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Featured articles

INSTALLATION MANAGEMENT

by Tom Harbron
Chairman, Installation Management Committee
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In the last issue of the Newsletter we examined the problem of connecting terminals to the HP 3000 and concentrated on hardwired connections. In this issue the use of modems will be considered. If you haven't read the first article in this series, see the January 1977 issue, page 21, as the RS-232C standard and other pertinent matters are explained there.

Since telephone lines run nearly everywhere that a terminal might be located and the distances may be great, it seems very natural to use them to connect computers and terminals. There are only two problems – one technical and the other economical. The economical problem has to do with tariffs for connecting a phone line from point A to point B. Whether these points are 50 feet or 5000 miles apart there are probably several different services and tariffs. This is a matter to work out with the telephone company and won't be elaborated on here.

The technical problem is that the D.C. pulses used in the RS-232C standard can't be sent through telephone circuits designed to handle voice communications. Therefore it is necessary to convert the pulses to tones at one end (modulate) and convert the tones back to pulses at the other end (demodulate). Since it is usually necessary to transmit data both ways, these two functions are usually combined in one unit called a MODulator DEModulator or MODEM for short.

In addition to the modulator-demodulator function, most modems also generate and receive protocol signals for interfacing with the computer or terminal and the telephone equipment. The signals on the computer or terminal side of the modem conform to the RS-232C standard which was discussed in the last issue of the Newsletter. The interface on the telephone line side depends upon whether the line is dial-up or private, the speed of transmission, and other factors. Space does not permit an exhaustive treatment here of all the possibilities. Instead we will concentrate on the type protocols most commonly used with dial-up terminals.

Most terminals can be operated in either "half-duplex" or "full-duplex" modes. In "half-duplex," transmission is one-way at a time. If the computer is sending to the terminal, the terminal cannot transmit to the computer and vice-versa. Many IBM and other systems use this mode. In "full-duplex," data can be sent both ways simultaneously and independently. "Full-duplex" has the advantage that local copy is echoed back (echoplex) from the computer. Thus any transmission errors are immediately obvious.
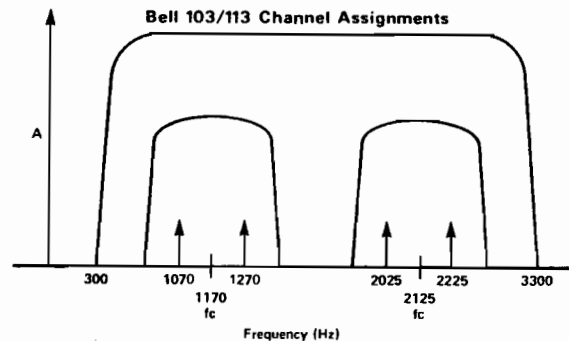
It also permits interrupt signals ("break," control-Y, etc.) to be sent at any time. "Half-duplex" has an advantage in that less communications overhead is required at the computer end.

Communication Modes
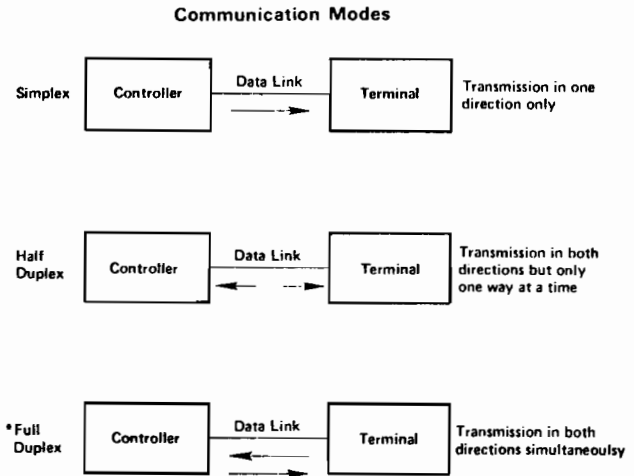
Per ASCII standard full duplex implies that the same data rate exists in both directions simultaneously; i.e., 1200/150 bps is not full duplex, 1200/1200 bps is full duplex.

The choice of half or full duplex is usually switch selectable on both terminals and modems, and the 3000 can accommodate either although full-duplex is preferred.

By far the most common protocol on the telephone side is the "Bell 103/113" system. As shown in the figure below, separate frequency bands are used for transmission to and from the computer. These frequencies were originally used in the Bell Telephone 103 datasets and have become a defacto industry standard.

Bell 103/113 Channel Assignments

Specifications

Data:	Serial, binary, asynchronous, full duplex
Data Transfer Rate:	0 to 300 bps
Modulation:	Frequency Shift Keyed (FSK) FM

Frequency Assignment:		Originating End	Answering End
	Transmit	1070 Hz space 1270 Hz mark	2025 Hz space 2225 Hz mark
	Receive	2025 Hz space 2225 Hz mark	1070 Hz space 1270 Hz mark

Transmit Level:	0 to –12 dBm
Receive Level:	0 to –50 dBm simultaneous with adjacent channel transmitter at as much as 0 dBm

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The modem may be connected to the phone line in several different ways. These fall into three categories: direct connection to the phone line, connection to the phone line through a data access arrangement (DAA), and acoustical coupling.

Acoustical coupling is the simplest and least expensive method. The telephone hand-set is placed into the coupler where sounds emitted by the earpiece are picked up by a microphone, and a small loudspeaker produces sounds that are picked up by the telephone. The disadvantages of acoustical coupling are that manual intervention is required to begin and end the call and reliability is lower than with the other methods. Generally it is satisfactory for the terminal end, but not the computer end.

There is no technical reason why modems cannot be connected directly to telephone lines. Originally, when the telephone companies had a monopoly on supplying modems, this was done and still is by the phone companies. When the F.C.C. ruled in 1968 that modems supplied by other companies could be used, the phone companies insisted on interposing a "data access arrangement" (DAA) between the modem and the phone line. The justification was that the DAA would protect the telephone equipment from harm. However, the F.C.C. has recently ruled that there is no technical justification for DAAs and that their real purpose is to compensate for revenue the phone companies are not getting from user supplied modems.

BELL

NON-BELL
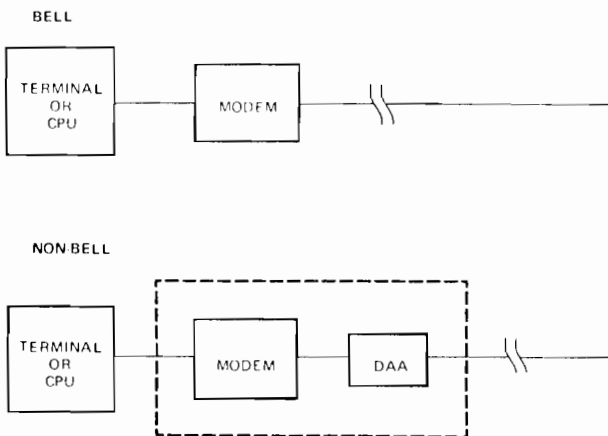
The phone companies have fought this ruling, but their delaying tactics have been nearly exhausted and it should be possible within the next year to buy modems that connect directly.

For modems that require a DAA, there are three types generally available in the Bell system. (Similar models are used by other phone companies.) These are described in the following figure. The CDT is not practical for the computer end but could be used at the terminal end. The CBT and CBS are essentially the same except the CBT requires a user provided power supply and is less expensive; they are appropriate for the computer end.

DATA ACCESS ARRANGEMENTS

Manual:	CDT	—	1000A
			Manual only operation
			$2.00 to $3.00 month
Automatic:	CBS	—	1001A or 1001F
			Automatic operation
			Voltage interface
			$6.00 to $7.00 month
	CBT	—	1001B or 1001D
			Automatic operation
			Contact closure interface
			$4.00 to $5.50 month

Functions

- Protect terminal and modem from line surges
- Provide DC isolation impedance matching via transformer
- Protect network for excessive power to line
- Perform line transfer, handset to modem and vice versa
- Auto answer dial (CBT or CBS only)

Typical Automatic DAA Configuration
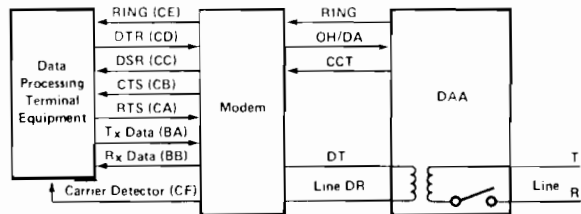
The signals at the modem/DAA interface are as follows:

Pin	Name	Function
1.	OH	Off-on hook control, connects DAA to phone line.
2.	DA	Data answer control, connects DAA to modem.
3.	CCT	Coupler cut through, indicates connections have been made.
4.	RI	Ring indicators, tells when a ring signal is present.
5.	SH	Switch hook.
6.		Control signal common.
7.	DR	Data ring � these carry the signal to and
8.	DT	Data tip ⎭ from the phone line.

The modems conforming to the "Bell 103/113" standard are usually limited to 300 baud (30 cps). Higher speeds are possible with other modems but most do not operate in full duplex and many are not compatible with those of other manufacturers. Several full duplex modems are now available at 1200 baud.

A considerable cost savings can be attained by buying independent modems. One major problem is the finger pointing that can occur when a problem arises. Suppose for example that you use a Hewlett-Packard computer, Vadic computer-end modem, Bell DAA and lines, an Omnitec terminal-end modem with acoustical coupler and an Infoton terminal. Whom do you call when the system doesn't work? If you can't diagnose the problem you only have a 20% chance of calling the right party. Even if you call the right party, there is a high probability he will say it is in another part of the system.

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The solution is to be able to diagnose the problem first! Some modems have built-in diagnostic tools and diagnostic equipment may also be purchased separately. It is well worth the money!

The simplest diagnostic technique is to substitute known good units for suspected ones. Another common technique is "loop back" and is provided on some modems. Essentially this means that the modem retransmits the received signal back to the source. For example, if a terminal is receiving garbage from a computer, putting the corresponding computer-end modem in the "digital loop-back" mode will test everything except the computer. If clean echo-back is received, the problem is in the computer or the RS-232C interface.

More comprehensive testing can be done with a diagnostic unit. For example, the Vadic VA232 may be inserted between the modem and DAA and/or modem and computer or terminal. It allows all lines on both interfaces to be examined and/or forced. Signal levels on the phone line can be measured in both directions and, with a pair of headphones, you can listen to the line. With such a device it is possible to diagnose the exact source of the problem. This is especially helpful in dealing with surly employees who seem to have the attitude that nothing could ever be wrong with their equipment.

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Finally, learn as much as you can about modems and telephone systems before buying and using them. Too many representatives of the telephone companies and some modem salesmen know very little about the technical side. They may be very misleading (through ignorance rather than fraud) and you may end up with a poorly performing system or pay too much.

The illustrations in this article were courtesy of the Vadic Corporation (who also, based on our experience, makes very good modems).

* * *

DATA PROCESSING SECURITY AND CONTINGENCY PLANNING AUDIT

Interview with Bill Gates
Data Processing Manager
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Editor's Introduction. Recently, Bill Gates (Data Processing Manager at Longs Drug Stores, Walnut Creek, Calif.) had a Data Processing Security and Contingency Planning Audit performed by an outside auditor. The auditor was to evaluate: (a) data processing security, identifying both strengths and weaknesses; and (b) data processing contingency plans.

Both Bill and Ralph Manies (HP Representative) thought some of the points brought out in the audit would be of interest to readers. Thus, on completion of the audit, an interview with Bill was arranged. We hope you find the interview interesting and useful in your planning.

Before we get into the interview, some quick definitions of security and contingency plan are in order, as well as some background information on Longs Drugs.

Security refers to the protection of data against accidental or intentional disclosure to unauthorized persons, or unauthorized modifications or destruction. Note that while the technology of security is closely related to privacy, privacy is an issue that goes beyond security . . . the interview does not touch on the rights of individuals to determine when, how and to what extent information is released.

The purpose of a *contingency plan* is to help ensure the orderly resumption of computer operations on a prioritized and timely basis in the event of a computer center disaster. Remember, in the event of a disaster, everyone (including organization management) is going to be very busy. Pre-planning via a contingency plan helps everyone understand their role and what actions need to be taken.

Here is a brief background on Longs Drugs. A major retail drug and variety chain, Longs has over a 100 stores, 4600 employees and annual sales of more than $450 Million. Some uses of the HP 3000 system are payroll, general ledger, accounts payable/receivable, and management reporting/data access.

Now for the interview.

Ralph: *What was the background that led you to have a Data Processing Security and Contingency Planning Audit?*

Bill: About a year ago – March of 1976, the company made a decision to implement a security and disaster recovery plan. We decided that a year from that time, we would have our auditors review the plan. They were to check how well our security set-up was, and look at our disaster recovery and contingency plan. We have accomplished half of that, that is we have our DP security set-up. We found out that in designing our disaster recovery plan that you can't just isolate the DP department. It involves the user departments so much that the scope had to be enlarged. We are still working on that aspect, and expect to have the disaster planning complete by June of this year.

Ralph: *One thing that would be helpful to readers would be to briefly describe your physical arrangements. For example, you do not have any modems for dial-in.*

Bill: The only reason we would use dial-in facilities would be for the convenience of programmers, or to have some of our operations people do work at home. We wouldn't do any production work via dial-in, so it's a convenience factor. We don't feel it's justified. And, of course, dial-in facilities does open the range of possibilities for unauthorized people accessing the system. The theory is that there is no system that is absolutely foolproof, and given time and resources, someone could break a series of passwords. Another way to look at it is that it's a lot easier to control or trace down unauthorized access from a terminal that's physically within our building.

As for the system, it's secured behind a locked door. That prevents someone who doesn't have a need to be at the printers or system console from being there. And, access to the building is controlled, that is, visitors must be escorted and there is a record of employees who are in the building after hours. So, if we have reason to suspect an unauthorized access, we have a good starting point to trace it down.

Ralph: *One objective of the audit then, was to look at how well set-up you are to prevent unauthorized access to sensitive data.*

Bill: That's correct. The purpose of the security system is to make it very difficult for an unauthorized person to see any piece of data they should not see. There are different degrees and levels of people not authorized to see data. For example, there is certain data a programmer should not see, and even more a clerk should not see. There is even data on the system that I cannot see. We had to devise ways to limit access to data. For example, we have one application – financial data reporting – that has data that is so sensitive, that we don't even maintain the data on tapes in the computer department. The controller actually has the data on STORE tapes, and access and use of the tapes is tightly controlled, and records kept of usage. This data is extremely sensitive between the end of a fiscal period and the public release of financial results. Unauthorized access to the data during that time could result in serious problems for the company.

Also, data related to a store's operation is sensitive for competitive reasons.

Ralph: *It looks like you thought about security right away, that is, from initial installation – and have set up security procedures not only in terms of passwords and accounts on the system, but physical security, tape storage and handling and the like. Did the auditors also review operating procedures?*

Bill: That's right. It's always good to get an outside source to look at your whole setup, because you never think of everything. They can make suggestions on things you never really thought of. It's one thing for a DP manager to say the system is secure, it's another thing when an independent audit group puts their stamp of approval on it.

Ralph: *As a result of the audit, are there some things that you discovered about security that you could pass on to other users?*

Bill: Yes. Part of security is the actual procedures that keep you from making mistakes. If there are a lot of mistakes made by programmers or operators, this requires special procedures to recover. One of the theories is that the more mistakes that occur, the less security you have, because more people are involved with a set of data. Also, the more you have to rerun things, the more exposure it creates. So, an important part of security is your operating procedures – are they sound and well thought out? For example, if you have a live production program "blow-up" on you, and the programmer has to get involved in it, that's a possible security problem. You might have to override your normal security procedures, for example, give the programmer passwords or access to a live data file. The more that happens, the less security you have. So, the auditors look at your procedures for testing programs, before they are turned over to production, and your procedures for handling abnormal situations.

One recommendation the auditors made, which we immediately implemented, was to maintain source programs along with object programs, within the production account. We had normally kept source in the program development account. At time of release of a program, the object code was copied into the production account. Now both source and object are turned over to production. That eliminates the possibility of the programmer making a couple of "enhancements" to the program, then getting involved in another project, and forgetting about the changes made. Copying the source to production decreases the possibility of that sort of mixup.

The source is kept in production, but the programmer has read-only-access. Thus, if he wants to experiment with the program, he can text it in, but any modifications are kept in the programmers account.

Another recommendation was to control or limit the access of people to the computer room. That's common practice in large installations. We have programmers going into the computer room,

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because they like to get the printouts, mount tapes, etc. We are looking at ways to provide that type of convenience, but not have people physically go into the computer room. That lessens the probability of wider exposure of data, for example, reports on the line printer.

Another concept is to restrict programmers access to live production files. One of the problems we have had in the past is that we don't have enough disc space to give all the programmers their own versions of test files. We have some very large data bases, and we cannot give programmers say 110,000 sectors for a test general-ledger data base, even though they would like to have it. Right now we give them controlled access to live files for testing, but in the future as we expand our disc capacity we hope to control access to live files by giving programmers their own test data.

Ralph: *Are the procedures you implemented based on your experiences as a DP manager, or when you started, did you have some reference material to go to?*

Bill: The reference books that I know of tend to be oriented toward the very large scale installation – they talk about full-time tape librarians, and large full-time specialized staffs. They also do not address terminal orientation. It's a lot easier to have security in a closed-shop batch operation – for example, the programmer will usually make up and submit his own test deck, and he doesn't access the system directly at all.

When you have terminals, it's quite a bit different. So, that made it a new environment for me – I'd never worked in a shop where the system had terminals, plus have a system like the HP 3000 where programmers would be accessing the system via terminals. So, it was really a matter of applying a lot of common sense.

Fortunately, the security and accounting system in the 3000 is very good, and it was a great help. We use every feature of it – passwords, lockwords, careful account capability structuring. That gave us an excellent basis on which to start.

That's another reason to get some outside help – that is, if you have nothing to judge against based on your past experiences, an independent source can check to be sure your perspective is okay.

Ralph: *Out of this experience, are there some recommendations you have for Hewlett-Packard in terms of things that could be done to enhance security on the system?*

Bill: We use the log file to increase security. The way we do that is the log file is looked at by somebody external to the computer department, to check and make sure that everything that was run on the system was legitimate. The log file as designed and implemented is primarily oriented toward providing data for billing purposes. If it were enhanced, say for example, to allow the user to programmatically log data such as record counts, or data base open modes, etc., or indicate if a file was modified in the file close record, that would be useful to build-in audit trails.

The password and lockword setup is excellent – I know you're working on changing data base passwords without having to unload/load the data base.

I like the idea that was brought up at the recent Regional Users Group Meeting of not echoing back passwords to terminals, at least as an option. You find with passwords they really are not popular. Remember, to a legitimae user, a security system is something you are throwing in their way. They accept a password grudgingly. So, the cleaner you make it for them, the easier it is to sell the security system. Having the user input a special sequence to not echo the password, is something they don't want to do, and is something they usually won't do after two or three times. Thus, you increase the probability of someone seeing a password.

I would recommend to anyone just acquiring a system, to put the security in right away. If you start off with unrestricted access, and then all of a sudden put in a security system, you tend to create the impression that you don't trust the user. But, if you make passwords, etc., a procedure right from the beginning, then people accept it.

Ralph: *I notice you are putting in an automatic fire extinguisher system, and you have a big vault in the computer room for tape storage. What's up on the fire system, and how do you handle tape storage?*

Bill: We have three places where we maintain tapes – one is in our fireproof safe in the computer room. It's a safe that will "save" tapes even if exposed to fire for up to two hours. We keep most of the very current data there.

We keep a series of backup tapes in another vault. We also have a service that comes by once a day and picks up a locked box of our backup tapes, and stores them in a disaster proof facility. These are rotated, I believe, on a two-week basis. So, at any one time, we have a series of tapes that allow us to completely recover, even if we lost everything on this site.

The fire system really is contingency planning. The quicker you put out a fire, the less it's going to cost you to recover. Even if we lost the whole computer room, we would not be, as a company, out of business. It would probably take a day or so to get up and running at another site. But, it would be expensive for us – we would, as an example, not be able to be on top of accounts payable, and as a result might lose some cash discounts. We decided to put a fire suppression system in the computer room and tape vault – one triggered by combustion or temperature. The cost of these systems have been decreasing, and we feel it's cost justified at this time.

Ralph: *Do you have a reciprocal agreement with any sites in the event your system became totally unavailable, say due to a fire?*

Bill: We are looking at a reciprocal agreement with a firm whose system is being installed in a couple of weeks – they are located a couple of miles from here.

You also have to consider special forms and have those stored in a safe place. Also, you have to consider having a safe copy of your operating procedures, JCL and the like, backed up. If you don't have that information, you are going to be in bad shape.

I had an experience seven years ago – a CE* crossed some wires and blew up the system – believe me that's a scary experience. To cope with that you need a well thought-out plan on who will do what in an emergency situation. When you are coping with such a situation, you have enough on your mind without having to worry about expediting forms, or helping people who no longer have a procedures manual to look at.

Ralph: *What about the costs of security and contingency planning?*

Bill: You can make a security system so "tight" that you can't break it, and the cost would probably be prohibitive. Another example is an ultimate contingency plan could be another off-site computer system just sitting there ready to go. That's very expensive though.

You have to weigh the costs of security vs. the benefits. You never reach (or it's extremely difficult and expensive to reach) absolute security. But, for a relatively low cost you can get a good measure of security.

* Editor's Note: (Not HP's.)

It's somewhat like home security. For a small investment you can provide security that will prevent the casual thief or teenager from targeting your home – but it's pretty expensive to keep out a determined professional. Just like in homes, the thief is going to go to the place where it's the easiest. That's the answer to the argument 'what's the use of security if the system isn't totally secure.' So, the idea is you make it more difficult – a dp criminal is logical and he will go to the wide-open site.

I have a checklist that might be useful to someone reviewing their security or contingency plan, or setting up plans. There are a lot of topics involved, so remember it will take some time to fully implement.

Ralph: *Thanks, we will include the checklist at the end of the article. Speaking of end, I've run out of questions. On behalf of readers, thanks for your time and sharing your experiences.*

(Note: Here's the checklist that Bill Gates mentioned. Also included is a list of seven requirements for data security as outlined in *Computer Data Base Organization*, James Martin, 1975, by Prentice-Hall, Inc., Englewood Cliffs, New Jersey, ISBN 0-13-165506-X.)

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I. DATA PROCESSING SECURITY

Security Program

- Security Philosophy, Objectives and Written Plans
  - Executive level
  - Corporate security
  - Internal audit
  - Data processing
- Management Support to Program
- Planning and Control Accountabilities
- Organizational Communications

Security Practices and Controls

- Personnel Controls
  - Screening and reference checks
  - Orientation to security
  - Need-to-know philosophy
  - Separation of duties
  - Operator cross-training
  - Access to software and files
  - Special payroll audits
  - Personnel rotation
  - Discipline level
  - Termination procedures

- Systems and Program Design Criteria
  - Availability and use of operating system security features
  - Inquiry and update procedures
  - Password utilization and control
  - Systems and program testing standards and control
  - Internal audit interface

- Applications Control Practices
  - Access to systems
  - Data edits
  - Data balancing
  - Audit trails and tests

- Telecommunications
  - Terminal procedures
  - Password control
  - Dial-up/browsing controls
  - Network access

- Documentation
  - Standards
  - Access
  - Protection
  - Maintainability
  - Quality and procedures controls
  - Duplication controls
  - Backup storage

- Center Operating Procedures
  - Screening and authorization of personnel
  - Privacy of information safeguards
  - Control of software modifications (maintenance)
  - Tape and disk file library procedures
  - Internal audit spot-checks
  - Flagging of data processing and personnel employee files
  - Input/output control procedures
  - Destruction of carbon paper, ribbons, printouts and tab cards
  - Negotiable forms access and controls

- Off-premise Backup Files
  - Method of creation or duplication
  - Storage cycle
  - Pickup/delivery procedures
  - Storage identification system
  - Vulnerability within off-premise storage sites
  - Procedure for periodic tests

- Micrographics
  - Pickup/delivery procedures and controls
  - Controls to prevent unauthorized access/duplication
  - Retrieval controls
  - Storage protection
  - Destruction procedures

II. CONTINGENCY PLANS

Recovery Philosophy
- Types of contingencies covered
- Cost of recovery/value analysis
- Identification of time critical systems
- Recovery priorities
- Factors governing commencement of contingency actions

Assignments and Coordination
- Authority levels
- Specific responsibilities
- Communication methods
- Personnel backup provisions

Emergency Plans and Procedures
- Housekeeping rules
- Shift inspection and turnover
- Adequacy of signs, placards and procedures
- Determined courses of action in case of:
  - Fire
  - Storm
  - Power interruption
  - Communications interruption
  - Major power failure
  - Civil unrest
  - Explosion
  - Earthquake/flood
  - Structural damage
  - Bombing threats

Emergency Services Provisions
- Fire equipment types and locations
  - Extinguishers and hoses
  - Floor removal tools
  - Sprinklers
- Alarms, signal devices and communications
- Emergency battery lamps
- Survival and first aid supplies and training
- Shutdown and evacuation methods

Recovery On-Site
- Hardware
- Communications
- Utilities
- Software
- Documentation
- Forms

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Recovery At Off-Site Location

- Written agreements and contracts
- Vendor participation
- Configuration coordination
- Retrieval and transportation of data and programs
- Operation of backup computer
- Provision for communications
- Tests

The following seven requirements are essential for data security:

a. The data should be *protected* from fire, theft, or other forms of destruction.

b. The data should be *reconstructable* because, however good the precautions, accidents sometimes happen.

c. The data should be *auditable.* Failure to audit computer systems has permitted some of the world's largest crimes.

d. The system should be *tamperproof.* Ingenious program- mers should not be able to bypass the controls.

e. No system today is completely tamperproof, but bypass- ing the controls can be made extremely difficult. Users of the data base must be positively *identified* before they can use it.

f. The system must be able to check that their actions are *authorized.*

g. Their actions should be *monitored* so that if they do something wrong they are likely to be found out.

* * *

Tips and techniques

SORTING ROUTINE

by Jerry Fochtman
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This sorting routine was written to sort the tables used in our data base management system. Because of its extremely fast speed we've incorporated it in most all of our programs which sort over 15 variables in core. This recursive calling partitioning sort can be tailored to fit a program's needs or it could be rewritten to function more generally under a variety of conditions. I hope other HP 3000 users will find it useful in some of their applications.

SORT.F4 -- VERSION 1
Written by — Jerry Fochtman and Gary Vander Lugt
For: Kalamazoo Public Schools – Research & Development
February 18, 1975

Sort is a recursive sorting routine which uses a partitioning method to put a set of variables in ascending order.

Use — CALL SORT (IBEG,IEND)

Where —

IBEG - is the beginning index of the vector
IEND - is the ending index of the vector

In order for the sort to work properly, the vector that's being sorted must be put in a common storage area. Also the size variable "Z" must be the same type and size as the item being sorted.

```
$CONTROL SEGMENT=SORT
        SUBROUTINE SORT (BEG,END)
        IMPLICIT INTEGER (A-Z)
        INTEGER*4 LNUM,Z
        COMMON /LINENUM/ IL,LNUM(500),ILINE(500)
        A=BEG
        B=END
        IF (A.GE.B) RETURN
        TOP=A
        BOTTOM=B
        Z=LNUM(A)
        I=ILINE(A)
        GO TO 2
1       BOTTOM=BOTTOM-1
2       IF (TOP.EQ.BOTTOM) GO TO 4
        IF (Z.LE.LNUM(BOTTOM)) GO TO 1
```

If any other items are to be carried along with the item being sorted, they will have to be switched around here also by just putting them in equivalence statements.

```
        LNUM(TOP)=LNUM(BOTTOM)
        ILINE(TOP)=ILINE(BOTTOM)
3       TOP=TOP+1
        IF (TOP.EQ.BOTTOM) GO TO 4
        IF (Z.GE.LNUM(TOP)) GO TO 3
```

The other items that are being carried along must be switched here also.

```
        LNUM(BOTTOM)=LNUM(TOP)
        ILINE(BOTTOM)=ILINE(TOP)
        GO TO 1
4       LNUM(TOP)=Z
        ILINE(TOP)=I
        BOT=BOTTOM-1
        CALL SORT (A,BOT)
        TO=TOP+1
        CALL SORT (TO,B)
        RETURN
        END
```

* * *

A NEW DATA BASE UTILITY

by Linford E. Hackman
VYDEC, Inc.
9 Vreeland Road
Florham Park, New Jersey 07932

How often have you wished that you could make struc- tural changes to a Data Base?

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Much as we try to plan ahead, there are always changes needed. At VYDEC we use IMAGE extensively. We have over five major data bases, and from time to time, we have needed to add data items to data sets, change the item size, add or change linkages, and add new data sets – both masters and details.

DBLOAD/DBUNLOAD will not handle schema changes. So we decided to write our own "DBLOAD" program. We call it DBREBILD. The program has five entry points, one for each function it performs, and does on occasion (very rarely), call for privileged mode in order to handle IMAGE files.

The following is a description of the program by entry points.

UNLOAD:
The program must be run by the *creator* of the DATA-BASE in its home group. (A password of ";" is used.) The data from each of the data sets of the named data base is unloaded to a single mag tape (one single file with special interfile records). No account information is on tape.

(This is usually the first job step in changing a Data Base.)

Once unloaded, the data base can be PURGED; a new schema processed; and a new Data-Base created.

Program with this entry point runs in *user* mode.

10 *LOAD:*
The program must be run from the Home Group of the new Data-Base, by its CREATOR.

The TAPE is read serially and the new Data Base is loaded.

If the Data-Sets and Items in the Data-Base and the Tape do not match, appropriate messages are printed. Missing items are zero or blank filled, based on their types.

If some items are changed in their type (e.g., from X4 to I1 or P4 to P8) then appropriate justification or truncation occurs based on the data type. No data conversion takes place. All entries are initialized.

Note that all references are by name; hence, changing an item name is synonymous to deleting an item and adding a name.

If new manual masters are added, then these should have been filled *before* running the program.

If new details are added, then these should be filled *after* running the program.

Program with this entry point runs in *user* mode.

COPY:
The program is used for copying one Data-Base to another (in a different account, possibly).

Program is RUN by creator of destination Data-Base in its home group, and should have exclusive access to the source Data-Base.

The user must have SM and PM capability. The source and destination Data-Base will be identical.

The destination Data-Base may have a different name.

Program with this entry point calls for PRIVMODE when needed.

ALTPASS:
The Program is used to Alter Password security of a Data-Base.

The user must have PM and SM capability and have exclusive access to the ROOT file.

Passwords for any, or all, levels can be changed.

Program with this entry point calls for PRIVMODE when needed.

ALTSEC:
The program is used to alter security of Data-Items and/or Data-Sets.

User must have PM, SM and exclusive access to the ROOT file.

Read/write security can be changed to individual Data-Items and Data-Sets.

Program with this entry point calls for PRIVMODE when needed.

A copy of this utility is being contributed to the HP 3000 Contributed Library. For additional information, contact: Sharad Heda, Manager Computer Systems, Vydec, telephone (201) 822-2100.

* * *

LOCKING/UNLOCKING FILES FROM COBOL

by Gregg Gloss
Hewlett-Packard
General Systems Division
5303 Stevens Creek Boulevard
Santa Clara, California 95050

Beginning with versions B.02.04 and C.01.02 of the COBOL/3000 Compiler, both on the 1701 MIT in distribution, files may be dynamically locked and unlocked from COBOL programs. Before locking a file, it must be opened with dynamic locking enabled. There are two ways to specify this feature from COBOL.

1. A new parameter on the $CONTROL command:
   $CONTROL LOCKING
   This will enable dynamic locking for all files specified in an FD entry. The command may appear any place in the source program.

2. Since all concurrent users of a file must specify the same value for the dynamic locking bit, it may be inconvenient to enable locking for all files. Therefore, a parameter has been added to the system-file name clause of the SELECT statement. This parameter allows you to selectively specify which files are to be opened with dynamic locking enabled.

SELECT file-name ASSIGN TO "fname [,class [, ... , formsmsg [,L] . . .] "

The "L" after the formsmsg parameter will enable dynamic locking for that file. If something other than an "L" is specified, a warning message will be issued and locking will not be enabled (unless the $CONTROL LOCKING command was also specified).

The actual locking and unlocking must be done by calling an SPL procedure. For this purpose, two new user-callable procedures, COBOLLOCK and COBOLUNLOCK, have been added to the COBOL Library.

1. COBOLLOCK

   a. Three parameters:

      1. FILE-NAME (from FD entry)
      2. LOCK-COND (PIC S9(4) USAGE COMP)
      3. COND-CODE (PIC S9(4) USAGE COMP)

   b. This procedure may be used to lock a file which has already been opened with dynamic locking enabled. The LOCK-COND parameter corresponds to the second parameter of the FLOCK intrinsic; that is, an odd (TRUE) value specifies that if the file cannot be locked immediately, the process suspends until it can be locked. An even (FALSE) value will return to the calling process if the file cannot be locked. The COND-CODE parameter returns the condition code from the FLOCK intrinsic as shown below.

   c. Result.

      -1 (CCL) Request denied because this file was not opened with dynamic locking, or the request was to lock more than one file and the calling process does not possess the Multiple RIN Capability.

       0 (CCE) Request granted.

      +1 (CCG) Request denied because the file was locked by another process. (Not returned if LOCK-COND was odd (TRUE)).

   d. Sample Call:

      CALL "COBOLLOCK" USING UPDATE-FILE, LOCK-COND, COND-CODE.

2. COBOLUNLOCK

   a. Two parameters:

      1. FILE-NAME (from FD entry)
      2. COND-CODE (PIC S9(4) USAGE COMP).

   b. This procedure may be used to unlock a file. The COND-CODE parameter returns the condition code from the FUNLOCK intrinsic as shown below.

   c. Result:

      -1 (CCL) Request denied because the file was not opened with the dynamic locking aoption of the FOPEN intrinsic, or the file is not open.

       0 (CCE) Request granted.

      +1 (CCG) Request denied because the file had not been locked by the calling process.

   d. Sample Call:

      CALL "COBOLUNLOCK" USING UPDATE-FILE, COND-CODE.

* * *

MORE ABOUT DATA BASE MANAGEMENT

One way to learn more about the subject is to read informative books or articles. To help, here's a list that many readers have found helpful. — Ed.

ACM Computing Surveys: Special Issue: *Data Base Management Systems;* ACM, Inc., Baltimore, Md., March 1976, $7.00. [Six articles on DBMS, including an excellent history of the evolution of DBMS, and several articles distinguishing relational, CODASYL, and hierarchical DBMS.]

Bassler and Logan, *The Technology of Data Base Management Systems,* Computer Reading Series, College Readings, Inc., Arlington, Va., 1974. [An outstanding collection of representative papers on data management, including some of the other listings in this bibliography.]

Bayer and McCreight; *"Organization and Maintenance of Large Ordered Indexes,"* ACTA Informatica, Springer Verlag 1972, pp. 173–189. [A description of the particular tree structure used by KSAM/3000 for its key file, called a bets-tree.]

Cuozzo and Kurtz; *"Building a Base for Data Base: A Management Perspective";* Datamation; October, 1973, pp. 71–75. [A critical examination of the industry rage to jump into DBMS, by two management consultants.]

Datamation, September 1974: data base management issue. [Good introductory article on DBMS and several application reports from users.]

Dodd, George G.; *"Elements of Data Management Systems";* Computing Surveys, Vol. 1, No. 2, June 1969, pp. 117–132. [Excellent introduction to file organization methods with good illustrative diagrams.]

London, Keith R.; *Techniques for Direct Access;* Auerbach Publishers, Inc., Philadelphia, 1973. [A textbook presenting a general introduction to direct access devices and file organization and access.]

Martin, James; *Computer Data Base Organization,* Prentice-Hall. [Reviewed in the Nov. 1976 Datamation as an excellent reference book on DBM. It includes an intensive look at physical organizations of data.]

Martin, James; *Principles of Data Base Management;* Prentice-Hall, 1976, 352 pages, $18.50. [Reviewed in the Nov. 1976 Datamation as one of the two best texts available on DBM – the other being Martin's other book in this bibliography.

McIntire, Richard E., *"Powerful Data Base Management Systems for Small Computers,"* Hewlett-Packard Journal, July 1974.

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Nolan, Richard L., *"Computer data bases: the future is now,"* Harvard Business Review, Sept.–Oct. 1973, pp. 98 ff. [A well written article explaining DBMS and applications to management reading the harvard gospel.]

Yourdon, Edward; *Design of On-Line Computer Systems,* Prentice-Hall, Inc., 1972. [A good textbook introducing the singular problems of on-line systems for data processing compared to the traditional batch techniques.]

* * *

DATA COMMUNICATIONS SELF–TEST FOR TERMINALS

by Eric Grandjean
Hewlett-Packard
Data Terminals Division
19400 Homestead Road
Cupertino, California 95014

One of the features of the 2640 family of terminals is its self-test. On the HP 2645A and HP 2641A you can go one step further, and test communications up to, and including the modem cable.

Each HP 2645A and HP 2641A is furnished with a data communications test hood. If you suspect a communications problem, just follow the procedure below with Remote key down:

After a few seconds, a message will appear on the screen:

BASIC DATA COMM
SELF TEST OK.

If you get an error message, refer to the self-test flow charts on page 7-49 to 7-52 of the HP 2645A Reference Manual.

PLOTTING, USING THE HP 13349A PRINTER SUBSYSTEM

by Carl Flock
Hewlett Packard
Data Terminals Division
19400 Homestead Road, Cupertino, Calif. 95014

Based on inquiries received so far, there is more than casual interest in using the HP 13349 Printer Subsystem as a plotter. The 13349 designation identifies the several products needed together; this one includes the HP 9871A Character Impact Printer (especially modified for use with HP 2640 series CRT terminals), an interface circuit for the CRT's processor and a connecting cable.

If your 2640 CRT terminal is equipped with cartridge capability, it already contains device support firmware for the printer; if not so equipped, you can obtain HP 13261A: Device Support Firmware (you can also get an upgrade kit 13236B – to provide tape cartridge capability if desired, although only the firmware is needed).

The 9871A printer has a 96-character interchangeable printing disk that is externally programmable along with such functions as space, backspace, carrier return, horizontal and vertical tabs, line feed and reverse line feed, top of form and form length. These programmable functions, along with the bidirectional motions of the plotter, provide plotting capability for charts and graphs (and simplifies form-filling). Five printing disks are available: standard, ASCII, European, Katakana, Cyrillic.

The program (opposite page), while a long way from being a plotting sybsystem, shows how to start and provides some fundamentals.


STEP 1.

a. Ensure power is off, and disconnect cable data communications PCA.

b. Connect PCA Test Connector part no. 02645-60002, to data communications PCA. (If operating in current loop, use test connector part no. 02645-60003 to connect to 13260B Data Communications PCA.)

c. Turn on power.

d. Press Remote (Key Down), and press [GREEN], [ENTER].

e. Refer to data comm self-test flowcharts for diagnosing possible error messages.

TEST CONNECTOR 02645-60002
13232C or N CABLE ASSEMBLY
TERMINAL
13260A 13260B OR 13260B (CURRENT LOOP)
13232F CABLE
TEST CONNECTOR 02645-60003
CHECKS DATA COMM PCA

STEP 2.

a. Turn off power, and connect 13232C or N Cable Assembly to 13260A,B,C, or D data communications PCA. (If operating in current loop, connect 13232F cable to 13260B data communications PCA.)

b. Connect RS232 Test Connector, part no. 02645-60004, to RS232 connector on 13232C or N cable.

c. Turn power on.

d. Press Remote (Key Down) and press [GREEN], [ENTER].

e. Refer to data comm self-test flowcharts for diagnosing possible error messages.

TEST CONNECTOR 02645-60004
MODEM
TERMINAL
13232C, N OR U CABLE ASSEMBLY
CHECKS CABLE ASSEMBLY

PROGRAM

```
PLOT
   10 REM SAMPLE PROGRAM TO SHOW USE OF 13349A
   20 PRINT '27"H"'27"JPLOT           SAMPLE PROGRAM FOR 13349A"
   30 PRINT "TYPE CONTROL-Y TO STOP"
   40 PRINT LIN(2),&
      "1/120-INCH INCREMENTS IN X, 1/96-INCH INCREMENTS IN Y",LIN(2)
   50 REM RESET('27'10 TERMINATES SEQUENCE WITHOUT DOING LINE FEED)
   60 PRINT CTL(208),'27"&p4dW"'27"+E"+'27'10;
   70 REM SET ORIGIN TO MIDDLE OF PAGE
   80 PRINT CTL(208),'27"&p4dW"'27"+O"+FNA$(510)+FNA$(528)+'27'10;
   90 REM POSITION PRINT WHEEL AT ORIGIN
  100 PRINT CTL(208),'27"&p4dW"'27"+A"+FNA$(0)+FNA$(0)+'27'10;
  110 ENTER 255,S,SS
  120 INPUT "X,Y ?   ",X,Y
  130 REM OUTPUT COMMAND TO 13349A
  140 PRINT CTL(208),'27"&p4dW"'27"+a"+FNA$(X)+FNA$(Y)+'27'10;
  170 GOTO 110
  180 END
  190 DEF FNA$(N)
  200    REM THIS FUNCTION CALCULATES ASCII PARAMETERS REQUIRED FOR 13349A
  210    DIM N$[2]
  220    IF N>=0 THEN DO
  230      REM FOR POSITIVE OR ZERO VALUES OF N--CALCULATION FOLLOWS
  240      N[1]=INT(N/64)
  250      N[2]=N MOD 64
  260    DOEND
  270    ELSE DO
  280      REM FOR NEGATIVE VALUES OF N--CALCULATION FOLLOWS
  290      N[1]=63-INT((-N)/64)
  300      N[2]=63-(-N MOD 64)
  310    DOEND
  320    REM NULL AND DEL ARE STRIPPED BY TERMINAL
  330    REM THUS 64 IS ADDED TO LOW ASCII CONTROL CHARACTERS ONLY
  340    IF N[1]<32 THEN N[1]=N[1]+64
  350    IF N[2]<32 THEN N[2]=N[2]+64
  360    N$[1,1]=CHR$(N[1])
  370    N$[2,2]=CHR$(N[2])
  380    RETURN N$
  390 FNEND
```

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TERMINAL INPUT
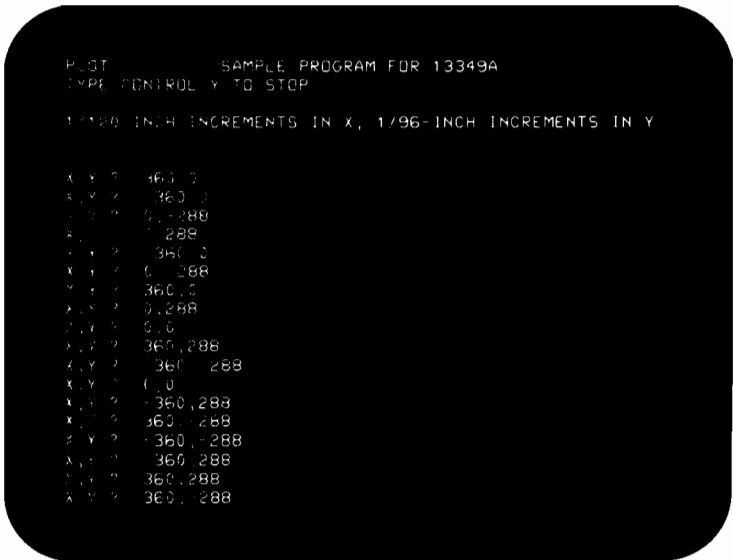
PRINTER OUTPUT
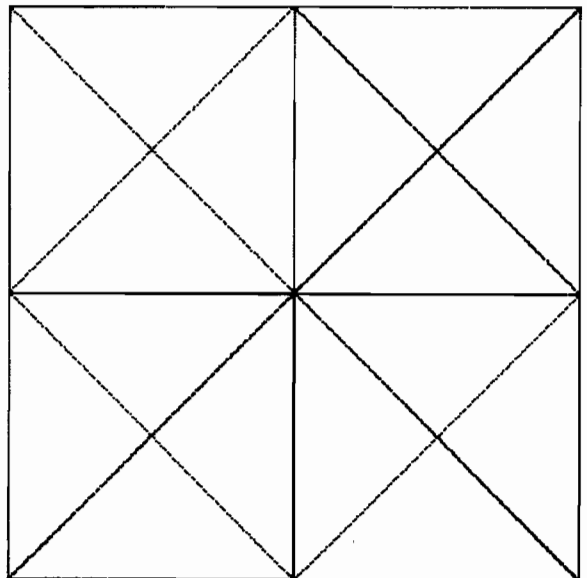
Contributed library corner

CONTRIBUTED LIBRARY TAPE DISTRIBUTED

By now the latest version of the HP 3000 Contributed Library tape should have arrived at your site. If your site does not have a copy, and you have a site membership, please write or call Ralph Maines, 5303 Stevens Creek Blvd., Santa Clara Calif. 95050; telephone (408) 247-7020, ext. 2728. Please include your site membership number in any correspondence.

We have decided to create a new volume of the contributed library once every six months. Your site has received both volumes I and II of the library this time around. That is, you received a *complete copy* of the HP 3000 Contributed Library. In the future, we will send complete libraries only to new members. Regular six-month mailings to old members will contain only the programs which were added or updated since the last tape was sent out.

* * *

JIM CLAY WINS AN HP-67 CALCULATOR

Jim Clay, now a student at UCLA, won the HP-67 calculator in the drawing offered for contributions to volume II of the HP 3000 Contributed Library. At the recent directors meeting, Jim's program was drawn at random from among those contributed.

The calculator was presented to Jim at the recent Southern California Regional Users Group Meeting, March 16th. Present at the award was Bill Gates, HP 3000 Users Group Executive Board Chairman, and Doug Mecham, Past President of the Users Group. Jim was working for Doug during summer break when he wrote the program that won him the HP-67.

The best though, is yet to come . . . . . .

* * *

YOU COULD BE THE NEXT WINNER

The Executive Board has decided to hold a similar drawing every six months. Every contributor to each new volume of the library is eligible. You can easily be the next winner! What will be given each time as a prize? Well, the directors have agreed to make available sufficient funds for a calculator of the HP-67 type (we don't want to count out the possibility of offering some new calculating wonder which HP may announce).

Remember, you can only win if you get your contribution in. Look in your own local software library and see if there aren't some programs or routines you have developed which others will find a use for. Write them up in accordance with the instructions in the contributed library manual and send them in. Submitted instructions and forms for contributing programs are enclosed, so you have no excuse. Keep in

mind, however, that we will not accept a contribution unless it follows the specifications laid down by those instructions for the program, its source, its documentation, etc.

The contributed library will only be as good as we make it, so let's get those programs in!

The clearing house

INTERESTED IN STATISTICAL SOFTWARE?

I am continuing work on the BMDP statistical programs from UCLA which I described in the January newsletter. I would like to hear from any more of you that are interested in either these programs or the SPSS package. Several writing to me have confused the BMDP programs with the old BMD statistical programs. BMDP is a new implementation. The version I am converting was released from UCLA in August of 1976. The programs work from a common save file and are much more flexible than the old series. They are well programmed and from a statistical point-of-view I feel are much better than SPSS. BMDP allows the user to name variables and variable categories much like in SPSS but does lack some of the great flexibility of SPSS in this regard.

I would prefer getting SPSS up as well but since it is going to be a very much bigger job and is going to require at least a year to complete, BMDP provides a convenient alternative. Also not very much interest in SPSS has yet been expressed.

Dr. Gary D. Anderson
Dept. of Biostatistics
School of Public Health
University of Washington
Seattle, Wash. 98103

* * *

CLEARING HOUSE RESPONSES

Several responses to the clearing house information requests (attached to the last newsletter) were received. The directors decided to start a clearing house section in each volume of the Journal. Distribution of the clearing house information will be this way, until it becomes too cumbersome and requires a separate publication. Remember, if you have developed systems in a specific area, want to know about specific work going on elsewhere, or have some software for sale or lease – as long as it pertains to the HP 3000, the clearing house provides a means of exchanging this information. You will find a clearing house form attached to the transmittal letter with this Journal issue. Fill it out and send it in to Brenda Mapp for inclusion in the next issue of the Journal.

The following list contains information on third party software/services developed for use with the HP 3000, compiled from the last newsletter and the clearing house forms.

ACCOUNTING

Package: Accounting under IMAGE in COBOL
Price: $5,000

Ken McClain, General Computer Corporation
360 Highland Road, Macedonia, Ohio 44056

Package: Accounting under IMAGE and QUERY in COBOL
Price: Negotiable

David E. Philipott, 5120 Campbell Ave.,
Suite 126 San Jose, CA 95130

Package: A/R, A/P, Payroll, Data Entry, General Ledger
on the 2000 and 3000 – COBOL, RPG II, For-
tran Base
Price: Call

Steve Dennis, Don Gaylord – Smith, Dennis, and
Gaylord, Inc., 790 Lucerne Dr., Suite 38
Sunnyvale, CA 94086

Packages: Business Packages for retailer of soft goods
(RPG/FORTRAN)
Price: Negotiable

Sam Lay - Drapers, #100 125 Baker St.,
Costa Mesa, CA 92626 – (714) 540-7904

Packages: (Wizard) – Financial Modeling, Accounting,
NACRO Data Management (FORTRAN)
Price: $6,000

Bud Booth, Automated Analysis
3105 Dona Sofia Dr., Studio City, CA 91604
(213) 656-1903

Package: HP/FRS – Financial Reporting System – an
accounting package including complete General
Ledger, Accounts Payable, and Accounts Receiv-
able Systems, written in COBOL using IMAGE,
DEL and an advanced transaction/inquiry termi-
nal driver
Price: Call

Collier–Jackson & Associates, Inc.
2909 Bay To Bay Blvd., Suite 210
Tampa, Florida 33609 – (813) 837-6457

Packages: Financial Systems – full range/COBOL
Prices: Negotiable

Glen J. Goodwin, Paktank Corporation
2000 Westloop South, Suite 1800
Houston, Texas 77027 – (713) 623-0000, X235

Package: Terminal oriented accounting applications in
FORTRAN on the 3000
Price: Negotiable

Dr. Arnold Winicoff, Q.E.D., Inc.
6490 Excelsior Blvd., Minneapolis, MN 55426
(612) 925-2830

DATA BASE

Package: EZENTRY – A general-purpose interactive data
entry program with adjustable tab stops, dup
key, and numeric fields
Price: Call

Collier-Jackson & Associates, Inc.
2909 Bay To Bay Blvd., Suite 210
Tampa, Florida 33609 – (813) 837-6457

Packages: Medical/Insurance/Health Care/Property
Management
Prices: Varies with system

Jim Taylor, Hopper Associates
23777 Greenfield Rd., Suite 157
Southfield, MI 48075

Package: Remote data entry
Prices: Negotiable

Ken Roberts, Manson Sporting Goods
350 E. Paularino, Costa Mesa, CA 92626

Package: Word processing package on the 3000
Price: $6,000

Martin Gorfinkel, Los Altos Research Center
339 S. San Antonio Rd., Los Altos, CA 94022

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INSTALLATION MANAGEMENT

Package: Billing for HP 3000 use, FORTRAN
Price: Cost of reproduction, call for details

Larry Mahoney, R. W. Beck & Associates
200 Tower Blvd., Seattle, WA 98101
(206) 622-5000

Package: Remote place HP 3000/II without operator used
for scientific processing using half duplex mo-
dems/FORTRAN
Price: Free; limited documentation

W. Bergstome, IFV, Strandvejen 102
DK 2900 Hellerup, Denmark – (02) 883200

MANUFACTURING APPLICATIONS

Packages: Application in Manufacturing forecasting, plan-
ning, distribution
Price: Varies

Bob Marcum, Advance System Management
6101 S. West Freeway, Houston, TX 77057
(713) 664-6444

Packages: Manufacturing in COBOL with IMAGE and
QUERY on the 3000
Price: Negotiable

Ken McClain, 360 Highland Road
Macedonia, Ohio 44056 – (216) 467-0880

Packages: Manufacturing info sys., on-line, terminal based MHP, order entry on the 3000
Price: Purchase only. Packages run on 21MX or 3000

Don Whipple, Systems For Industry
1450 E. Spring St., Long Beach, CA 90806
(213) 595-5601

Packages: Manufacturing package for the HP 3000
Price: Varies

Terry Enos, Boeing Computer Services
P. O. Box 24346, Seattle, WA 98124
(206) 773-0883

Packages: Manufacturing productions - consultants
Price: Varies with system

Jim Taylor, Hopper Associates
23777 Greenfield Rd., Suite 157
Southfield, MI 48075 — (313) 559-8530

PROGRAM DEVELOPMENT AID

Package: SHORTHAN - An interactive or batch COBOL Pre-Processor developed for the HP 3000
Price: Call

Collier–Jackson & Associates, Inc.
2909 Bay To Bay Blvd., Suite 210
Tampa, Florida 33609 — (813) 837-6457

SYSTEM MANAGEMENT

Package: Arthur - a process monitor and rescheduler (Pre-CX and CX only)
Price: Free - 800 BPI or listing, 'LIBRN' tape

Robert W. Young, Medical Research Council
National Institute of Medical Research
London NW7 IAN, Great Britain

SYSTEM PROGRAMMING

Packages: Consultants - conversion from existing system to 3000
Price: Varies

Jim Taylor, Hopper Associates
23777 Greenfield Rd., Suite 157
Southfield, MI 48075 — (313) 559-8530

Packages: Transaction logging and recovery system: logs DATABASE/file changes to Disc/Tape General or selective recovery after disc failure
Price: $1,000: Software and documentation - includes programming, installation, operation, and recovery instructions

Gary B. Nordman, Malkin & Pinton Industrial
Supplies, 325 E. 5th Avenue
Vancouver, B.C. V5T 1H6 Canada
(604) 879-4211 Local 119

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All about us

HP 3000 USERS '77

September 26th through 30th
Providence Heights Education & Conference Center
Issaquah, Washington

The 1977 International Users Group meeting will be held at the Providence Heights Education and Conference Center. Conveniently located only 30 minutes from the Seattle-Tacoma Airport, the Center has excellent facilities in an unusual and informal setting for the '77 workshops, seminars and meetings — dress will be informal.

The '77 meeting will retain the previous high level of user-to-user and user-to-HP interface, with increased emphasis on education; interface and education is the theme. An on-site HP 3000 will provide the tool for demonstrations and workshops on system performance and optimization.

The Center's entire complex is contained under one roof, and is located in a unique setting of 243 timbered acres. You will find the site and the program are geared to making your participation a benefit to you professionally, and information gained will help your organization to increase the effectiveness of the HP 3000 System.

Since all work and no breaks lead to "stack overflow," the format will provide recreation breaks from 3:30 p.m. 'till dinner, with sessions also scheduled after dinner. Relaxation facilities include swimming, billiards, indoor pool, gym, tennis and nature trails! Nearby golf and boating is available.

FOCUS - Sessions will be organized and presented under the following areas:

System Performance
Measurement and Optimization

Data Management Techniques
File system, KSAM, INDEX, IMAGE techniques and optimization; data entry and terminal handling techniques

Communications and Networking
Network development and considerations

Installation Management
System budgets and justification
Staffing and training
User documentation, operating procedures and standards
Security and contingency planning

Applications Focus

Manufacturing	Banking
Education	Scientific
Accounting	

Networking Focus

HP 3000 to HP 3000 network capabilities, performance considerations, applications experiences

NEEDED: *Your* participation and willingness to share your knowledge about one or more of the above areas. You can participate by presenting a talk or paper, or co-chair/chair a session. Meeting proceedings will be published, so here's a chance to add to your professional credits.

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Please participate — send your ideas, outlines, or abstracts to:
Gil Drynan,
HP 3000 Users '77
P.O. Box 983, Issaquah, WA 98027
Telephone (206) 773-8114

PRELIMINARY SCHEDULE OF EVENTS

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
7:30-8:30			BREAKFAST		
9:00	REGISTRATION AND EXHIBITS	WELCOME ADDRESSES	PLANNING UPDATE	HP/USERS PANEL	CLOSING ADDRESS
10:00 11:00		SEMINAR SESSIONS	SEMINAR SESSIONS	SEMINAR SESSIONS	SEMINAR SESSIONS
12 00 1:00			LUNCH		
2:00		KEYNOTE SPEAKER	SEMINAR SESSIONS	SEMINAR SESSIONS	DEPARTURE
3:00		SEMINAR SESSIONS			
4:00 5:00		RECREATION, GYM, TENNIS, SWIMMING, BILLIARDS, HIKING, VOLLEYBALL			
6-00 7:00			DINNER		
8:00	REGISTRATION AND EXHIBITS	SEMINAR SESSIONS	SEMINAR SESSIONS	SEMINAR SESSIONS	
9:00		FOCUS ON LANGUAGES	FOCUS ON APPLICATIONS	FOCUS ON NETWORKS	

NEWS RELEASE

Bill Bryden, Chairman of the Southern California Users Group, announced SCRUG has challenged all other Regional User Groups to a Volleyball Championship at the HP 3000 Users '77 meeting. A volleyball tournament has been established, and the Northwest Regional Users Group is the first RUG to accept the challenge. All RUGs are invited to participate in the tournament.

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EXECUTIVE BOARD MEETING HELD

*Executive Board Meeting
Santa Clara, California
February 17 & 18, 1977*

Summary of activities and actions:

The meeting was called to order by Bill Gates, Executive Board Chairman, at 9:00 a.m. on February 17th. Members attending were: Gerald Schwartz (Records); William Bryden (HP Interface); W. F. Burggrabe (Computer Usage); Dr. Gary Anderson (Library); Gil Dryman (Meetings and Regional Users Groups); Gary Green (Director); and Doug Mecham (Publications and Journal, Past President).

Opening remarks by Ed McCracken, General Manager of HP General Systems Division, summarized the 1977 goals for GSD and re-emphasized GSD's commitment to customer satisfaction. Mr. McCracken also outlined an active "rating" criteria used by GSD to measure customer satisfaction, including the following elements:

— System Specification
— Computer Reliability (CPU Hardware)
— Peripheral Reliability
— System Reliability (Software, Power, etc.)
— Service Responsiveness
— Service Effectiveness
— Software User Support
— Ease of Conversion
— Customer Documentation
— Customer Training
— Users Group

Ralph Manies was then introduced as the new HP Representative to the Users Group. The majority of Mr. Manies' time will be devoted to Users Group activities.

Bill Gates then presented a set of objectives for the Users Group. After some discussion, the following were agreed upon:

1. The SYSTEM productivity is maximized.
   - By generating a good environment for User-User and User-HP communication and interaction.
2. The SYSTEM purchased has the capacity and flexibility to fulfill the stated applications needs of the user.
   - By providing HP and the prospective user with information concerning existing system usage and support.

3. The SYSTEM becomes productive and meets the user basic application needs within a reasonable time after installation.
   - By promoting and providing a medium for exchange of HP 3000 techniques, applications, software, installation management procedures, user training and documentation which will help the user meet this objective.
4. The SYSTEM operates correctly and its productivity is utilized without significant interruptions.
   - By providing Hewlett-Packard with feedback as to whether user systems are meeting this objective.
5. The SYSTEM becomes more productive throughout the life of the installation.
   - By encouraging user development and dissemination of additional HP 3000 techniques, applications, software, procedures, and documentation.
   - By providing HP with user information that will help them enhance the productivity of the HP 3000.

SYSTEM is defined to include:

Hardware, Software, Documentation, Support, Training, Human Factor (providing communication channeling).

Bill Bryden, *INTERFACE COMMITTEE,* reported on a meeting with GSD Lab management, and also reported that the answers to the Baltimore meeting questionnaire had been published in the last newsletter. It was noted that the GSD Lab is receptive to inputs from users, and in fact many enhancements to the Editor and new operating system features/utilities resulted from inputs of the Interface Committee.

Doug Mecham presented a comprehensive report on *PUBLICATIONS* activities and costs. Doug also informed the Directors that he was no longer able to continue editorial responsibilities for the Newsletter. The Board passed a resolution thanking Doug for his outstanding efforts as Editor. Ralph Manies (HP Representative to the Users Group) agreed that HP would temporarily assume the editing duties until these could be established with a User Group Member. After some discussion, and a *VOTE* it was decided to change the name of the Newsletter to *JOURNAL OF THE HP 3000 USERS GROUP.*

Gerald Schwartz, *RECORDS COMMITTEE*, summarized the membership status. As of the meeting date, there are 183 Installation Members and 68 General Members. As a solution to the need for increased membership (as a percent of the installed HP 3000 systems), Ralph Manies agreed that HP would redo the current membership application/brochure, and that upon completion, information about the Users Group would be distributed to existing HP customers and sales representatives, and publicized via the Communicator, HP newsletters and other appropriate vehicles.

The concept of establishing a "central desk" at HP was considered. The purpose would be to handle the membership data base, general inquiries, etc. The consensus was to leave the data base at the Records Chairman's site; the Records Chairman is to send a backup tape monthly to the Executive Board Chairman.

The "Central Desk" would be served by the HP Representative to the user's group, act as a focal point for inquiries from prospective or current members, and forward correspondence to the applicable director.

Additional discussion centered on HP's Ralph Manies and Executive Board relationships. Ralph Manies clarified his function as one that deals with the User's Group, and not on individual site situations that are not connected with the Users Group (Point-of-contact for non-Users Group related activity is the local HP Sales Representative.)

The desirability of providing the membership list to outside interests was debated. The consensus was that the membership list should not be made available to outside interests or organizations.

On another matter, it was *VOTED* that the immediate past-chairman of the Executive Board will remain a director ex officio.

Dr. Gary Anderson reported on the *CONTRIBUTED LIBRARY*. Two recommendations were accepted: to update and distribute the Library twice yearly, and to establish a *CLEARING HOUSE* function as part of the Journal. (Note: the concept of a clearing house is to establish a central listing of software offered by third parties.) The concept and progress of the Clearing House is to be evaluated, and if successful, a separate document might be warranted. It was *VOTED* to credit an installation membership for those organizations that donated time to reproduce the contributed library tapes.

The prize drawing for submittal to the Contributed Library was held; the winner was James Clay. (Congratulations! Enjoy your HP-67 calculator.)

The Board *VOTED* that a suitable gift be provided every six months for a drawing (every member who submits an accepted program for the HP 3000 Contributed Library is eligible).

Gerald Schwartz briefly reviewed financial status . . . . . . a complete statement is issued at the end of the fiscal year, (ending April 30th). *ELECTIONS* was also a topic broached by Gerald Schwartz. Bill Burggrabe declined to run again. Bill Gates and Gerald Schwartz indicated they would stand for re-election. Additional nominations were brought forward (reference General Notice on elections dated 2/23/77).

A *BY-LAW CHANGE* was adopted: A Director cannot serve more than two consecutive terms in office.

Gil Drynan, *MEETINGS* Chairman, reviewed plans for the International Meeting.

The meeting was adjourned by Bill Gates at 2:30 p.m. on Friday, February 18th.

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REGIONAL ACTIVITY

During the past several months, much activity has taken place at the regional level. Here's a recap (if we've missed reporting a group, our apologies; to be sure your activity is reported, send a copy of minutes or summary of the meeting to the HP 3000 Users Group c/o HP General Systems Division, 5303 Stevens Creek Blvd., Santa Clara, CA 95050).

First, welcome and congratulations to the newly formed *Baltimore/Washington* Regional Users Group. Their initial meeting, held on March 22nd, had thirty-six attendees representing fifteen sites. After that successful meeting, another one was scheduled for May 4th.

New product announcements from HP and organizational considerations were among the topics discussed.

For more group information, contact John Borden at Baltimore Gas & Electric, Baltimore, Maryland 21203.

The *Greater New York* group met on February 23rd and April 27th. At the February 23rd meeting, Bob Ahrends of HP gave a live demonstration of APL, geared to a commercial environment. Linford Hackman of Vydec, Inc., talked about an IMAGE utility (developed by Vydec) to provide reorganization capabilities during load/unload.

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For additional information on the Greater New York group, call:

Mike Peressini, Secretary GNUG
c/o Airco Industrial Gases
2720 Highway 22 East
Union, New Jersey 07083

Jim Crabtree (President), Sharad Heda (Executive Vice-President), Rick Martin (Treasurer) and Mike Peressini (Secretary) are to be congratulated for putting together excellent programs.

The *Northwest Regional Users Group* met on March 18th, stepping through a busy agenda that included a presentation on KSAM, and a lively interchange on tips and techniques. A good deal of time was also devoted to organization and the foundation of plans for helping with the upcoming International Users Group Meeting (Seattle area). The NOWRUG people are looking forward to "hosting" the next International Meeting and sharing with all of us some of the unique experiences that the Northwest has to offer visitors.

Leadership of the NOWRUG has been passed on from the capable hands of Gil Drynan to another very fine individual, Lawrence Mahoney (R.W. Beck & Associates, 200 Tower Building, Seattle, Wash. 98101). Gil can now focus his efforts as Chairman of the International Meeting.

The *Southern California Regional Users Group* had a barn-buster meeting on March 16th, with over 100 attendees representing some 38 sites. The full day schedule included presentations by local HP people on support goals and organization, technical sessions including COBOL Interface to MPE, Security and Contingency Planning, System Optimization and Performance Monitoring, Virtual Memory, Segmentation, Extra Data Segments — and all that jazz.

Presentations were also made to Jim Clay, (winner of the HP-67 drawing for library contributors), and to Doug Mecham, Past President of the International Executive Board. Bill Bryden and Doug Mecham deserve special recognition for their efforts to put together an excellent day. Contact Bill Bryden (see Executive Board list for address) if you are interested in SCRUG.

A *Northern California Regional Users Group* meeting was held March 23rd. Technical presentations included an introduction to KSAM/3000 and to IDEA/3000 (IDEA is an IMAGE Data Base Evaluative Analyzer; it's a Contributed program in the HP 3000 Contributed Library.) HP also gave an update on the support organization.

Informal interchange between users (which represents a lot of the value of such a meeting), was facilitated by a no-host cocktail party after the meeting. Bill Gates was instrumental in putting the program together. For more information, contact Bill Gates at:

> Longs Drug Stores
> 141 North Civic Drive
> Walnut Creek, Calif. 94596

Plan to attend the 1977 International Users Group meeting sept. 26-30