and performs sundry collection on released-space lists for detail data sets (by lowering the "highest-record accessed pointer" after moving existing data entries to previously-vacated entries).

4) Transformations of Master Data Sets

NEWMASTR: Adds new automatic or manual master data sets to the data base (with the appropriate new data items, if needed).

CAPMASTR: Modifies the capacity of a master data set, preserving hashing properties for calculated access and chain-head structural information. Reduces synonym occurrences by suggesting program-calculated prime-number capacities in the neighborhood of the user-specified capacity.

KILLMAST: Deletes a master data set, making sure that it is safe to do so and that no chains will be left hanging without chain heads. It optionally dumps the entire set to an MPE file in the format specified by the user (or dumps only those data entries within the data set that meet the boolean specifications given by the user).

5) Transformations of Data Items

NEWITEM: Adds new items to existing data sets.

KILLITEM: Deletes a data item from an existing data set. If all data-set references to a given data item have been deleted, the item is also deleted from the root's item table.

RDEFITEM: Redefines the type of a data item (from integer to byte, for instance), and does all the appropriate data conversions if necessary. If the new data type has a different word-length count, all data sets that reference the given item are reorganized to reflect the new structure.

6) Transformations of Element References

NEWNAME: Assigns a new name to a data item or a data set. Checks non-duplicity and legality of new name.

7) Transformations of Access Paths

NEWPATH: Defines a new path connecting an existing master data set to an existing detail data set by means of an existing data item (i.e., it upgrades non-key data items to the status of key data items or SEARCH ITEMS).

CLOSPATH: Deletes a path between a master data set and a detail data set. (i.e., it downgrades key data-items or SEARCH ITEMS to the status of non-key data items.)

SORT: Upgrades non-sort data items to the status of sort data items for a given path.

UNSORT: Downgrades sort data items for a given path to the status of non-sort data items.

PRIMARY: The path most frequently accessed in chained mode should be specified by the Data Base Administrator as the primary path for a detail data set. Should this state of affairs change, the DBA can specify that another path become the primary path for the detail data set by means of this program.

PAVEPATH: Reshuffles the entries of a detail data set so that the entries of each chain within the primary path will be in contiguous storage locations (for efficiency's sake in chained retrieval).

CONCLUSION

"DATABASE.UTILITY" monitors all IMAGE/3000 internal housekeeping, while the data base evolves.

The users are then free to concentrate their energies on the ONLY housekeeping task that really matters to them: THE DATA BASE'S ACCURATE REFLECTION OF THE ORGANIZATION'S WAY OF DOING BUSINESS.

The user can now specify WHAT is wanted in the data base, knowing that requirements can subsequently be easily respecified without having to fear lack of compatibility. Its accomplishment is the responsibility of "DATABASE.UTILITY."

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MPE III Enhancements

by Pete Sinclair
Hewlett-Packard, General Systems Division
5303 Stevens Creek Boulevard
Santa Clara, CA 95050

The 1906 IT release of MPE III contains some enhancements which are probably of interest to most of you. The STORE/RESTORE, DBSTORE, and SYSDUMP procedures have been modified to execute 40% to 50% faster and use 25% less tape. These significant improvements are a result of using 4K blocks instead of 1K blocks and using buffered I/O. Six new commands have been added to the Segmenter to allow easy cleaning, copying, and listing of the SL and USL. In addition, the shared files limit has been increased from 64 to almost 8000. Finally, the UDC feature has been expanded to operate on both the account and system level. You can now specify a set of UDC's for an account or the entire system with a simple addition to the SETCATALOG command. This enhancement will allow you to more easily

tailor the system to your specific needs. A detailed description of all of these enhancements is presented in the COMMUNICATOR (Issue Number 20, Part No. 5951-6113). Keep up the excellent feedback and we will continue to make MPE friendly and responsive to you.

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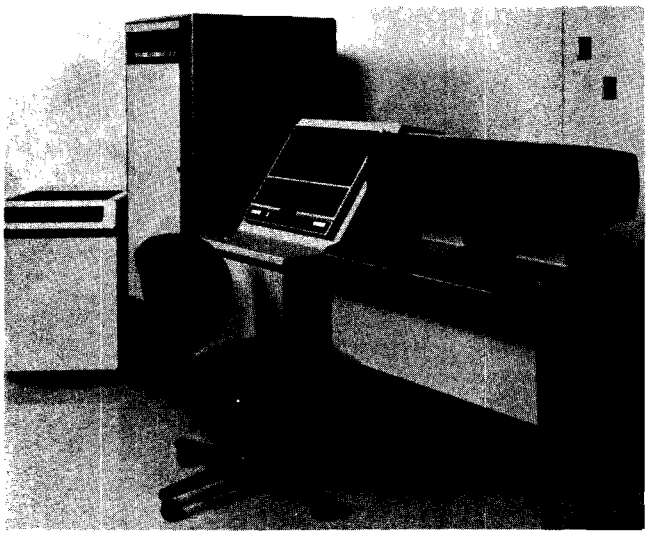
The New Series III

by Gwen Miller
Hewlett-Packard, General Systems Division
5303 Stevens Creek Blvd.
Santa Clara, CA 95050

Starting February 1, there will be a "New Look" for the HP 3000 Series III. The new system, model number 32435A, incorporates the existing Series III CPU and memory into a single-bay system with a separate "low-boy" magnetic tape. Certain internal design changes have also been made, including reliable new power supplies that operate off single-phase power. Another new feature is the use of the low-cost 2621A as the system console*, replacing the older 2640B. These design changes have allowed a reduction in price from the original Series III to $105,000 for the base system. The photograph illustrates the New Look of the New Series III.**



The benefits of this new design are in lowering the cost of ownership and in increasing system up-time. The single-phase power lowers installation costs, as does the built-in isolation transformer. The "low-boy" tape cabinet provides cost savings for add-on tape drives***, and the cost of expanding memory past one megabyte is lowered because an additional power supply is no longer required. The monthly maintenance fee is reduced, partly because of the greater reliability of the new power supplies. If a system failure should occur, new diagnostic aids and improved accessibility to system components minimize the time required to bring the system up.

The New Series III system uses the same CPU, the same memory, the same peripherals, and the same software as the original Series III. Memory expansion to two megabytes is supported in the single, system-bay. Nine I/O slots are provided, with an additional 20 slots available in an optional I/O expansion cabinet. The performance of the New Series III is identical to that of the original Series III system.

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Caution On A Good Tip

by John Becket
Director of Computer Sciences
Southern Missionary College
Collegedale, Tennessee 37315

The UDC listing program on page 21 of the October, 1978 issue (Tips and techniques: "User-Defined Command Listing Program"), works just fine so long as nobody disables UDCs after having once issued a SETCATALOG. MPE does not, however, remove the UDC declaration from COMMAND.PUB.SYS when you remove a UDC. The key factor is the UDC bit in the user directory. Hence, it is necessary to perform the following sequence to get an accurate list of UDCs active in the system:

1. Obtain a list of all users which have the UDC bit set in the user directory.
2. For each of these users, walk down COMMAND.PUB.SYS and look for a UDC user record.
3. After obtaining the user record, pick up the UDC file chain linked to by the first word of each record.

Please note also that the COMMAND intrinsic does not honor UDCs. This has been recognized by several users as a bug, and should not be used.

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There are many HP CRT Terminals that may be chosen as system consoles (at a price option), including the new HP 2621P - which is similar to the HP 2621A but with a hard copy printer incorporated on the top cover of the terminal.

**The photograph shows two terminals, but the actual standard system is supplied with one HP 2621A CRT Terminal as the System Console. Chair is not included.*

***All tape drives will have the same cabinet design.*

Use of Edit 2 Vs. EDIT Increases Maximum Code Segment Size

by Ralph Manies
Hewlett-Packard Company
32 Hartwell Avenue
Lexington, MA 02173

As Edit 2 is compiled BASIC, the USLs cannot be "restructured" without recompiling and substantial change to the BASIC code, (i.e., changing INVOKE structures, commons, etc.). A lot of effort went into balancing segment size, subsystem performance and effect on system performance, and there is not much one can do without substantial effort (i.e., we are probably 95-97% there). Bottom line — if you want to use Edit 2, you will have to increase max code segment size on your system. There are only a couple of larger segments, and they are used for functions such as LIST, etc.; note these are used only a small part of the time one is in Edit 2.

```
H P  3 0 0 0   P R O G R A M   S T A T I S T I C S
-------------------------------------------------

    PROGRAM NAME:  EDITOR.PUB.SYS

CODE SEGMENT SIZES

SEGMENT 0     4728
SEGMENT 1     2532
SEGMENT 2     2696
SEGMENT 3     1752
SEGMENT 4     3628
SEGMENT 5     2856
SEGMENT 6     3040
SEGMENT 7     2572
SEGMENT 8     2084
SEGMENT 9     2924
SEGMENT 10    2376
SEGMENT 11    2228

SEGMENT STATISTICS:  LARGEST:  4728
                     SMALLEST: 1752
                     AVERAGE:  2784

TOTAL CODE: 33416

*************************
*                       * <--DL
*   INITIAL SETTING     *
*                       *
*         0             *
*                       *
*                       *
*************************
*                       * <--DB
*                       *
*       GLOBAL          *
*      VARIABLES        *
*                       *
*                       *
*         984           *
*                       *
*                       *
*                       *
*************************
*                       * <--Q(I)
*                       *
*      DYNAMIC          *
*       STACK           *
*                       *
*                       *
*                       *
*        4600           *
*                       *
*                       *
*                       *
*                       *
*                       *
*                       *
*                       * <--Z
*************************

TOTAL INITIAL DATA: 5584
```

```
H P  3 0 0 0   P R O G R A M   S T A T I S T I C S
-------------------------------------------------

    PROGRAM NAME:  EDITZ.PUB.SYS

CODE SEGMENT SIZES

SEGMENT 0     708
SEGMENT 1     3256
SEGMENT 2     2396
SEGMENT 3     2892
SEGMENT 4     4196
SEGMENT 5     3080
SEGMENT 6     3612
SEGMENT 7     3968
SEGMENT 8     4740
SEGMENT 9     4864
SEGMENT 10    1172
SEGMENT 11    4272
SEGMENT 12    3708
SEGMENT 13    4824
SEGMENT 14    2976
SEGMENT 15    5084
SEGMENT 16    1608
SEGMENT 17    5176
SEGMENT 18    1080
SEGMENT 19    3748
SEGMENT 20    3220
SEGMENT 21    1824
SEGMENT 22    3644
SEGMENT 23    5032
SEGMENT 24    5684
SEGMENT 25    7264
SEGMENT 26    3392
SEGMENT 27    2768
SEGMENT 28    4648
SEGMENT 29    4256
SEGMENT 30    6520
SEGMENT 31    5748
SEGMENT 32    4068
SEGMENT 33    4152
SEGMENT 34    5212

SEGMENT STATISTICS:  LARGEST:  7264
                     SMALLEST: 708
                     AVERAGE:  3851

TOTAL CODE: 134792

*************************
*                       * <--DL
*   INITIAL SETTING     *
*                       *
*         0             *
*                       *
*                       *
*************************
*                       * <--DB
*                       *
*       GLOBAL          *
*      VARIABLES        *
*                       *
*                       *
*         383           *
*                       *
*                       *
*                       *
*************************
*                       * <--Q(I)
*                       *
*      DYNAMIC          *
*       STACK           *
*                       *
*                       *
*                       *
*        800            *
*                       *
*                       *
*                       *
*                       *
*                       *
*                       *
*                       * <--Z
*************************

TOTAL INITIAL DATA: 1183
```


HP 3000 Spooled Plotter Interface

by Larry E. Nolan
McDonnell Douglas Automation Co.
P. O. Box 516
St. Louis, Missouri 63166
Programming Sciences (Dept. K253)
(314) 232-7268

We have recently installed a version of the Calcomp 906 plotter controller which is connected to a standard HP 3000 line printer controller (30209A). This allows us to generate plotter output for our 960 plotter using the standard MPE file system and line printer spooler. No changes were made to MPE or the 3000 hardware. This new version of the 906 is available from Calcomp.

Contributed Library Software Spotlight

System Tuning Aids on the User Library

by Jason M. Goertz
Computer Systems Programmer
Whitman College Computer Center
Whitman College
Walla Walla, WA 99362
(509) 527-5417

One of the many things that a System Manager must contend with is system performance and efficiency. That is, trying to maximize job thruput and minimize wasted system resources, excess swapping, and general "thrashing" by the machine. The Contributed Library has many program aids which can assist in accomplishing this. We will discuss four of them.

The first, the most useful for balancing the system tables, is TUNER2, contributed by Bernie Staley of HP in St. Louis. (Versions also exist for tuning the Series CX.) TUNER2 produces a display showing the configured value and the amount currently in use of the following system tables: Data Segment Table (DST), Code Segment Table (CST), Extended Code Segment Table (XCST), Process Control Block (PCB), Input Output Queue (IOQ), Terminal Buffers (TBUF), System Buffers (SBUF), Timer Request List (TRL), Virtual Memory, spooling facilities, current job/session status, and the averages (over the polling time of the program) of the CST, DST, and XCST. The most useful feature of the display, however, is the percentage of each table being used. This allows extremely easy determination of over- or under-configuration of a table. In addition, TUNER2 will flag the table with an asterisk if the percentage being used is over 82%, allowing instantaneous detection of a table that may need attention. The program may be set to pause for any interval desired, or only display upon a control Y.

Another program available is SHOWVM, written by Gerry Wade of HP in Englewood, CO. SHOWVM can also be set to pause any interval of time. It displays the number of code and data segments in main memory and on each disc, along with their size in words, differentiating between system segments and user segments. This provides a thumbnail sketch of how memory is being used by the system.

The last two programs are "related" to each other. OVERLORD, also by Gerry Wade, and Son of Overlord (affectionately known as "SOO") perform basically the same functions, but do it in different ways. Both display each user's session/job number, user name and code segment being run, and stack usage. In addition, OVERLORD allows a system command to be executed, initiation of a process, and can show all processes in the system. OVERLORD also has an alternate entry point which, when run from a job, allows the operator console to be used to input commands without the necessity of signing on as a session. SOO, on the other hand, provides a continuous monitor. In addition to stack usage and code segment names, it shows an approximate percentage of system resources used, compared to the last time it scanned the system, and also the current CPU second count of each session/job. This is useful to monitor the system minute by minute and to investigate unusual circumstances, such as finding exactly which user or process is eating up stack space or other system resources, or to see if a program is locked in a loop. SOO can also be used in a batch mode, with the output going to a disc file in a compressed format for user analysis at a later time, or for statistical or job accounting studies.

One note of warning is in order.† All the above programs run in Privileged Mode, and some use Process Handling. We have had reports that some (especially early versions of OVERLOAD and SOO) cause system crashes. The newer versions, however, have had most of the bugs worked out of them. Our site uses SOO and TUNER2 quite a bit, usually when the system is loaded, and we have never had a crash that can be attributed to running these programs. If used with caution and sparingly, there should be no problem in using these tuning aids.

For a listing of all system tuning aids on the Contributed Library, request classification number 130 on the Library listing programs.

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The Clearing House

Changes to Clearing House Section

by Editor

After this issue, The Clearing House will be discontinued from the *Journal* and will be incorporated instead with modifications, into the *Newsletter,* a bi-monthly publication provided to HPGSUG members. The intent of the *Journal* is to provide technical articles to members. Moreover, as more firms choose to expose their products/services to the membership, The Clearing House becomes an expensive overhead, sometimes demanding many pages more than can be provided for that purpose. *Newsletter* will make available to *HP General Systems Users Group members* one specific size of advertising space at very reasonable rates, well within the reach of every business; contact The Executive Director for information and rates (see cover for address).

†*Editor's Note:*

Caution: Hewlett-Packard suspends system maintenance and warranty agreements for any condition caused by a user operating the system in privileged mode. Any requests for maintenance as a result of privileged mode operation will be performed on a time plus materials basis.

Software for which a fee is charged, may still be listed in the Contributed Library Tape by obtaining the necessary information forms from The Executive Director. Non-fee software contributions to The Contributed Library should also be submitted to The Executive Director.

Miscellaneous requests (e.g., Software Wanted) will be listed free of charge in The Newsletter (rather than in The Journal).

Advertising Specifications for The Clearing House Section in HPGSUG's Newsletter:

Any **member** who wishes to advertise user-related products/services may do so by submitting camera-ready copy to The Executive Director of the HP General Systems Users Group at the Executive Offices (see cover for address), with a check for $25.00 (U.S. funds) made payable to HP General Systems Users Group. Payments from organizations outside of the United States should be drawn in U.S. funds and on your bank's correspondent U.S. bank.

Advertising Specifications for Newsletter:

Mechanical Requirements: (offset)

Copy: Camera-ready art (including text, line art, photograph to size); one-color ink, same as issue.

Dimensions: 1/6-page only. The ad will be placed within a frame 3 3/4" wide by 3 1/8" in height.

Limitations: One ad per vendor, per issue.

Issue and closing dates: * Published six times per year

Issue	Closing Date
Feb/March '79	March 1
April/May '79	May 1
June/July '79	July 2
Aug./Sept. '79	September 3
Oct./Nov. '79	November 1
Dec./Jan. '80	January 2

The publisher reserves the right to limit space availability, and to reject any advertising which is deemed not suitable or inappropriate.

* Subject to change without notice.

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Interactive Software for Econometric Analysis (ISEA)

ISEA is a package of computer programs designed to particularly facilitate the statistical analysis of time-series data. ISEA has been designed as a fully interactive system, undertaking tasks in response to commands from the user, and initiating a dialogue with the user where further information is necessary. ISEA is written in Fortran and can be implemented on any Series II or subsequent HP 3000 computer system.

During an interactive session data for analysis is stored in a matrix in the user's data stack. The default size of this matrix is set to 300 rows (observations) by 20 columns (variables), though these may be changed by the user to a maximum of 500 observations or 50 variables (so long as the product of the two does not exceed 8000). ISEA refers to variables either by their column number in the data matrix or by a user assigned name of up to eight characters; particular observations are referred to by their date. Data may be entered into the ISEA data matrix from several sources; directly from the terminal, from a 3000/Editor file, from a KSAM file or from a sequential file created by ISEA during a previous session. A set of ISEA commands enable the user to edit the data in the data matrix; to print all (or a part) of it at the terminal or on a line-printer; and to keep all (or a part) of it in a file.

Prior to or during analysis, ISEA is capable of executing a wide range of transformations on the variables in the data matrix. The available transformations range from simple arithmetic operations (such as addition, subtraction, multiplication, division, etc.), to more complex ones (such as moving averages, storing deviations from the mean, creating qualitative dummy variables, etc.).

ISEA has been primarily designed for carrying out various forms of time-series and regression analysis. It is possible to estimate the parameters of a univariate Box-Jenkins ARIMA model, including seasonal parameters. In addition to ordinary least squares regression, it is possible to estimate equations using Two-Stage Least Squares; subject to linear restrictions; incorporating Almon distributed lags; incorporating a first-order autoregressive scheme in the residuals; and so on. The standard output includes the estimated coefficients and their standard errors, various goodness of fit statistics, the residual standard error, and the Durbin-Watson statistic. Optional output (which is entirely under the users control) includes a listing and/or graph of the actual, filled and residual values, the autocorrelation coefficients for the residuals, the variance-covariance matrix, and the matrix of correlations between the estimated coefficients.

In addition there are many other commands to aid the user engaged in time-series analysis, econometric modelling and forecasting applications. For further details, please contact:

John Eaton, Director of Computing Services
London Business School
Sussex Place – Regent's Park
London NW1 4SA
England

Software for HP 3000 Computer Systems from Satellite Computing, Inc.

Product: SPOOLTERM/3000 Price* $ 750
Spooling system for asynchronous terminal printers. Provides shared access to printers for session and batch users.

Product: SCOAR/3000 Price* $ 5,000
On-line accounts receivable system. Provides customer maintenance, transaction posting, on-line inquiry, aged trial balance reports and customer statements.

Product: SCOOP/3000 Price* $15,000
On-line order processing system. Provides customer and item maintenance, order entry, work order generation, order modification, order tracking, invoicing, and integrated accounts receivable system.

Product: SCIPS/3000 Price* $ 7,500
On-line inventory and purchasing support. Provides on-line interfaces for purchasing, sales, receiving and manufacturing. An integrated bill-of-materials is used for the relief of component inventory and the calculation of end-item standard cost. Multiple warehouse locations are supported.

Product: EZRPG/3000 Price* $ 350
Freeform RPG source code input. Solves the problems inherent in keying fixed format RPG source code on computer terminals. EZRPG/3000 is invoked as an EDIT/3000 procedure.

Product: KSAMAINT/3000 Price* $ 500
On-line maintenance of KSAM files. Allows use of DEL/3000 screens for the on-line maintenance of KSAM/3000 master files. Provides for addition, modification and deletion of records.

Product: KEYDATA/3000 Price* $ 1,000
On-line data entry and modification. Utilizes DEL/3000 screens to input, retrieve and modify records within sequential batch data files.

Product: CID/3000 Price* $ 4,000
COBOL/IMAGE/DEL programming techniques. Boiler-plate COBOL main-line program, callable support routines and training in the theory of applying COBOL, IMAGE and DEL to on-line solutions.

*** Prices subject to change without notice**

For complete details, contact:

Mr. Steve Jamison
Satellite Computing, Inc.
4530 Professional Circle
Virginia Beach, Virginia 23455
(804) 499-9803

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United Computing Systems, Inc. Markets Foresight and Infonational Packages for the HP 3000

Product	Description	Price
Foresight	"Application language" for financial analysis, modeling and management reporting. Based on English language commands; requires no knowledge of computer programming.	**$25,000**
General Ledger	Central module of integrated accounting and management information system, with automatic budgeting and responsibility accounting system. All standard reports and features plus 450 extra management information features. Basic general ledger system; Financial report formatter; Budget allocation module; Transaction auditor.	$33,500
Accounts Payable	Basic accounts payable system with vendor analysis; Check reconciliation; Duplicate invoice screening; Standard cost variance.	$17,000
	Purchase Order Module	$ 5,500
Accounts Receivable	Basic accounts receivable system/ sales analysis system, with ledger card module.	$23,000
Fixed Assets	Fixed assets accounting and control: Basic fixed assets, ADR module, and insurance revaluation.	$17,000

For complete details, maintenance licensing and contractual agreements, contact:

Mr. John Gewecke – UCS, Inc.
Foresight/Infonational Division
1901 Avenue of the Stars
Suite 585, Century City
Los Angeles, CA 90067
(213) 277-2722

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Argonaut Information Systems and (INSCI) Enter Into Agreement

Argonaut Information Systems, Inc. of Berkeley, California, has announced an agreement with Information Science Incorporated, of Montvale, New Jersey, to market Argonaut's proprietary program products, TAXBREAK and TAXCOST. These programs calculate employee and employer federal and state payroll taxes. Routines for all fifty states are included. InSci will provide the programs along with its soon-to-be-released IMS Personnel/Payroll System.

Further information can be obtained from Luanne James, Argonaut Information Systems, Inc., 2140 Shattuck Ave., Suite 205, Berkeley, CA 94704, Tel. (415) 845-7991.

Payroll System in BASIC

Munson Management Systems has recently developed a totally integrated Payroll System in BASIC language. The above package consists of sixteen separate modules and is Data Base oriented. A module is included for unionized operations. The programs are entirely interactive, however, the package can be opeated as a stand-alone.

For further information or pricing, please contact Mr. Ken Roberts at Munson Management Systems, 350 E. Paularino, Costa Mesa, CA 92626, Tel. (714) 979-0110.

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QEDIT Enhanced

QEDIT, the programmer's editing system that doesn't have to KEEP in order to compile, has been recently enhanced. MODIFY can split a line; COBOL users can automatically tag each changed line with a special comment; you can recover deleted lines after hitting return; USE files can be nested; QEDIT HELP material can be added to the system HELP files; GALLEY has been modified to work with QEDIT workfiles, saving a KEEP and reducing disc space requirements.

QEDIT rents for $960 per year.

For additional information, contact:

Robert M. Green, President
Robelle Consulting Ltd.
130-5421 10th Ave., Delta, B.C.
V4M 3T9
Tel. (604) 943-8021

Editor's Note: See "Principles for Optimizing Performance of On-Line Programs" by Robert M. Green, Journal, Vol. 2 No. 2, October 1978 (Page 15).

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New Double Density Floppy Disk Drives

The new, flexible disk drives come in two versions. Model B51 is single-sided, storing up to 250K bytes of data on one side of a 5.25-inch diskette. Model B52 reads/writes on both sides of the diskette, giving direct access to 500K bytes.

A band head-positioning device reduces track-to-track access time to 5 milliseconds.

Both models of floppy disk drives will accommodate FM, MFM, M^2FM or GCR encoding techniques. The single-density format has correspoding reductions in storage capacity.

Delivery is immediate.

Further information is available from Micro Peripherals Inc., 21201 Oxnard Street, Woodland Hills, CA 91367.

Software Needed: Payroll Package for a Secondary School District

(10,000 students K through 12)

Users or third parties, please contact:

Mr. David Anderson
Director of Data Processing
Eau Claire School District
1222 Mappa
Eau Claire, Wisconsin 54701
Tel. (715) 839-5086

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Software Needed: Tutorial Basic Courses

Please contact:

Mr. Randolph H. Neal, President
Automated Business Services
1649 West Broad Street
Richmond, Virginia 23220
Tel. (804) 355-4361

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Software Needed: Critical Path Scheduling Package

Critical Path Scheduling Package that is User-oriented.

Please contact:

Mr. Joel Robinson
George Wimpey Canada Ltd. – Info System
80 North Queen Street
Toronto Ontario
M8Z 2C9 Canada

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Line Printer For Sale

For Sale: HP 2613A Line Printer
300 LPM (Data Products 2230).
Qualifies for HP maintenance.
Attractive price.

Contact:

Leland Williams
Triangle Universities Computation Center
Box 12076
Research Triangle Park
North Carolina, 27709

Equipment For Sale

Five 2888 Disc Drives with Controller and all cables plus seven (7) disc packs.

One 7905A Disc Drive plus two disc cartridges.

Please contact:

Mr. E. F. Abell (RS 2425)
Baltimore Gas & Electric Co.
Purchasing & Stores
Box 1475
Baltimore, MD 21203

All equipment is sold "as is, where is," but is under HP maintenance.

Please contact Steve Ward at (301) 234-6341 to arrange inspection.

What's So Funny About Computing? It's In The Books

Submitted by F. M. Hanson — Boeing Site #5
P. O. Box 3999
Seattle, WA 98124
M/S 87-82

It's a little hard to tell how to classify Robert L. Glass's books on computing.

Are they purely for fun, a from-the-inside humorist's eye-view of computing as we know and love it?

Or are they really disguised learning experiences, hiding some fundamental computing truths behind the mask of humor?

The Universal Elixir, and Other Computing Projects Which Failed, for instance, tells funny failure stories. But like the child with his hand on a hot stove, don't we all learn indelibly from failure?

Tales of Computing Folk: Hot Dogs and Mixed Nuts reminisces about the iconoclasts of an earlier computing era. Are we so sure that the new "routinization of computer programming" is a better way?

A new book. *The Power of Peonage* uses an anecdotal approach to explore alternatives for technologists at the bottom of a bureaucratic administrative structure. Out of those alternatives emerges a whole new way of dealing with a power structure.

HP GENERAL SYSTEMS USERS GROUP
MEMBERSHIP APPLICATION

You may use this application for either Installation or General Membership. You may submit payment with your application, or be invoiced separately. Materials (Library, Journal, etc.) are not mailed until payment is received. If you include payment, PLEASE MAKE CHECKS PAYABLE TO *HP GENERAL SYSTEMS USERS GROUP* you will receive an invoice marked "paid" for receipt purposes. Checks from organizations outside of the United States should be drawn in U.S. funds and on your bank's correspondent New York or other U.S. bank.

Membership Type

☐ GENERAL
$20 per person, per year.

☐ INSTALLATION
$200 per year. Important, *please indicate tape density required for Contributed Library.*

☐ 800 bpi ☐ 1600 bpi

NAME _____
(voting individual if installation membership)
TITLE _____
COMPANY _____
STREET ADDRESS _____
CITY _____ STATE/PROVINCE _____ ZIP _____
COUNTRY _____ POSTAL CODE _____
TEL NO. (____) _____

☐ Check Enclosed ☐ Invoice Separately

IMPORTANT: Please allow 2-3 weeks for processing. If you include a check, please be sure the check is payable to HP GENERAL SYSTEMS USERS GROUP to avoid delays in receiving material. Mail to Rella Hines, Executive Director
Suite 414 Empire Towers, 7300 Ritchie Highway, Glen Burnie, Maryland 21061

FOR ADDITIONAL APPLICATIONS, PLEASE FEEL FREE TO PHOTOCOPY THIS FORM

Note: The HP General Systems Users Group is an independent, non-profit corporation chartered under the laws of the State of California.

Special Project

HPGSUG Survey: Using Magnetic Tape Media

This survey will help HP determine what environment our magnetic tape units function in; HP is listening, and will report to us on the results and action. Please answer as appropriate; comments are welcomed at the end of the survey. Please mail to Gene Morrell, Hewlett-Packard Company, Boise Division, P. O. Box 15, Boise, Idaho 83707.

1. What HP 3000 model do you own? _____

2. How much disc space do you have on your 3000 (in M bytes)? _____

3. How often do you perform complete sys dump to tape? _____

   Do you feel this frequency is adequate? _____

4. How often do you perform dated sys dumps to tape? _____

5. How do you use DB store-restore feature? In relation to sys dumps, how much time do you spend performing DB store-restore?

6. Of the above methods of storing disc information, which one do you most heavily rely on to "backup" your disc information? Any comments?

7. How many mag tapes with what recording format do you have on your 3000?

8. How much time, as a percentage of your total mag tape processing time, is spent in other than one of the previous modes?

   <5% 10%-20% 20%-30% 30%-40% 40%-50% >50%

CUT ALONG PERFORATED LINE

9. Do you keep any tapes for more than 30 days? For what reason? _____

10. Would you consider using other than a ½" magnetic tape device for your backup requirements? If so, what device interests you?

11. Would you consider using other than a ½" magnetic tape device for your tape library requirements? If so, what device interests you?

12. Do you perform data interchange via tapes from your HP computer to other computers where ANSI compatibility is required?

13. Do you have other than HP tape drives on your system? If so, what brand? _____

14. Given that the 7970E has a performance factor of one, what performance factor would you like to see on the next generation on HP tapes?

15. What is your opinion of the 6250 GCR as a recording format and how do you compare this technology in the long run to PE or NRZI drives?

16. COMMENTS: _____

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ADDRESS CORRECTION REQUESTED

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