/u/fortune* news

The Newsletter for Users of Fortune/SCI Computers January 1988/Volume 5 Number 1

/u/help

Answers to Users' Questions

I am interested in linking an Apple Macintosh II with our Fortune 32:16 system. In your January 1987 issue, you mentioned that you produce your newsletter, **/u/fortune *news,*** on a Fortune 32:16 with a Macintosh linked to it. I would be interested in any information on how to link the Macintosh II with the Fortune 32:16. What software/hardware would we need? Once the Macintosh and Fortune are linked, how good is the response-time between the two systems?

I am also interested in the UNIX system V.3. Would our Fortune 32:16 be able to use the UNIX system V.3. If we would link the Macintosh II with our Fortune, would we be able to use the UNIX system V.3 on both the Macintosh and the Fortune?

I would appreciate it very much if you would answer these questions.

Sincerely,

Joe Guillou, Saint Mary's Press

Don't try to run from your computer problems. Let us help!

Response: It seems that more and more Fortune users are beginning to

See **/u/help**, Page 16.

Fortune/SCI's Software Vendor Catalog

In this issue, we are including an index of software available for the Fortune/SCI hardware. This index is a summary of the information contained in a catalog published by Fortune called **The Software Directory**. This catalog contains software written by Fortune Systems, as well as by Independent Software Vendors (ISV).

We suggest that before buying your software you find someone who can help you with support (preferably local) and that you talk to some other users who have the package. The vendors may be able to provide you with a reference.

The catalog is organized alphabetically by application. Because of space limitations, we are printing the first half of the catalog in this issue and will print out the second

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Subscriptions cost $48 for one year within the U.S.A. For foreign subscriptions, add $27 each year for added postage and handling costs.

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Vol 1, Numbers 1 - 3	$1/each
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Vol 1, Numbers 5 - 8	$3/each
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From the Editors...

Programs, Programs and more Programs

In this editorial, we would like to talk about several things. First, we would like to draw your attention to the **Software Vendor Catalog** that we have printed in this issue. Basically, this is the current list of software that is available to run on the Fortune line of computers. Two caveats are in order: First, there are changes afoot at Fortune/SCI and the list of software will probably be changing in the near future. The second caveat is that you will need to talk to the vendor to make sure that the program will indeed run on your particular hardware.

At this point, we should make a plug for those companies who advertise with us. Their advertising monies actually help subsidize the cost of your subscription. We hope that you will consider them for services and products when you need them. If you do patronize them, you will be helping us keep the cost of **/u/fortune *news*** down to a minimum.

Secondly, we would like to remind all of our subscribers that we have moved to a new address. Please update your records to reflect this change. Mail should be sent to The Cambridge Consortium, Inc. at 225 Crescent Street, Waltham, MA 02154.

This recent move has caused us to slip a little bit in sending out issues of **/u/fortune *news***. You should have just recently received the December issue. You might have noticed that we sent that First Class. We decided to incur this extra cost so that you would receive **/u/fortune *news*** as soon as possible. This January edition was produced in record time and we hope to do a similar thing for the February issue so that we will be back on schedule.

Several of our subscribers have commented on how long the bulk rate mailing takes to get to them and have suggested that we somehow arrange to send them their issue First Class. We have worked on that and now are able to offer any of our subscribers who wish to receive **/u/fortune *news*** First Class this service. We will charge $10 to cover the extra postage and handling costs. If you are interested in this service, just write to us at our new address requesting it. Include $10 with your request and we will ensure that you receive **/u/fortune *news*** as quickly as possible.

As always, we are eager to hear from you with comments, suggestions and problems. Please write!

The BASIC Advisor

The BASIC Advisor is brought to us from Ray Wannall. Ray is President of BaSiC Software Corporation which is located in Baltimore, Maryland. This month Ray discusses some helpful hints contributed by Mike Smith.

Mike Smith of Atlanta, GA, has been a frequent contributor to this column over the past two years. Mike is a Business BASIC programmer who came from the old Basic Four environment. Today he often is involved with data transfer between Basic Four and Fortune machines. Many of you know that when Fortune Systems were first introduced there were three "Basic Four to Fortune" transfer programs available from Fortune. Well, Mike has managed to develop programs that go the other way: from Fortune to Basic Four. This activity has provided Mike with some insights into the differences between the various versions of Business BASIC.

Back in July I received a four page letter from Mike which outlined some of his observations. I held the letter until such time as I could review the Thoroughbred 6.5.12 BASIC. Now I believe we are ready to present a potpourri of information about the BASIC on your Fortune, be it SMC or Thoroughbred.

Mike notes that the mnemonic table in SMC BASIC has some entries that are not described in the manual but that will work:

```
RM  RETURN TO CONTINUE
RC  , RETURN TO CONTINUE
YN  ? (Y/N)
```

The table has an entry **TR** that generates an ERR=29 in SMC BASIC, whereas in Basic Four's version it will transmit the screen to an input variable (which can then be sent to a printer). The table entries **BB** and **EB** (Begin Blink and End Blink) are there but will not work. I have mentioned before that on Fortune Systems one must use the **ES** mnemonic coupled with $4E$ (begin blink) and $5E$ (end blink). I refer those interested to Fortune Technical Tip number 9.1.

Mike also writes that some of our readers may be interested to know that if you have a lapse of memory and use an undefined mnemonic such as **CE** in an INPUT statement with an error loop in a CALLed program such as:

```
150 INPUT (0,ERR=150)'CE',"ENTER YOUR DATA ",Z$
```

you cannot escape out. The error loop takes precedence over the ESCape key in the CALLed program. In the running program, the ESCape key responds properly.

There are some functions and commands which are described in the Thoroughbred BASIC manual, but not in the SMC manual. They work for both versions of BASIC:

Function **QUO** returns a double quotation mark.

Change a file name with:

```
RENAME <disk>,<oldname>,<newname>.
```

Function **TSM** contains information about programs interrupted by an escape or program exception.

Function **TCB(n)**, where n is a number from 3 to 7, provides status information on a running task.

Mike noticed that Fortune Technical Tip 3.1 described the **ON __ GOSUB** routine as being the same for SMC BASIC and Basic Four BASIC, when, in fact, there was no **ON __ GOSUB** command on the Basic Four through BB III. (I learned this the hard way last year when I tried to transfer a Fortune-generated program onto a 410.)

And here is an interesting note for all of us who have been trying to train operators who type with two fingers and no brains. Have you ever handled a trouble call similar to this:

"I was just trying to answer a YES/NO question on the

screen when, all of a sudden, I was thrown back to the global menu!"

When this happens, I tell the operator to go back into BASIC and try again. Of course, the next time everything works fine, even though he/she "didn't do anything differently".

Mike has found that when BASIC is awaiting an input, either in program or console mode, entry of **CONTROL-B** will release BASIC. So don't ever believe the computer is thinking for itself!

Here is one I have not checked which some of you may want to play with. The **RELEASE** command apparently operates differently if used in the RUN mode versus the console mode. In program mode it returns to the calling script **/usr/bin/BASIC** (or **DBASIC**, or whatever) then exits to the menu, whereas in console mode it bypasses the balance of the shell script and behaves as though BASIC was called from a command line.

Mike brought up several other points in his correspondence, but I feel that the Thoroughbred 6.5.12 BASIC manual should clear up most of his questions. (If not, Mike, get back to me and we'll toss this around again.)

On a personal note, I was somewhat saddened by the elimination of the ***YPSD** utility in the 6.5.12 BASIC. Agreed, this was an imperfect program, but I found it useful on those occasions when I needed to examine the "logic" of someone else's coding. At least ***YPSD** was not erased from the system when 6.5.12 was installed, so it is still available. I'm just sorry to see that it is headed for the burial grounds along side the other classic utilities such as "^G".

In general, I must admit that once I became accustomed to using **SYSTEM** instead of **SHELL**, I found the Thoroughbred BASIC a faster and better documented language than the SMC version originally shipped with my Fortune. I certainly hope that SCI/Fortune and Concept Omega will be able to get together and provide us with the level 7 versions of BASIC soon.

Finally, I have been hearing occasional commentary (including gripes) from those programmers who use full screen text editors for BASIC. I have always used line editors with BASIC and do not foresee ever becoming involved in another system. If you use one of these full screen editors and have questions or comments, please let me know. I confess I am not very knowledgeable in this area, but I will be happy to offer a forum for your discussions. Next month we will feature our support company listing.□

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BOOKS

Exploring the UNIX System

by Stephen G. Kochan and Patrick H. Wood.

Exploring the UNIX System by Stephen G. Kochan and Patrick H. Wood. Hasbrouck Heights, New Jersey: Hayden Book Company, 1984. (371 pages). Price roughly $23.00.

Are you still driven by menus through your Fortune/SCI machine, apprehensive at the sight of anything that has the word "UNIX" attached to it? Have you been ignoring newsletter articles directed at the UNIX user because they presume the knowledge of words that you cannot find in your dictionary? As you may have inferred from this newsletter's content, we strongly feel that users should get in touch with the UNIX operating system that sits "behind" the Fortune/SCI menu system. It offers users much more flexibility and power. If you have been tempted to start from scratch but have not found the time to go back to our earliest articles and follow through on our series, then we think that we have found the book for you.

The book, **Exploring the UNIX System**, is by two people at AT&T Bell Laboratories where the UNIX system was first devised. It presumes no knowledge of the system whatsoever. It clearly and simply provides an introduction to UNIX including an explanation of such areas as file system, shell programming, program development, screen editing, and system administration. The text uses language that is easy to understand and it is supplemented by comprehensible figures, diagrams, and tutorials. (The latter are exercises that you can do as you are following the text and they come with facsimiles of what the screen should look like if you have performed the tutorial successfully).

The book begins by explaining the nature of operating systems. (It even explains what a file is!) It does not teach you everything there is to know about UNIX, but the book does provide you with all the essentials that will then leave you comfortable to be more adventurous. The text is keyed to teaching readers how to use UNIX System V, but it also points out the new wrinkles introduced by System V, Release 2. (**Editor's Note**: Fortune/SCI will be using System V, Release 3, known as 5.3, on their new hardware and the Formula line. Thus, this book's treatment of UNIX should stand you in good stead).

As the book promises, by the time you are finished reading you should know:

- *how operating systems work
- *how the UNIX file system is organized and how to identify files
- *how to create, copy, rename, and remove files
- *how to create your own file directories and how to work with them
- *how to put two of the key concepts—I/O redirections and pipes—to work for you
- *how to customize UNIX commands with the shell—the program that has its own built-in programming language
- *how to use the vi screen editor
- *how to use the UNIX system for electronic mail facilities
- *how to use the UNIX system for program development and what tools and languages are available
- *how to set up a network with the UNIX system
- *how to secure the system
- *how to administrate the system

The book also comes with several helpful appendices (including one that is a complete command summary) and a usable index. If you have ever been curious about UNIX but never found the "right" opportunity to sit down and learn, then we recommend this book for you. In addition, this text is the first part of a series that has been issued as the Hayden UNIX System Library. If and when your appetite is whetted by this book, you can go on to bigger and better things with other volumes in this series. Two other books in the Hayden series are **UNIX Shell Programming** by Kochan and Wood and **UNIX System Administration** by Fiedler and Hunter.

Below you will find this book's table of contents.

*Introduction
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*The UNIX File System
*Getting Started
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*Communications
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Benzion Chanowitz

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If you are interested in purchasing a Laptop computer that can be used with this product for people on the road or at home, give us a call!! We also provide consulting services for interfacing your DOS system to the Fortune ($50/hr).

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WESTERN LINK - provides instruction on how to use your Fortune for sending/receiving telex messages using Western Union's Easylink. Can replace your telex! Fortune ITE or Handshake software required. $95.00

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System Administration: Part 9

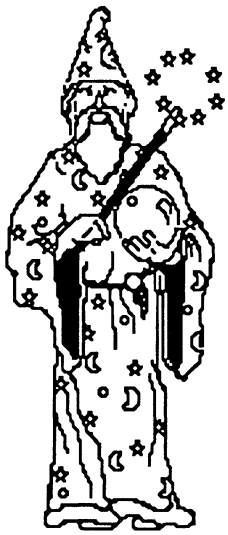
No Longer Requires a Degree in UNIX Wizardry

This series is a must for all owners and users of the Fortune computer. Dave is President of UNI-KOMP which is located in Houston, Texas. He provides UNIX seminars, software for the Fortune Computer, and is president of the Houston UNIX User's Group. He contributes independently to ***/u/fortune news.***

by Dave Kloes

At times, the subject of UNIX system administration can be compared to politics and religion - there is never total agreement about "the way" to administer it. Many of us who have grown with UNIX on various computer systems over the past several years have seen UNIX change from a "raw" operating system to the user friendly versions that are in use today. Back in those "old days", you received your operating system tapes and a box of manuals along with a computer that may or may not be totally assembled for you. Once the computer was set up and the operating system was loaded, you found yourself at the UNIX prompt wondering what to do next. Somehow, by reading the volumes of manuals that lay before you, you managed to do all of the things required to install terminals, printers, tape drives, application software, etc. If you were lucky, you managed to do all this with only a few system crashes.

Although there are still a few computer systems that are delivered as we have described above, most have come a long way and make the job of UNIX system administration easy for us. Fortune, in particular, through its "Global Menu" has provided one of the most useful aids to the system administrator. In addition, the task of adding terminals, printers, etc. is made easier by using this menu along with sound system documentation.



This month Dave talks about some philosophy behind system administration and the shell. Also, mounting and unmounting are discussed.

By now, you are all probably wondering what all of this is leading to. Actually, there are several points that we need to emphasize (or reemphasize for those of you who may have missed the first articles in the series):

1. UNIX (For:Pro) is not a toy. In this series of articles, we are attempting to help you understand what goes on behind Fortune's Global Menu system. In many cases, we give you examples to help you to understand the structure of certain files or commands. This does not mean that you should blindly go into the operating system and start making changes without knowing the possible consequences of what you are doing. Sometimes a book may have been written about some file, command or concept that we summarize in one sentence or paragraph.

There is a "catch-22" here also. It's just like the person who is looking for a job - no one will hire them without the experience, but they can't get the experience without being hired first. You can't learn without doing, but by doing, you take the risk of computer down time when you make mistakes. This is a difficult series of articles to write because we are addressing an

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audience with various levels of experience in the UNIX operating system. The bottom line is to be aware of your level of competence when deciding whether to attempt some of the things we are discussing.

2. We do not pretend that what we present is the only way or best way to accomplish a task. This is an industry of changing technology and, like medicine, what is new today is obsolete tomorrow. And like politics or religion, no matter what you say or how you say it, some people will have another opinion - there is no clear-cut "right" or "wrong". We learn something new about UNIX every day and there are some parts of UNIX we haven't even had the opportunity to use yet. What we do present is based on the experience of working on many UNIX systems over the past eight years. But, that doesn't necessarily mean we've been doing it right for all those years. If you have a better way or want to express an opinion about the subject, feel free to write or call.

Recently, for example, we received a letter from someone who was appalled at the idea that we would suggest using a UNIX editor on the password (**/etc/passwd**) file. This is a "good news, bad news" topic. Back in the "old days" we spoke of earlier, this was the only way of adding, deleting or changing user accounts. In fact, the system documentation that came with those systems instructed this type of administration on the password file. In addition, the original authors of UNIX, such as Dennis Ritchie, say to "Install new users by editing the password file: **/etc/passwd** ..." (**Setting Up UNIX - Seventh Edition**, Charles B. Haley and Dennis M. Ritchie, Bell Laboratories - from the **UNIX Programmer's Manual, Volume 2**). Many other references suggest that this is how to administer this file. In speaking to Rich Suslick of **Cedar Cliff Systems Corporation**, however, he indicated that there are circumstances where editing this file "on the fly" can result in the loss of the file. So what is the answer?

This is an example of a subject we did not cover in great detail, but can result in system problems if not done properly. Unfortunately, in this series of articles, we cannot cover every topic in the detail we would like. The good news is that the **/etc/passwd** file can be changed by using a UNIX editor. The bad news is that if something goes wrong, system operation can be affected. (The same thing could happen even though you are using one of the "user friendly" utilities). It's like telling someone that they can drive a car by turning on the engine and putting it in gear. It's true, but there is much more to it than that. The following points might have been included about editing any system file to minimize possible system problems:

- All users should be off the system.

- A copy of the original file should be saved in case anything happens during the edit.

- System specific commands designed to accomplish the task should be used where possible (**pwac** command, Global Menu on the Fortune System).

Another example of a question about what is "right" or "wrong" is the question of whether you should leave your system on at night or turn it off. That issue has two camps also and was explored in detail in the last issue of **/u/fortune *news***.

3. The job of system administration is an important one. Whether you are making changes using the Global Menu system or in For:Pro, you take the risk that what you are doing will result in computer downtime. For example, whether you select "S1" (System Utilities) and "13" (Delete a file) and accidentally remove the **/etc/passwd** file or you remove it directly from For:Pro results in the same consequence.

4. This series of articles is not intended to advocate doing your system administration functions directly from For:Pro. How do you get the system back up and running when the Global Menu isn't available to you? How can you be more productive and responsive as a system administrator? How do you handle "abnormal" situations that are not items to select off a menu? The examples in this series are intended to help you understand the operating system better so that you can answer these questions.

With that discussion out of the way, let's talk about "mounting" and "unmounting" devices in For:Pro. We have found from our UNIX seminars that the concept of mounting and unmounting is especially difficult for DOS users. In DOS, for example, you can put a floppy disk in the floppy drive and remove it whenever you like. In addition, once you have it in, you can list the contents or execute the commands on it without having to tell DOS that it is there. *This is not so in For:Pro.* For each device that has a "filesystem" on it, including hard disks and floppy disks, we must tell For:Pro that it is there. This is done with the "mount" command. Here is an example:

```
# cd /f
# ls

# cd /
# mount /dev/fd02 /f
# cd /f
# ls
file1 file2 dir1
```

First we change directory to the **/f** directory and do an "ls". We find that it is an empty directory with no files or subdirectories. We then change to the / (root) directory and issue the **mount** command. With this command, we are telling For:Pro to logically put the information on **/dev/fd02** (the device name for the floppy drive) in the /f directory. We then change directory back to /f and do the "ls" and now find that we can access the two files (file1, file2) and sub-directory (dir1) on the floppy disk. After this command is executed, anything we do in the **/f** directory will be done on the floppy drive. The floppy just becomes another directory on the system where we can copy files, execute programs, etc. Here are a few rules about "mounting":

a. The directory that a floppy is mounted in should be an empty directory. The **/f** directory on the Fortune System is an empty directory set up especially for mounting floppy disks. Any empty directory

could be used. If the directory has files in it before the mount is issued, they will disappear until the floppy is unmounted.

b. You cannot mount a floppy into a directory that you are in.

For example, if you tried to issue the mount command while in the **/f** directory, you will get a "device busy" error message.

c. In order to mount a floppy, it must be formatted (**format** command) and have a filesystem made on it (**mkfs**). The **format** and **mkfs** are done when you format a floppy through the Global Menu system ("S1", System Utilities, #32). This only has to be done one time. For those of you that are interested, the same format command that is executed from the Global Menu can be executed directly from the UNIX prompt by entering:

```
# /m/sysutil/bin/fmtflop
```

The "fmtflop" shell script executes the "format" and "mkfs" commands for us and does some additional checking to tell us whether the operation was successful or not. We can also issue just the "format" and "mkfs" commands from the prompt:

```
# /etc/format -c /etc/disk/
  flop.conf /dev/rfd00
# /etc/mkfs -a /dev/fd02
```

The "format" command formats the floppy and writes a configuration block on it. The "mkfs" command constructs a file system on the floppy with a single empty directory.

d. Whenever you are working in the mounted directory (**/f**), you will see the floppy disk light go on and off. This is one indication that the **/f** directory and the floppy disk are one and the same.

e. Even though the floppy disk in is the floppy drive, For:Pro does not recognize it until we "mount" it (unlike DOS).

Once the floppy has been mounted, it must be unmounted using the "umount" command (notice the absence of the "n"). We describe the process of trying to remove the floppy from the drive without issuing the "umount" command as trying to pull off someone's arm. The arm is connected to the shoulder just like the floppy is connected to the system while it is mounted. If you remove the floppy without first unmounting it, you take the risk of losing all or some of the information on it. If you've tried this before, you couldn't help but notice that the system will beep at you to warn you that the floppy has not been unmounted. Like the "mount" command, you cannot unmount the floppy while you are in the mounted floppy directory (**/f**). We describe this as trying to pull on a rug that you are standing on. Here's what the command looks like:

```
# umount /dev/fd02
```

Notice that the "mount" command requires two parameters - the name of the filesystem (**/dev/fd02**) and the directory it is to be mounted in (**/f**). The "umount" command only requires one parameter - the name of the filesystem to be unmounted.

Here are some typical error messages:

mount: mount failed: No such device or address - occurs when you try to mount a floppy that has not been formatted or if there is no floppy in the floppy drive.

mount: mount failed: device busy - occurs when you try to mount a floppy to a directory that you are in.

umount: Working directory is on the /dev/fd02, Can't umount - occurs when you try to unmount a floppy and you are in the mounted directory.

The same concept of mounting and unmounting that applies to floppy disks applies to hard disks and their separate partitions (if applicable). The "root" directory (/) is normally mounted when the system starts up. Any other partitions on the same disk or other disks must be mounted before the information on them is available to the user. We'll discuss this concept in more detail next time. □

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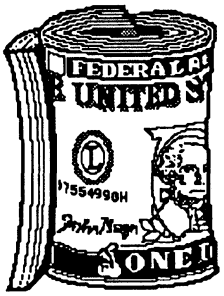
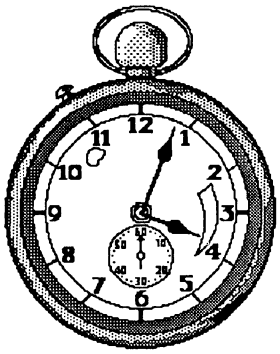


Money and Time Savers



In this article, we present a *guaranteed* money saver! We will describe a shellscript that is designed to guard against accidentally leaving your phone connected to a remote computer for long periods of time.

This has actually happened to us twice. The first time we connected to a computer long distance and somehow forgot to log off. Being logged on long distance overnight is a costly mistake. The second time a similar thing happened but we logged into a computer locally. Still, this cost nearly $50.

The irony of the situation is that we, and you, need not ever make such a mistake because the computer is well equipped to guard against these types of eventualities.

The script shown in Figure 1, which we call **watch_kerm**, does most of the work. The script in Figure 2, which we call **kill_kerm**, is called by **watch_kerm**. But before we get into the actual script, let's talk about some assumptions that we make in order for **watch_kerm** to work.

First, our problem revolves around the use of **kermit**. That is, the only time we are likely to remain logged into another computer is when we are using **kermit**, a communications program. (For those of you who do not have this program and would like it, it is on two of our software-library disks). Of course, with minor modifications, our program would work equally well with other communications software such as **cu** or **Handshake ITE**.

Second, we have just one modem connected to our Fortune. Thus, there is only one port that we need to be concerned with.

How watch_kerm works

We have set **watch_kerm** to work basically as follows. When it runs, it checks to see if anyone is using **kermit**. If there are no such processes, then **watch_kerm** goes to sleep. If someone is using **kermit**, then **watch_kerm** looks at the port that **kermit** is using. It looks at this port in order to see the modification time. The reason for this is that every time **kermit** sends or receives any information it updates the modification time on the port through which it is working. Thus, if we leave the office with a **kermit** process sitting idle while connected to another computer, the modification time on the port will *NOT* change. This means that if we check the modification time and compare it to the current time, then there will be a gap, or difference, in time. This is what will key us to the fact that the **kermit** process is connected but sitting idle.

If it finds an idle **kermit** process, then it starts sending warning messages to the terminal of the person using **kermit**. If no one uses the terminal after two warnings, it runs the **kill_kerm** program which simply goes through and kills all **kermit** processes that are currently running.

The Details of watch_kerm

In this section, we will discuss in a little more detail the actual specifics of our shellscript.

In Figure 1, lines 1 through 7 set up some parameters that are necessary for watch_kerm. The NSECS variable is set to 300 which represents how many seconds **watch_kerm** will sleep. Basically, once you start the program running, it will run continuously in the background of the computer.

The KERMDEV variable is set to the port that our modem is connected to. Naturally, if you were to try and copy this script, you would need to figure out what port your modem is connected to and then modify this variable. The KERMLOCK variable is a portion of the KERMDEV variable and is used later in the script so that we can properly delete lock files that **kermit** sets up.

The KERMIDLE variable controls how long we will let the port remain idle

before we start sending warning messages. We have set this variable to 5 which represents 5 minutes. Thus, if a **kermit** process is running and the port has been idle for more than 5 minutes, then we feel there is good reason to begin warning the person using kermit that they should do something.

The KERMWARNS variable controls how many warning messages an individual will receive. Setting the variable to 2, as we did in this script, indicates that the program will send two warnings before it starts killing **kermit** processes.

Finally, the NWARNS variable just contains the number of warnings that have been sent. It is initialized to 0 on line 7.

The body of the shell script is lines 8 through 46. This is all contained in a **while loop** (see Volume 3 Number 11 for a description of the while loop in shell programming). The purpose of the while loop is to keep the program running indefinitely. Thus, line number 8, while :, sets up an infinite loop.

Lines 11 through 14 do the checking to see if a kermit process is running. We key on the existence of a file called **km_user** which exists in the **/usr/local/scratch** directory only if **kermit** is connected to the port and if the **kermit** process was started by the **km** shellscript (the file is created by km which was specially designed to do this). The construction [! -f /usr/local/scratch/km_user] is true if the file **km_user** does NOT exist. If it doesn't exist, then the loop is started all over again (which is the effect of the **continue** on line 13).

On the other hand, if **km_user** does exist then the rest of the script is executed. Lines 16 through 24 take care of checking whether or not kermit has been idle. Line 16 sets the variable KDAH (which stands for **K**ermit **D**evice **A**ccess **H**our) to the hour of last modification to the kermit device. Likewise, line 17 sets KDAM to the minute of the last modification time. The way this is done is by taking just certain parts of the information that we get when we issue an **ls -l** command. For example, the following is what we get if we do an **ls -l** on **/dev/cul4:**

```
crw-rw-rw- 3 root    9,130 Jan 26 14:59
/dev/cul4
```

From this we see that the last modification on **/dev/cul4** was Jan 26 14:59. By piping the information from the **ls** command through the **cut** command (**cut -c37-38**) we first cut out columns 37 and 38 which would give us 14. (**Editor's Note: cut** is available on our UNIX TOOLS diskette). Then we do it again and cut out columns 40 and 41 to get the minutes, or in this case, 59. We then take the hour and minutes and turn it into one variable which represents the number of minutes since the beginning of the day (see line 22).

We basically do the same thing to get the current time (which we get from the **date** command). By line 23, we have turned the hour and minute into just the number of minutes since the beginning of the day.

Line 24 creates the variable DIFF

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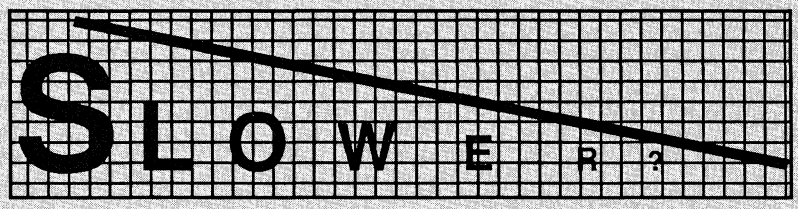
1. Is your computer getting 

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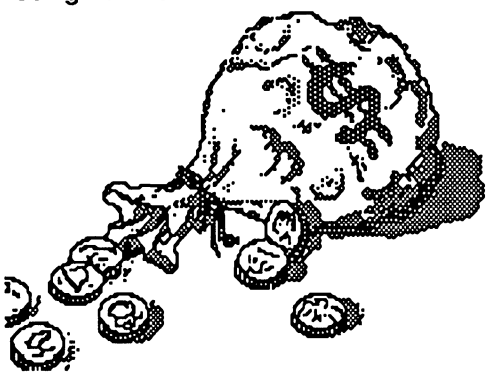
which is simply the Current time minus the Kermit time and represents the number of minutes that kermit has been idle. (We could have combined lines 22 through 24 into one line to calculate DIFF, but we have chosen to list it this way so that our method is clear).

Once we've calculated DIFF, we check to see if it is greater than the KERMIDLE variable (line 26). If it is not, then we just go back to sleep.

If it is greater than KERMIDLE, then we see if we should kill the **kermit** processes. We check this by comparing NWARNS to KERMWARNS. If they are equal, then we execute lines 30 to 33. Line 31 calls a shellscript called **kill_kerm**, which is shown in Figure 2, that takes care of killing all the processes associated with **kermit**.

If the NWARNS are less than KERMWARNS, then lines 35 to 43 are executed. Basically, these lines take care of sending a warning message to the terminal of the person using **kermit**.

Line 36 is important because that is how we know who is using **kermit**. We do not use kermit by itself but rather run a shellscript called **km** (which is shown in Figure 3). This shellscript takes care of creating a file called **km_user** in the **/usr/local/scratch** directory which contains the username of the person using **kermit**



Installation

In order for this program to work properly, you need to do several things. First, you need to somehow type into a file the information in Figure 1 and call this file **watch_kerm**. Also type into a file called **kill_kerm** the information in Figure 2 and also create a file called **km** with the information in Figure 3.

Second, create a subdirectory that is called **/usr/local/scratch**. This is needed for **km**. Also, create a subdirectory called **/usr/local/bin**, if it doesn't already exist and put **watch_kerm** and **kill_kerm** into this directory.

Third, you must use **km** instead of **kermit** from now on.

Fourth, you must start the **watch_kerm** shellscript running in such a way that it will remain running all the time. The best way to do this is to create a file in the **/m/rc** directory that starts **watch_kerm** running automatically every time the computer is turned on. You should be able to simply put a file in **/m/rc** called **watch_kerm.rc** with one line in it. This line would be simply **/usr/local/bin/watch_kerm**. You must, however, make this file executable (i.e. chmod +x /m/rc/watch_kerm.rc).

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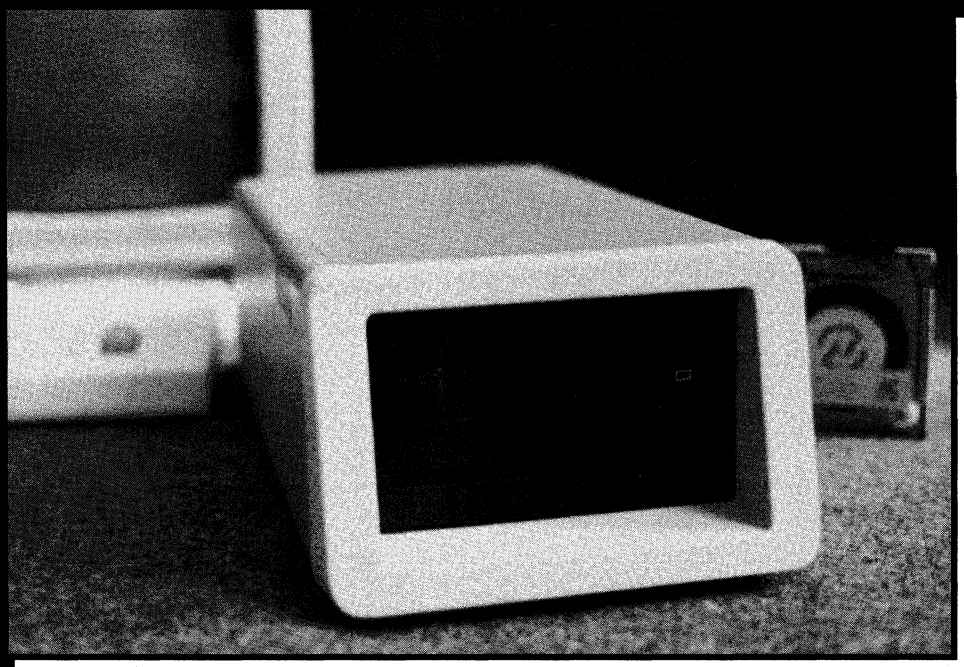

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Limitations

There are some important limitations with this shellscript. The most troublesome limitation is perhaps the approach we take with killing **kermit** processes. Since we have only one modem and since it is relatively rare that one of us would be using **kermit** over the modem while another one of us uses **kermit** in some other way, we felt that the extra processing required to find out which **kermit** process is being used by which person was not worth the effort. However, you should be aware that when **kill_kerm** starts running it will kill ***ALL*** **kermit** processes it sees regardless of who started that process and what port it is talking to..

Another limitation has to do with how our program works if the **kermit** process is started just before the midnight barrier. If the modification time is pre-midnight and the system time is post-midnight, then there is roughly a 5 minute window in which **watch_kerm** might think that the **kermit** process has been idle too long. We have decided to live with this limitation.

A third limitation has to do with the fact that we are currently using only one modem. If we had two modems, the current script would not handle this correctly. If we wanted to handle two modems we would have to deal with limitation one listed above (the indiscriminate killing of **kermit** processes).

Finally, lines 22 through 24 and 41 through 43 are expanded for ease of understanding, but could be combined for efficiency.

Conclusion

The **watch_kerm** program and its associated programs **kill_kerm** and **km** comprise a rudimentary but workable way of guarding against leaving your phone off the hook for long periods of time. Thus, these scripts, if used, should save you money. We will package this program, along with other money and time savers, on a diskette to be introduced in the near future.□

Mark Palmerino

Figure 1.

```
 1  :
 2  NSECS=300
 3  KERMDEV=/dev/cul4
 4  KERMLOCK=cul4
 5  KERMIDLE=5
 6  KERMWARNS=2
 7  NWARNS=0
 8  while :
 9  do
10   sleep $NSECS
11   if [ ! -f /usr/local/scratch/km_user ]
12   then
13     continue
14   fi

16   KDAH=`ls -l $KERMDEV | cut -c37-38`
17   KDAM=`ls -l $KERMDEV | cut -c40-41`

19   CH=`date | cut -c12-13`
20   CM=`date | cut -c15-16`

22   KT=`expr $KDAH '*' 60 + $KDAM`
23   CT=`expr $CH '*' 60 + $CM`
24   DIFF=`expr $CT - $KT`

26   if [ "$DIFF" -gt "$KERMIDLE" ]
27   then
28     if [ "$NWARNS" -eq "$KERMWARNS" ]
29     then
30       NWARNS=0
31       kill_kerm
32       rm /usr/local/scratch/km_user
33       rm /usr/spool/uucp/LCK..$KERMLOCK
34     else
35       NWARNS=`expr $NWARNS + 1`
36       XSER=`cat /usr/local/scratch/km_user`
37       GREPSTUFF=`who | grep $XSER`
38       IFS=" "
39       set $GREPSTUFF
40       PORT=/dev/$2
41       echo "^L" > $PORT     # clear the screen
42       echo "KERMIT IS ABOUT TO  DIE - DO SOMETHING" > $PORT
43       echo "^G" > $PORT     # ring the bell
44     fi
45   fi
46  done
```

Figure 2.

```
 1  :
 2  ps -lax | cut -c15-27,65-70  > /tmp/pidtty.out
 3  IFS="
 4  "
 5  for i in `cat /tmp/pidtty.out`
 6  do
 7   IFS=" "
 8   set $i
 9   case $5 in
10           kermit|kmenu|ckermi)
11           kill -9 $2;;
12   esac
13   IFS="
14  "
15  done
16  rm /tmp/pidtty.out
```

Figure 3.

```
trap "rm /usr/local/scratch/km_user; exit" 1 2
echo $USER > /usr/local/scratch/km_user
kmenu lb 4 1200
rm /usr/local/scratch/km_user
```

/u/help

Continued from page 1

connect Macintoshes to their Fortunes. Typically they are trying to take advantage of the Mac's graphic abilities, while maintaining the ability to enter and edit on their tried and true Fortunes. We find it very useful to be able to create and edit our files in **Fortune:Word** or **vi** on a full-size keyboard on a multiuser computer and then to harness the Mac to format our output. Of course in time, the systems may move closer to each other's strengths, but for now using both seems to be a good solution.

We don't have too many more comments to make than those that were in last January's article, but we may be able to clarify your questions. There are some new developments in regard to laser printers that we will mention shortly.

The only hardware you'll need to make the connection is a cable. The easiest way to link a Mac to a Fortune is to purchase a cable that is designed for connecting a Mac to a modem, such as a Hayes Smartmodem. This will probably have a round "din" connector on one end, and a 25 pin male DB-25 connector on the other end. The round end goes into the socket with the little phone next to it on the Mac (we assume the connector will be similar on the Mac II) and the other end goes into a free port on the Fortune. If the Mac won't be right next to the Fortune, you can get a male-female RS-232 extension wired straight through on pins 1, 2, 3, and 7.

The only hardware you'll need in order to make the connection between your Fortune and a Mac is a cable.

Next you will need to configure the port on your Fortune as a login port for a terminal. This is most easily done using the **Define Device Connection Menu** on the **System Maintenance Menu**. When you are asked what kind of terminal you have, choose **Other** and then enter a **vt100**. We usually set the baud rate to 9600.

For software, you will need a communications program for your Mac. We use **MacKermit** with good success. **Red Ryder** may work as well, but we have had trouble doing file transfers with it. We distribute MacKermit, which works on all Macs.

Finally, if you wish to transfer files between the two systems, you'll need a copy of **kermit** or **C-Kermit** for your Fortune. We distribute those programs also. All of our disks cost $10.

Once you have the above hardware and software, you should be able to activate **MacKermit** on the Mac, and when you press RETURN the familiar Fortune logon will appear. We have created a special login for the Macintosh that we call mac. When mac logs in, he doesn't get the global menu, he goes directly into the shell. In Volume 4 Number 11, Dave Kloes discusses how to modify the password file to accomplish this. Basically you want to change the login shell from **/bin/menu** to **/bin/sh**. Next, in order to make it easy for us to have the correct backspace functions, we change the backspace and interrupt characters. We set **interrupt** which is normally **CANCEL/DEL** to **CTRL-C** (control c) and then **erase** to **CANCEL/DEL**, which is what the Mac puts out when the backspace key is hit. The easiest way to do this is to give mac a **.profile** file in **/u/mac**. You create the **.profile** using the **cat** command or an editor like **screen** or **vi**. Assuming you want to do it the simplest way, use the **cat** command and type the following: (CTRL-V is entered by holding down the CTRL key and then pressing the letter V—just as you would use the SHIFT key. Note that nothing appears when you press CTRL-V until you enter the next Control character.)

```
cat > /u/mac/.profile   <RETURN>
stty intr CTRL-V CTRL-C <RETURN>
stty erase CTRL-V CANCEL/DEL   <RETURN>
CTRL-D
```

Once this file has been created, you should be able to log in from the Mac onto the Fortune without difficulty. All file transfer instructions are performed from the Mac keyboard. Once you log in to the Fortune, you'll tell **kermit** or **C-Kermit** what file to send by giving a command like `kermit s article1` or `ckermit -s article1`. Then you just choose receive file on the MacKermit pull down menu and the file should start coming across.

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When you ask about response time, I assume you are talking about the time required to transfer files between the two machines. Since we connect up at 9600 baud, which is 960 characters per second, this is the speed limitation for file transfer. In point of fact, kermit actually achieves a speed about half of the connection speed, so at 9600 baud we transfer files at 480 cps. For a 10,000 byte file, that means the file would go across in about 20 seconds. Although it's not instantaneous, we find the transfer time to be adequate in most cases.

As we understand it, UNIX V.3 will be ported to the Formula line of computers and the Fortune/SCI 386 computers, but will not be ported to the 32:16 line. If you have a Fortune/SCI computer that runs V.3, it would not mean that the same software would run on both computers. Although most computers that run DOS can share software, that is because they are specifically designed to meet the same hardware specifications. This is generally not true of UNIX computers. UNIX is designed as a software standard that makes it relatively easy for programmers to translate their product to many different kinds of computers, however, this unfortunately does not mean that the floppies are compatible.

Lastly, we have some other updates on hardware and software for the Mac/Fortune connection.

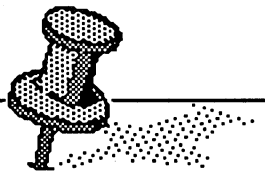
Laser Printers:

With the advent of several new PostScript laser printers, some new options have opened up for Fortune users. Several of these printers now offer **Diablo 630** and **Hewlett-Packard Laserjet** emulation in addition to PostScript support. The **NEC LC-890** is one such printer. This allows you to print out your complicated Mac graphics using PostScript, and to use the HP emulation to print with varied fonts etc. from **Fortune:Word**. Although we have not tried this ourselves, it seems to be an exciting possibility.

Regarding software there are a few new things to report. Typically we enter our files using **Fortune:Word**. We then transfer these to the Mac and call them up under **Microsoft Word**. None of the formatting that we have done in Fortune:Word gets transferred to the Mac. We have experimented with a program we created called **fwmac** (Fortune:Word to Mac) which strips out the returns at the end of each line, and converts the returns at the ends of paragraphs.

Recently we have begun experimenting with some other document formats that maintain certain formatting, such as bold face and underline. We take advantage of the capability in **Pagemaker 2.0** to import text files from a variety of word processors, including **XyWrite III** which runs on an IBM-PC. We have written a little program to convert **Fortune:Word** files to **XyWrite** files. We then place them within Pagemaker, and voila, the bold and underlining are retained. We are now researching a more universal document format that will allow us to specify fonts and sizes as well. As we make progress with this, we'll be sure to let you know.

Josh Lobel



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Listing

Continued from page 1

half in next month's **/u/fortune *news***.

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Following the software listings, there is a list of addresses and phone numbers for the ISV's.

We are publishing this index as a service. We regret any inadvertent errors or omissions in this list. We expect to revise and update this list on a regular basis. Your dealer should have more information on any of the products contained in this list.

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SST Incorporated,$395,C/no
HANDSHAKE 3780
SST Incorporated,$1995,C/no
HANDSHAKE BLAZER
SST Incorporated,$695,C/no
HANDSHAKE II, 327X Terminal Emulator
SST Incorporated,$850,C/no
HANDSHAKE III
SST Incorporated,$850,C/no
HANDSHAKE V
SST Incorporated,$395,C/no
Interactive Terminal Emulator Release 1.1.1.
Fortune Systems Corporation,$395,C/no
MicroezLNK
Advanced Micro Techniques,$95,PL1/no
Modem Link
Uni-Komp, Inc.,$95,Shell/yes
Tango
Computerized Office Services, Inc.,$295,/no
Tektronix 401X Emulator
Fortune Systems Corporation,$795,/no
Teleport II
National Information systems,$N.A.,C/no
X.25
Fortune Systems Corporation,$1195,/no

Construction

ACUITY Integrated Project Job Costing
Computer Cognition,$N.A.,Cobol, C/yes
ADD+ON Job Costing
ADD+ON Systems,$1000,BASIC/yes
APPGEN Job Cost
Software Express, Inc,$1500,C/yes
Basic Job Costing
Basic Software Corporation,$849,BASIC/yes
Construction Management and Accounting System
PAC Corporation,$N.A.,BASIC/yes
Masterspec
Beacon Systems,$750,ASCII Text/yes
Project Control Management System
Creative Software Systems,$1500,BASIC/yes
The Contractor
Maxwell Systems, Inc.,$9000,BASIC/no

Data Base

C-ISAM
Fortune Systems Corporation,$319,C/no
C/Base
National TechTeam, Inc.,$N.A.,C/yes
Conetic Systems C Tools
Conetic Systems, Inc.,$N.A.,C/no
File-it!
Fortune Systems Corporation,$379,C/no
IDOL
Fortune Systems Corporation,$695,BASIC/yes
INFORMIX
Fortune Systems Corporation,$995,C/no
INFORMIX-4GL
Fortune Systems Corporation,$3400,C/no

INFORMIX-ESQL/C
Fortune Systems Corporation,$1650,C/no
INFORMIX-File-it!(SQL Version)
Fortune Systems Corporation,$649,C/no
INFORMIX-SQL
Fortune Systems Corporation,$2200,C/no
PROGRESS
Fortune Systems Corporation,$2450,C/no
UNIFY
Fortune Systems Corporation,$2450,C/no

Dental

DDX
Calyx Corporation,$4000,C/no

Education

Student Records System
Computer Applications,$4000,BASIC/yes

Entertainment Management

FOXPRO
Fox Information Systems,$15000,SMC BASIC/yes
Talent Agency Database
Fox Information Systems,$15000,SMC BASIC/yes

Financial Institutions and Services, Bankers, Brokers

Escrow
Thomas Langford, Inc.,$8000,APPGEN, C/no
GLOWS Tax Processing System
Orion Microsystems, Inc.,$1995,BASIC/yes
MicroPROPHIT
Via Computer, Inc.,$695,BASIC/no
Portfolio Management System
Logic One,$1295,BASIC/yes
Report Format Control System - RFC
Superior Computer Systems,$N.A.,BASIC/yes
Triangle Broker System
Triangle Computer Company,$N.A.,C/no

Fund Accounting

NFP Management System
NFP Management Systems Inc.,$N.A.,BASIC/yes

General Accounting

Accounting Power
Software Power Coproration,$1295,Informix/C/yes
Accounts Payable
Avgar Computer Sys. Inc.,$N.A.,PROGRESS/yes
ACUITY Integrated General Accounting
Computer Cognition,$N.A.,Cobol, C/yes
AndromIntorv
Andromeda Software, Inc.,$750,C/no
APPGEN Accountant's Client Write-up
Software Express, Inc,$3500,C/yes
APPGEN Accounts Payable
Software Express, Inc,$600,C/yes
APPGEN Accounts Receivable
Software Express, Inc,$600,C/yes
APPGEN Financial Series
Software Express, Inc,$600,C/yes
APPGEN Fixed Asset Management
Software Express, Inc,$2000,C/yes
APPGEN General Ledger
Software Express, Inc,$600,C/yes
APPGEN Inventory/Order Entry
Software Express, Inc,$600,C/yes
APPGEN Payroll
Software Express, Inc,$600,C/yes
Basic Accounting Modules
ADD+ON Systems,$N.A.,BASIC/yes
Business Accounting Series (BAS)
Fortune Systems Corporation,$N.A.,BASIC/yes
CBooks
National TechTeam, Inc.,$N.A.,C/yes

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Conetic Systems C Books
Conetic Systems, Inc.,$N.A.,C/no
Fox General Ledger
Fox Information Systems,$10000,SMC BASIC/yes
General Accounting System
ADD+ON Systems,$1000,SMC BASIC/yes
General Ledger
Avgar Computer Sys. Inc.,$N.A.,PROGRESS/yes
Glows Practice Management
Orion Software, Inc.,$2500,SMC BASIC/no
Glows/Client Accounting System
Orion Software, Inc.,$3500,SMC BASIC/no
Guardian Accounts Payable
Guardian Automated Systems,$395,C/no
Guardian Accounts Receivable
Guardian Automated Systems,$395,C/no
Guardian General Ledger
Guardian Automated Systems,$395,C/no
Insurance Management System
Thomas Langford, Inc.,$6000,/yes
Payroll
Avgar Computer Sys. Inc.,$N.A.,PROGRESS/yes
RealWorld Business Software
Uniware Corp. Inc.,$N.A.,RM/Cobol/yes

Graphics

AutoGraph
FICOR,$695,C/no
Grafsman
Southwind Software Inc.,$N.A.,C/no
High Tech Business Graphics
LatiCorp,$595,C/no
PlotTrak
SofTrak Sys. Inc,$N.A.,C/no
Thoroughbred Graph
Concept Omega Corp.,$N.A.,BASIC/yes

Languages

APL*Plus/UNX System
STSC Inc.,$1495,C/no
APPGEN Query Language (AQL)
Software Express, Inc,$700,C/yes
BBx
BASIS Inc.,$N.A.,C/no
C Language
Fortune Systems Corporation,$695,C/no
FORTRAN-77
Fortune Systems Corporation,$695,C/no
Micro Focus Level II - ET Cobol
Fortune Systems Corporation,$N.A.,/no
Pascal Language Compiler
Fortune Systems Corporation,$695,C/no
Philon FAST/BASIC-C
Philon, Inc.,$600,C/no
Philon FAST/BASIC-M
Philon, Inc.,$600,C/no
Thoroughbred Basic
Fortune Systems Corporation,$895,/no
Transportable Business Language (TBL)
Fortune Computer Systems,$N.A.,/no
UX-Basic+
Fortune Systems Corporation,$N.A.,/no

Law

Police Package
Howe Systems Inc.,$N.A.,INFORMIX/no

Legal

Case Management Systems
Guardian Automated Systems,$3000,C/no
CLMS-Clockwork Legal Management System
Clockwork Sys. Inc.,$N.A.,Progress/no
JUSTLAW
Productive Computer Systems,$2290,SMC BASIC/y
Legal Accounting
Guardian Automated Systems,$3750,C/no
Legal Services System
PAC Corporation,$2995,SMC BASIC/yes
Time & Financial Management Sys for Lawyers
Gill and Piette,$6500,BASIC/yes

Miscellaneous

Minitab Data Analysis Software
Minitab Inc.,$750,FORTRAN/no

This completes the listing of the first half of the Software Vendor Catalog. The second half will be published next month.

Software Company Index

The following list contains names, addresses, and phone numbers for the companies contained in the Vendor Catalog. You will see that we have listed the name of the company along with the address and phone number.

ADD+ON Systems, Suite 140, 27285 Las Ramblas, Mission Viejo, CA 92691, **714 582-1555**
Advanced Micro Techniques, 5280 Harbor Dr., Oakland, CA 94618, **415 420-8927**
AIM Technology, 3350 W. Bayshore Rd., Suite 203,

Palo Alto, CA 94303, **415 856-8649**

Andromeda Software, Inc., P.O. Box 2766, La Grande, OR 97850, **503 963-4843**

Arrow Laboratories, Inc., 8118 Philadelphia Rd., Baltimore, MD 21237, **301 866-8900**

Avgar Computer Sys. Inc., 23297 Plaza Pointe, Suite 205, Laguna Hills, CA 92653, **714 951-1286**

Basic Software Corporation, 5201 Powhatan Street, Baltimore, MD 21207, **301 448-9460**

BASIS Inc., 5700 Harper Dr., NE #290, Albuquerque, NM 87109, **505 821-4407**

Beacon Systems, 500 S. Palm Canyon Drive, Suite 220, Palm Springs, CA 92264, **619 323-4555**

Bell Technologies, Inc., PO Box 8323, Fremont, CA 94537, **415 659-9097**

Bytex Corp., 1003 W. 6th St., Austin, TX 78703, **512 479-8800**

Calyx Corporation, 150 N. Sunnyslope Rd., Brooksfield, WI 53005, **414 782-0300**

Clockwork Sys. Inc., 430 10th St. N.W., Suite N-107, Atlanta, GA 30318, **404 872-1306**

Communications Research, 5615 Corporate Blvd., Baton Rouge, LA 70809, **800 242-5278**

CompuAmerica, Inc., 3250 Ocean Pk Blvd., Suite 200, Santa Monica, CA 90405, **213 450-8600**

Compusystems of Georgia, Inc., 2200 Northlake Parkway, Suite 220, Tucker, GA 30084, **404 491-8004**

Computer Applications, 5150 E. Pacific Coast Hwy., Suite 200, Long Beach, CA 90804, **213 494 0300**

Computer Cognition, 6696 Mesa Ridge Rd., SanDiego, CA 92121, **619 453-6660**

Computer Information Services of New Mexico, 12800 Lomas Blvd, NE, Suite D, Albuquerque, NM 87112, **505 292-4555**

Computer Outfitters, 4633 E. Broadway, Tucson, AZ 85711, **800 443-0599**

Computerized Office Services, Inc., 313 North First Street, Ann Arbor, MI 48103, **313 665-8778**

Concept Omega Corp, 102 Camplain Rd., P.O. Box 1035, Somerville, NJ 08876, **800 524-0430**

Concept Omega Corp., 102 Old Camplain Rd., P.O. Box 1035, Somerville, NJ 08876, **201 722-7790**

Conetic Systems, Inc., 1470 Doolittle Dr.enue, San Leandro, CA 94577, **415 430-8875**

Creative Software Systems, 399 Sherman Ave., Suite 11, Palo Alto, CA 94306, **415 595-4928**

Data Language Corporation, 47 Manning Road, Billerica, MA 01821, **415 593-9000**

Database Concepts, PO Box 3506, Arcadia, CA 91006, **818 574-0184**

DataLogiX Formula Systems, Inc., 200 Central Park Ave., Suite 200, Hartsdale, NY 10530, **914 997-1627**

FICOR, 10250 Chester Road, Cincinnati, OH 45215, **513 771-4466**

ForGen Comp. Sys. Ltd., #628,206-7th Ave. S.W., Calgary, AL T2POW7, Canada, **403 262-2702**

Fortune Computer Systems, 169-185 Miller St., 7th Fl., N. Sydney, 2060, AUSTRALIA, **612 969-8899**

Fortune Systems Corporation, 75 Shoreway Road, Suite 2000, San Carlos, CA 94070, **415 593-9000**

Fox Information Systems, 2525 West Main Street, Suite 300, Norristown, PA 19403, **215 630-6700**

Gill and Piette, 908 Pennsylvania Ave. SE, Washington, DC 20003, **202 546-6170**

Graphic Communications, 200 Fifth Avenue, Waltham, MA 02254, **800 542-7777**

Guardian Automated Systems, 9104 Cypress Green Dr/ Phoenix, Jacksonvile, FL 32216, **716 842-6410**

Hands Computer Systems, 100 W. Roosevelt Rd., Suite B7, Wheaton, IL 60187, **312 510-0088**

Healthcare Systems Inc., 1311 W. 96th St., Indianapolis, IN 46260, **317 844-5960**

Hex 'FF' Inc., 8929 S. Sepulveda Blvd., Suite 106, Los Angeles, CA 90045, **213 216-9653**

Howe Systems Inc., 761 Poplar St, Lebanon, PA 17042, **717 273-3703**

Jaybe Software, 2509 North Campbell, #259, Tucson, AZ 85719, **602 327-2299**

John Genter Associates, Box 67, Cressona, PA 17929, **215 269-0617**

John Harris and Associates, 5650 Kirby St., Suite 150, Houston, TX 77005, **713 667-1781**

LatiCorp, 185 Berry St., Suite 4820, San Francisco, CA 94107, **415 543-1199**

Logic One, 129 North West Street, Wheaton, IL 60187, **312 690-8208**

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Minitab Inc., 3081 Enterprise Dr., State College, PA 16801, **814 238-3280**
National Information systems, 20370 Town Center Lane, Suite 130, Cupertino, CA 95014, **408 985-7100**
National TechTeam, Inc., 22000 Garrison Avenue, Dearborn, MI 48124, **313 277-2277**
NFP Management Systems Inc., P.O. Box 4214, Foster City, CA 94404, **415 574-3230**
Olympus Software, 1733 South 1100 East, Salt Lake City, UT 84105, **801 572-1610**
Operand, Inc., 21 Knolltop Court, Novato, CA 94947, **415 892-7129**
Orion Microsystems, Inc., 910 Lafayette Bldg, Philadelphia, PA 19106, **215 928-1119**
Orion Software, Inc., Lafayette Bldg. Suite 910, 5th & Chestnut Street, Philadelphi, PA 19106, **215 928 1119**
PAC Corporation, 1617 St. Mark's Plaza, Suite A, Stockton, CA 95207, **209 951-8697**
Philon, Inc., 641 Avenue of the Americas, New York, NY 10011, **212 807-0303**
Productive Computer Systems, 8600 W. BrynMawr Ave, Suite 200 N, Chicago, IL 60631, **312 380-6220**
Productivity Products International, 27 Glen Road, Oxford, CT 06482, **203 426 1875**
Professional Software Sys., 25 West 39th St., Suite 904, New York, NY 10018, **212 819-0544**
R Systems, Inc., 10310 Markison Rd., Dallas, TX 75238, **805 495-1840**
Rapitech Systems Inc., Montebello Corporate Park, Suffern, NY 10901, **914 368-3000**
Resource Control Sys. Corp., 99 Park Ave, New York, NY 10016, **800 331-9172**
Sceptre Corporation, PO Box 8031, Ann Arbor, MI 48107, **313 665-8778**
Seismic Micro-Technology, 1044 Teresa, Houston, TX 77055, **713 464-6188**
SofTrak Sys. Inc, PO Box 16750, Salt Lake City, UT 84116, **801 973-9610**
Software Express, Inc, 2825 Wilcrest Drive, Suite 200, Houston, TX 77042, **713 974-2298**
Software Ireland, 1180 Westridge Drive, Portola Valley, CA 94025, **415 593-9000**
Software Power Coproration, 1901 Avenue of the Stars, Suite 1774, Century City, CA 90067, **213 476 8225**
Southwind Software Inc., 4520 E. 47th Street. South, Wichita, KS 67210, **316 524-9100**
Spectra Data Systems, 15015 Oxnard Street, Suite A, Van Nuys, CA 91411, **818 785-4923**
SST Incorporated, 250 South Main, Suite 201, Thiensville, WI 53092, **414 242-3999**
STSC Inc., Implementation Team, 2115 East Jefferson Street, Rockville, MD 20852, **301 984-5123**
Sumware, Inc., Suite 101, 23121 Verdugo Drive, Laguna Hill, CA 92653, **714 855-3062**
Superior Computer Systems, P.O. Drawer T, Florissant, MO 63031, **314 837-7111**
Systems for Profit, Inc., 10335 W. Oklahoma Ave., Suite 302, Milwaukee, WI 53227, **414 327-7560**
Tetra Business Systems, Ltd., 14-16 Temple End, High Wycombe Bucks, HP135DR, U.K., **494 452 001**
Thomas Langford, Inc., 2007 Carlisle Blvd. NE, Albuquerque, NM 87110, **505 764-9401**
Triangle Computer Company, 200 West Mercer Street, Suite 300, Seattle, WA 98119, **206 282-8466**
Uni-Komp, Inc., 9803 Rocktree, Houston, TX 77040, **713 937-7782**
UNIFY, Inc., 4000 Kruse Way Place, Lake Oswego, OR 97034, **503 635 6265**
Uniware Corp. Inc., 502B Vandell Way., Campbell, CA 95008, **408 371-6710**
Via Computer, Inc., 7177 Construction Court, San Diego, CA 92121, **619 224-5544**
Wallaby Software Corp., 465 N. Franklin Turnpike, Ramsey, NJ 07446, **201 934-9333**
WC Computer Services, 2228 S. El Camino Real, #319, San Mateo, CA 94403, **415 342-1402** □

Disk #10: ispell

This disk contains an interactive spelling checker for ASCII files that is very easy to use. It can be run from the UNIX shell or it can be added to the Global Menu.

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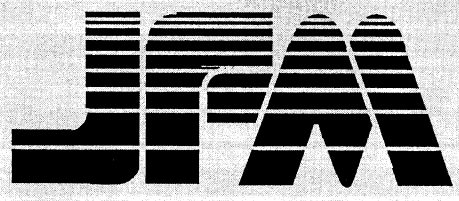

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The Newsletter for Users of Fortune/SCI Computers February 1988/Volume 5 Number 2

News From Fortune/SCI

In recent months, we haven't printed very much news about Fortune/SCI. Mostly this has been because of the transition of Fortune Systems to Fortune/SCI. As most of our readers know, SCI acquired Fortune Systems last year. It was said that this would produce a great infusion of cash and stability into the company, and that the product line and the customer base would greatly benefit.

In terms of outward performance, little has changed in the past six months. Fortune has yet to make a splash in the marketplace—the new products and new attitude have not manifested themselves to the end users. However, many things have changed internally. One of the reasons that we have printed less information about the workings of the company of late is that most of our contacts that we had established within Fortune over the last four or five years are no longer with the company. The impact of a more conservative, larger, Southern company on the smaller, freewheeling, Californian company has been felt in the halls of Fortune/SCI. The shifts in attitude made it difficult for many of the existing employees to stay. Although we will miss the people who've left, we don't view this necessarily as negative, but rather as the change, and hopefully growth, that will come from SCI's involvement.

There have been other tangible effects also. When SCI acquired Fortune, Robert Davis was the President of the company. He quickly took on the role of transitional head of state. Decisions that needed to be made were put on hold. After he departed, Daniel Younkins took over as manager, but apparently still deferred to the future. As of March 2, 1988, it was announced that Bob Bozeman had accepted the position of Vice President of SCI/Fortune Systems in Belmont. The press release from Fortune/SCI goes on to say:

Bozeman will have responsibility for all elements of the Fortune business in-

See **/news**, Page 2.

Fortune/SCI's Software Vendor Catalog: Part 2

In this issue, we are continuing the index of software available for the Fortune/SCI hardware. This index is a summary of the information contained in a catalog published by Fortune called **The Software Directory**. This catalog contains software written by Fortune Systems, as well as by Independent Software Vendors (ISV).

We suggest that before buying your software you find someone who can help you with support (preferably local) and that you talk to some other users who have the package. The vendors may be able to provide you with a reference.

The catalog is organized alphabetically by application.

The product listings are sorted by application and within categories

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Subscriptions cost $48 for one year within the U.S.A. For foreign subscriptions, add $27 each year for added postage and handling costs.

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News, cont'd from page 1

cluding Engineering, Marketing, and Sales and reporting to Ron Borelli, Senior Vice President Computer Division. According to Borelli, "Bob Bozeman brings both the technical and marketing experience we have been searching for to build and grow the SCI/Fortune business."

Bozeman was formerly Vice President of Systems Programming for Wang, a former Vice President of Marketing for Altos and more recently was President and CEO of Natural Language, Inc.

We were a little surprised to hear of Bozeman's appointment because we didn't realize Younkins was a temporary manager. There are several positive parts of this announcement though. First of all, in addition to being the head of the Fortune Business, Bozeman is a Vice President at SCI. This puts him in a stronger position to run the company without having to defer to Huntsville. The appointment at SCI hopefully will also insure his tenure at Fortune for some time. We don't know if it was someone's slip at a typewriter, but it also seemed interesting that the press release talked about SCI/Fortune rather than Fortune/SCI as we had come to know the company.

Once again Fortune feels that they are on the right track and are ready to come out swinging. It is rumored that there are a number of hardware and software products about to be announced. Since most of us have been with the company longer than the company has been with itself, we find a slight degree of wariness having heard all of this before. However, we are hopeful. It would appear that Fortune/SCI or SCI/Fortune now has the organization and backing to be the success that we all wish they would be.

As we develop new contacts and get more information from the company, we will continue to keep you informed.

Once again Fortune feels that they are on the right track and are ready to come out swinging. It is rumored that there are a number of hardware and software products about to be announced.

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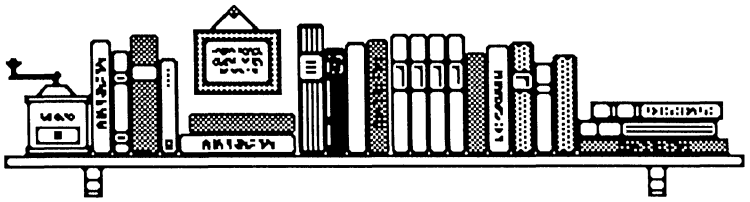
The BASIC Advisor



The BASIC Advisor is brought to us from Ray Wannall. Ray is President of BaSiC Software Corporation which is located in Baltimore, Maryland. This month Ray presents the annual listing of BASIC support companies

I realize it is already February and the novelty of the new year is beginning to wear thin as we begin the drudgery of spending the elaborate budgets we carefully outlined last month. But for various reasons, your Basic Advisor is celebrating the arrival of 1988 belatedly, and this month we feature our **Third Annual IDOL/BAS Support Company Listing**.

Gee, 1988. It was way back in December of 1985 that a reader wrote, "*You suggested in a previous article that I use a support service for BAS. Where do I find one?*" We responded with a plea to "Anyone Out There Listening" to tell us who, what, where and how much they were. We learned that, indeed, there were some very good places to be found for support. In retrospect I guess this is not surprising. In 1985 Fortune's 32:16 was one of the few microcomputers on the market for small businesses, possibly the only good one. Fortune Systems, having introduced SMC's IDOL/BAS to the masses, was also helping break new ground in a lesser known area which has since become a trend: the romancing of VAR's and software developers to help move computers. Fortune had managed to convince SMC and many of these third party firms that fully integrated systems comprised of $5000 accounting modules were no longer kosher. This was no small accomplishment.

Now Fortune Systems is SCI/Fortune, SMC is Concept Omega, and we are shoveling data, 32 bits at a time, with 386 microprocessors. Many major hardware manufacturers arrive at computer shows flaunting a covey of their VAR's, the new stars of the industry, and older Fortune Systems are still being supported.

Most of the companies responding to our call for IDOL/BAS support this year tell us that although they still provide service for Fortune users, they have moved away from Fortune. (Are competing manufacturers making them offers they can't refuse?) Still, it is comforting to see that, in spite of everything, our 1988 listing is our largest ever. Happy shopping!

COMPUTER OUTFITTERS, Tuscon, AZ. Contact Frank Anderson at (602) 795-4722. $60.00 per hour.

SUPERIOR COMPUTER SYSTEMS, St. Louis, MO. Contact Steve Rosenfeld at (314) 731-3636. Support provided for end users and dealers on a subscription basis, but $80.00 per hour provided for first time callers.

BARRY D. DUNN & ASSOCIATES, Modesto CA. Contact Barry Dunn or Dave Newaj at (209) 576-0414. $40.00 per hour: with modem billed in 15 minute increments.

LOGIC ONE, Wheaton, IL. Contact Mary Courtney at (312) 690-8208. $60.00 per hour.

HANDS COMPUTER SYSTEMS, Wheaton, IL. Contact Russell Hands at (312) 510-0088. $45.00 per hour with a $10.00 minimum.

TIM WAGNER (Independent), Columbus, OH. Contact Tim Wagner at (614) 291-3337. $50.00 per hour billed in 15 minute blocks.

JOHN K. HARRIS & ASSOCIATES, Houston, TX. Contact John Harris or Kathy Bixley at (713) 667-1781. Contract billing and Time and Material billing at $65.00 per hour.

MEGABYTE RESOURCES, LTD., United Kingdom. Contact Paul Barty at 04-03-50997. Billing on a consulting basis only.

BERKLEIGH COMPUTER SYSTEMS, Kutztown, PA. Contact Peter Keegan at (215) 683-3525. $50.00 per hour.

SIERRA SYSTEMS, San Mateo, CA. Contact Tom Carroll or Linda Gustafson at (415) 345-2583. $65.00 per hour with quarterly and yearly contracts available.

INTERNATIONAL SYSTEMS CORPORATION, Milwaukee, WI. Contact Dave Meister at (414) 327-5809. $95.00 per hour plus expenses, billed in 15 minute blocks.

COMPUTER SERVICES OF ATLANTA, GA, Atlanta, GA. Contact Ken Palmer or Mike Smith at (404) 447-4151. $55.00 per hour billed in 6 minute blocks, 15 minute minimum. Quarterly contract rates available.

GILL & PIETTE, INC., Washington, DC. Contact Richard Gill at (202) 546-6170. $50.00 to $100.00 per hour with flat fee arrangements under some circumstances.

DAY PROM COMPUTER, INC., Dayton, OH. Contact Support Division at (513) 299-8555. $75.00 per hour, 7% discount if prepaid. Phone support billed in 10 minute increments, on site billed hourly, add $1.00 per mile, one way, expenses.

UNI-KOMP, Houston, TX. Contact Dave Kloes or June Robinson at (713) 937-7782. $50.00 per hour.

BEACON SYSTEMS, Palm Springs, CA. Contact Mike Eisen at (619) 323-4555. $65.00 per hour on-line service, $50.00 per hour depot programming service.

SOFTWARE ENGINEERING ASSOCIATES, Anderson, SC. Contact Mike Westbrook at (803) 225 0101. $50 per hour, contracts offered.

BaSIC SOFTWARE CORPORATION, Baltimore, MD. Contact Lynne Crawford at (301) 448-9460. $60.00 per hour billed in fifteen minute blocks.

There they are, pretty much in the order received. As always, we have provided billing rates as we understood them at the time the call was taken. You should call the individual companies to verify their prices. And be sure to contact several if you need support. Most of the companies provide a wide variety of products and services in addition to Fortune IDOL/BAS support.

We'll see you in March with more on 6.5.12 BASIC, some obscure technical tips and more. In the meantime, keep those calls and letters flowing! □

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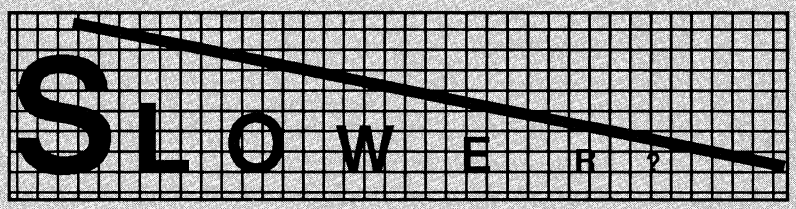
1. Is your computer getting 

It's time to upgrade to more powerful internal components.

2. Are you confused as to which components need upgrading?

It's time to talk to Tri-Tech, we'll cut through the jargon.

3. Could Hard Disk storage be effecting the performance of your Fortune? Perhaps your system has had several years of use. ***Invest*** and use your Fortune *many* more years with a ***Hard Disk & Power Supply Upgrade***!!!

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/u/help

Answers to Users' Questions

Gentlemen:

*I just received **Editor's Choice** and am having some problems with it. When I load it, with S5, and it comes to the **uncompress**, it will not uncompress and gives me a message "uncompress: too big". I have looked in the Compressors delight printouts (I have that diskette) and can not find this message.*

*I have also tried the **compress** on **Compressors Delight** and it shows the same message. The **compress** on UNIX Stat disk is evidently different and it works just fine. I have not used the **compress** before except on the one on **UNIX Stat**.*

My computer seems to be running ok, at this time I can not detect any other problems. I have a 32:16 with 512K memory, 30 meg hard disk, 1.7 multi user operating system.

*I have also had problems with the **Hack** game found on both **UNIX Tools** and **Compressors Delight**.*

Thanks for the help.

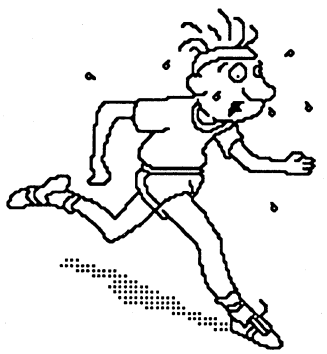
Gary Taylor
Tayco Limited

Mr. Taylor's letter is not the first we have received regarding a problem with **compress**. The problem is that we have included a new version of **compress** that is faster and more efficient than the earlier version. Unfortunately, in order to run it, it's necessary to have a maximum process size of *at least* 512. Typically Fortune 32:16's were set with a maximum process size of 256 or 384. However, many software packages require a larger process size. The easiest way to change the process size is to log in as root, then type **uconf <RETURN>**. The configuration menu will appear. Use the **<RETURN>** key to move from one option to the next until you get to the **Max Process Size** line. Enter **512** there and press **<RETURN>** again. If you want to make this a permanent change, store the changes in the EAROM following the instructions at the bottom of the menu. Then CANCEL/DEL out of the menu and reboot your system. If you want to make a temporary change, and the option to reboot using screen data exists, make that choice (this is different with differing versions of FOR:PRO).

Changing the Maximum Process size probably won't have any negative impact on your system performance. However, once you have installed and uncompressed the software you desire, you can reduce the process size to what it was.

By the way, although many Fortunes were originally sold with 512K memory, most things work better with more memory. This is particularly true if you have more than one user on the system. Fortunately, memory boards no longer cost $1,000. Shop around and you should be able to upgrade for a minimal expense.

This solution should fix the problem with **Hack** as well. There is one other problem that some people have had with **Hack** that involves the termcap file. If you get an error message about **Hack** needs newline, or something like that, you'll have to edit your termcap file. On the line that begins **:nl=5**, you should change it so that it looks like this: **:nl=5^J:nd=^I:** Note that in this case, the up-carets are actually SHIFT 6's, not control characters. Before editing the termcap file, you should make a backup copy of it first. If you are unsure of how to do all of this, call us and we'll talk you through it.



Don't try to run from your computer problems. Let us help!

Question: *We recently upgraded to a new version of an accounting package sold by a third-party software company. We installed it without a problem on our 32:16 and everything seemed great until we tried to use the numeric keypad. Each time we pressed a number, we got garbage. We have spoken to the vendor and they say that the Fortune keyboard is unusual and there's nothing they can do to fix the problem. They mentioned something about termcap and hard-wired before they hung up. Do you have any ideas? P.S. If it's a hardware problem, how come I don't have problems with other programs, like Fortune:Word?*

Answer: You're software vendor is correct—the Fortune keyboard is unusual in that it transmits special codes for the numeric keypad that are different than the numbers above the keyboard. If you're ever in a UNIX shell, you will see something like **^A1** when you press the number 1 key on the keypad. You may also notice funny things when you press any of the function keys or the **EXECUTE** or **RETURN** key on the keypad.

Fortune hard-wired all of the keys other than the normal numbers and letters to output **^A-character-RETURN** (**^A** is a CONTROL-A). Function key **F1** puts out **^AaRETURN**, **F2** puts out **^AbRETURN**, etc. The number keys put out **^A#RETURN** where the **#** is replaced with by the number pressed. Unless a software package knows this and knows how to deal with it, you get problems. There are some solutions which we'll get to in a moment.

The **/etc/termcap** file contains information about lots of different kinds of terminals, including the Fortune terminals. However, this information does NOT "reprogram" the keyboard to output different characters—rather it tells the program what to expect. An analogy might be a car that has an autopilot. It can travel many different routes when it's equipped with a map of the route. In this comparison, the different routes are equivalent to different terminals, each with its own navigational requirements. The termcap file provides the maps—it doesn't change the route that the car must travel, but it tells it when to make the turns. In the same way the termcap file doesn't change the reality of the terminal hardware, but it provides the information to deal with it. The software program must be flexible enough to handle information from the termcap file. For instance, Fortune:Word knows about the numeric keypad, and has no problem with it. However, Fortune:Word doesn't look at the termcap file, so it doesn't work with any other terminals. Multiplan does use termcap, so a great variety of terminals work with it. Business BASIC can use other terminals besides the Fortune terminals, but has its own "termcap" information that is stored in the program and altered in the IPL files.

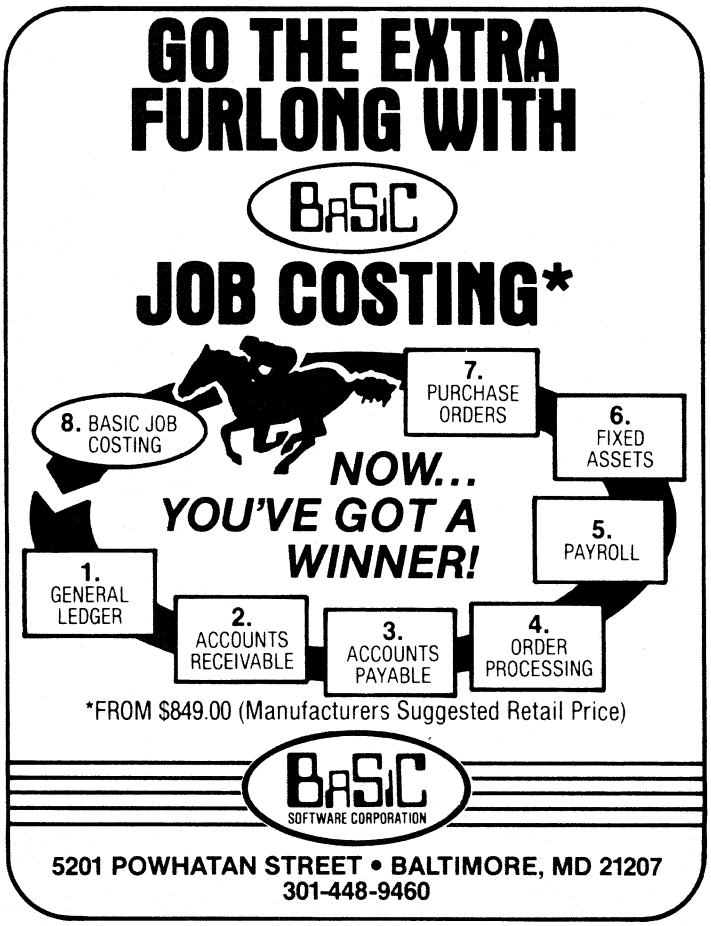
So how can you overcome your problem with your accounting software? It turns out that the easiest solution is to use the later model Fortune Terminal with the brightness and contrast controls on the front. The newer low-profile keyboard that is available for this terminal has a **NUM LOCK** key that changes the output of the keypad from the normal **^A** sequence to just plain numbers. Once the **NUM LOCK** key is pressed, you shouldn't have any problems.

The next solution might be for the software vendor to alter their software to accommodate the Fortune Terminal. Many software programs use the termcap file to learn about the Fortune keyboard. If the program can use the termcap file, it may be possible to modify the termcap entry to include the information about Fortune's keyboard.

Finally, it is possible to write a "filter" that strips the CONTROL-A and RETURN off of the keypad and just pass the number itself. This is a less than perfect solution, but it has proved useful at times. We distribute a filter like this on the D.C. Grab Bag disk. It's called **ktr.out** and it's in the **/usr/bin** directory on the floppy. To use it, you need to modify a shell script called **ksc**. Find the string **sc** and change it to the name of the program that you wish to use.

When you're done with the program, you'll have to hit an extra RETURN to get back to the menu or shell prompt. You'll get a message something like "Broken Pipe". That doesn't cause any damage because in this case the pipe was defunct anyway.

We hope this helps.□



System Administration: Part 9

No Longer Requires a Degree in UNIX Wizardry

This series is a must for all owners and users of the Fortune computer. Dave is President of UNI-KOMP which is located in Houston, Texas. He provides UNIX seminars, software for the Fortune Computer, and is president of the Houston UNIX User's Group. He contributes independently to ***/u/fortune news.***

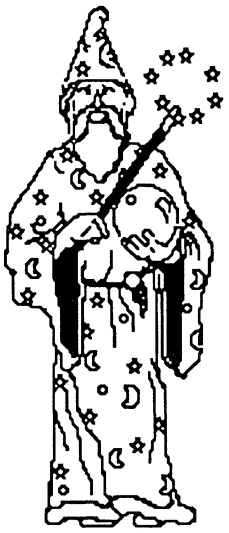
by Dave Kloes

In the last issue, we discussed the concept of "mounting" and "unmounting" a floppy disk. Remember that we pointed out that unlike DOS, a floppy disk must be mounted using the "mount" command and unmounted using the "umount" command. In order to mount a floppy disk it must first be formatted and have a filesystem made on it. You could do this using the Global Menu; by running the "/m/sysutil/bin/fmtflop" command; or by issuing the "format" and "mkfs" commands (see last issue). If we then execute the following command, the floppy disk becomes another directory on our system where we can do everything we do in any other directory on the system.

Referring to Figure 1 on the following page, the hard disk pictured has three partitions (hd00, hd01, hd02). The **/dev/hd00** partition contains the boot/configuration information for the hard disk. The **/dev/hd01** is the swap area for the hard disk. The **/dev/hd02** partition is the actual storage area on our hard disk and is mounted automatically when our system is started. The mount command that was run to do this was:

```
mount /dev/hd02 /
```

Here the data area of our disk (**/dev/hd02**) is mounted as the "root" (/) directory. As a sidenote, For:Pro will not let you unmount the root directory. This makes sense since the root directory contains the system files and commands. If it were allowed to be unmounted, we would not be able to access any For:Pro files or commands.



This month Dave talks about the structure of the floppy disk drive as well as touching upon the major partitions on the average hard disk.

Conversely, the floppy disk has two partitions (fd00, fd02). The **/dev/fd00** partition contains the boot/configuration information for the floppy disk. The **/dev/fd02** partition is the actual storage area for the floppy disk. Notice that there is no swap partition on a floppy disk. If the floppy disk is mounted in the /f directory, anything done in that directory is done on the floppy disk. This would include things such as copying, creating or removing files.

The number and size of partitions on the hard disk are defined when the disk is initially cold booted. It will normally default to the above configuration. On most Unix based systems, you have the ability to create more than one data partition on the first hard disk drive. It would look like Figure 2.

Setting up our first hard disk on the Fortune System like this is not recommended and is beyond the scope of these articles. The Fortune System

Figure 1.

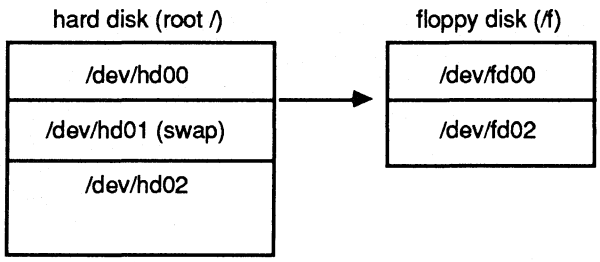


Figure 2.

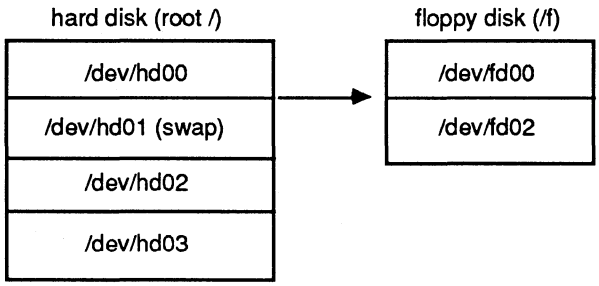


Figure 3.

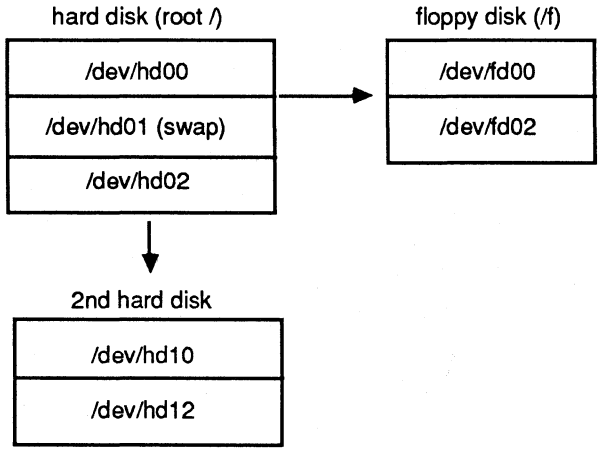
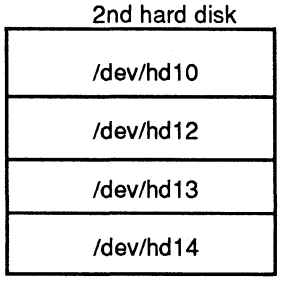


Figure 4.



Cold Boot set is designed to install with the one data partition on the first drive. We can, however, set up our second and subsequent hard disk drives with more than one data partition and we will discuss this later. There are some major advantages and disadvantages to multiple data partitions.

The major advantage to multiple data partitions is that we can put our most frequently used files on the partition closest to the center of the disk. This reduces the distance that the disk head has to travel to access this data and would *increase* the speed of our system.

The major disadvantage to multiple data partitions is that the size of the partition is specified as a certain number of blocks. Therefore, if we run out of space on that partition, we must increase the size of that partition and reduce the size of some other partition to make room for the data. This is a time consuming process and means we would have to backup our data, reformat the drive, redefine our disk partition sizes and then put our data back on.

The partitions on our floppy disk default to the above configuration when we use any of the methods we showed you for formatting and making a filesystem on it. Remember that whether we use the Fortune Global Menu system or the "/m/sysutil/bin/fmtflop" command, the format command that is run is:

```
/etc/format -c /etc/disk/
flop.conf /dev/rfd00
```

This command defaults the configuration of the floppy disk drive to the parameters in the /etc/disk/flop.conf file. The "-c" options reads a configuration block from the flop.conf file. The "mkfs" command that is run is:

```
/etc/mkfs -a /dev/fd02
```

This "-a" option says to use the information in the configuration block we just created to create the filesystem. This creates the default partition sizes and number of inodes (see August 1987 issue of **/u/fortune** for a discussion of inodes) on the floppy disk. There are other forms of the "format" and "mkfs" command where these parameters can be changed. Again, we will not discuss these in this series of articles. There are rare cases where additional partitions or inodes may be required on a floppy disk. For example, if you have a large number of small files that are to be copied to a diskette, you might want to increase the number of default inodes allocated to the floppy disk partition.

One configuration scenario that is more likely and that we will discuss is the addition of one or more hard disks to your system. To do this on a Fortune system, you must have an "expansion cabinet" that will house the additional disks. The expansion cabinet is designed with a power supply that handles the additional power requirements of more hard disk drives. You must also have the WD-06 hard disk controller to handle the cabling requirements of the additional drives. In this configuration, our system with one additional hard disk drive might look like Figure 3.

Notice that the device names for the second hard disk are **/dev/hd10** for the boot/configuration area and **/dev/hd12** for the data area. When you purchase an expansion cabinet, you also get the expansion disk software that can be used to configure a second or third hard disk. Note that an expansion can house two additional devices. It can have either two additional hard disks or one additional hard disk and a tape streamer (Fortune 32:16). We must also note here that other options are now available depending on which Fortune System you have. If the expansion disk software is used, the second hard disk will be configured with the partitions above. Note that there is no swap area on a second or subsequent hard disk drive. All of the swapping is done on the first hard disk.

The "swap" area for the first hard disk is defined when the system is initially cold booted. In the normal course of system operation, work that is being done by users is done in main memory. When all of the available memory has been used, For:Pro starts "swapping" some of the work to the swap space that has been defined on the hard disk. Normally when this occurs, you will notice that the system will run slower because work done on the hard disk takes longer than work done in main memory. In most cases, the larger the swap area, the faster the system will run. However, the larger the swap area the less room we have on our hard disk for the data area. Usually, when we add an additional hard disk on our system, we increase the swap area on the first disk since we now have more room to store our data on the second disk and data area available on our first hard disk becomes less of an issue.

There are cases where we might want more than one partition on our second hard disk. We can basically set up as many partitions (or filesystems) on our second hard disk as we need. For example, a second hard disk with three data partitions might look like Figure 4.

There are two ways that we can configure multiple partitions on the second hard disk. One way would be to change the "/etc/disktab" file and the other would be to change the disk's configuration block after it has been installed. We will discuss both of these methods in the next issue.□

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Product Announcements from Fortune/SCI

We have received the following product announcements recently.

3270 BSC Emulator Version 3.0

Description

Fortune/SCI's 3270 BSC Emulator is a combination of software and hardware allowing a Fortune system to perform the functions of an IBM 3270 Information Display System. Typically, a 3270 BSC system communicates with an IBM or IBM-compatible host computer. The 3270 BSC system sends the host one or more messages containing inquiry requests of update information. An application on the host processes the messages, performs the requested functions and sends the output back to the 3270 BSC system.

When running the 3270 BSC Emulator, the IBM-compatible host "sees" the Fortune system as a 3270 BSC system. The host and the emulator exchange messages and data in the same manner as an IBM or IBM-compatible host and an IBM 3270 BSC system. The emulator reads messages from Fortune system terminals and sends them to the host. The emulator also receives messages from the host and writes them to Fortune terminals or printers as specified.

A 3270 BSC system consists of a controller or cluster control unit, a terminal display, and a printer. With the 3270 BSC Emulator, the Fortune system emulates the following 3270 components:

IBM 3274 Cluster control unit (models 21C, 31C, 41C, 51C, and 61C)
IBM 3278 model 2 and the IBM 3279 model 2B terminals
IBM 3287 printer

Prerequisites

To install and use the 3270 BSC Emulator, the following hardware and software products are required:

The Intelligent Communications Controller, revision 7 or later
For:Pro, version 1.8 or later

Performance and Limitations

This is a completely new version of the 3270 BSC Emulator. As a result, the user interface is substantially different from previous releases.

To communicate with the host, the 3270 BSC Emulator uses Binary Synchronous protocol for half duplex transmission over half or full duplex communication lines. The lines are typically privately owned, though switched lines may be used, with speeds from 1200 to 9600 baud.

The 3270 BSC Emulator software supports up to 32 Logical Units (LU's), and is limited by the availability of the Fortune system's physical connectivity. This software does not support either IBM 3279 Color Display Emulation or SDLC.

Upgrade Version

With this release, Fortune/SCI is offering an upgrade version of this product at a reduced cost for existing 3270 BSC users. To qualify for the upgrade price, the customer must return the Fortune-labeled 3270 BSC Emulator master diskettes for the earlier version when ordering the upgrade product. Customers will be charged full price for the product until the old diskettes are received. Contact your dealer for more information.

3270 SNA Emulator Version 3.0

Description

Fortune/SCI's latest version of the 3270 SNA Emulator (3.0) is now available for volume shipments for the Fortune Formula and Fortune 32:16. This latest release is compatible with and includes

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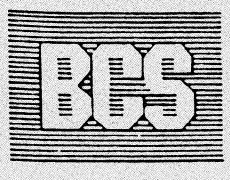

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enhancements to the 1.0 release for the Fortune 32:16. This is the first release of the 3270 SNA Emulator on the Formula.

Please refer to the reprint of the 3270 SNA Emulator Product Announcement for more details about this product. The File Transfer Capability feature listed as not functional in the product announcement is now fully implemented in this release.

Upgrade Version

With this release, Fortune/SCI is offering an upgrade version of this product at a reduced cost for existing 3270 SNA users. To qualify for the reduced cost, the customer must return the Fortune-labeled 3270 SNA master diskettes for the earlier version when ordering the upgrade product. Customers will be charged full price for the product until the old diskettes are received.

Prerequisites

The following hardware and software products are required to install and use the 3270 SNA product:

The Intelligent Communications Controller, revision 7 or later
FOR:PRO, version 1.8 or later

For more information, please contact your dealer.

Other Product Announcements

We recently received a letter from Mr. Karl Robert Pecha and Georg John who are involved with Fortune sales in Austria. Their letter described a product that they have developed which might be useful to some of our readers. The following are excerpts from their letter:

We are the Sales-, Support-, and Distribution Organisation responsible for selling and distributing Fortune Systems products within the country of Austria ... and are herewith providing information about a very valuable software tool.

The product is called STARCOM and is currently running on both the Fortune 32:16 and Fortune Formula 8000 and is offered to all Fortune Systems Sales- and Support Organisations, having the need for the following:

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Hardware Support Information

Hardware and Software requirements for this excellent tool are either a Fortune 32:16 SX-70-T machine with FOR:PRO 1.1.1.1 and Fortune:Word 2.x or 3.x, 1 MB Memory and INFORMIX-SQL RUNTIME Version 2.00.005C or a Fortune Formula-8000 with 70MB Hard Disk (FOR:PRO 3.0) and, again, at least 1 MB Memory.

We use the INFORMIX-SQL relational database system version 2.00.05C and INFORMIX-4GL and Fortune:Word GLOSSARY-Programming for developing this product. Although our native language is German, we are prepared to provide training and support in English whenever required.

For more information, contact these gentlemen at:

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Development Utilities Revisited

In this article we revisit **Fortune's Development Utilities**. We have chosen five of the utilities to discuss. For one of the utilities, **split**, we present a C-program that mimics its main behavior. For the other four we program them with the shell language.

To summarize what we discussed in a former article (See Volume 4 Number 10), Fortune's Development Utilities are a collection of UNIX programs that are useful in various situations. In fact, some of the programs may seem trivial at first glance, but most have been found useful enough by the UNIX community to warrant being called a part of UNIX. In other words, these programs have become tools of the trade for many who work with UNIX. As a consequence, you never know when you may need one or another. So, it doesn't hurt to at least be familiar with them and with what they do. In fact, we are presenting C-programs and shellscripts which mimic their major behavior just in case you need them.

Clearing the Screen

The first utility we discuss is one which is both useful and trivially easy to program for your Fortune terminal in the shell. The name of the utility is **clear** and it is used to clear your terminal screen. There are times when a program will leave your terminal screen a mess and it becomes necessary to clear it. From the UNIX prompt you could simply type **clear** and you would have a clear screen again.

The shellscript for clear is presented in Figure 1a. You can see it is one line and is composed simply of an **echo** statement that sends a CONTROL-L (^L) to your screen. The CONTROL-L is the character that clears the Fortune terminal. Thus, our implementation of clear assumes that you are using a Fortune terminal. This is a fairly robust assumption for those of you reading this magazine. However, there are some of you who may use different types of terminals and you would have to research what character(s) clear your screen and substitute them for the CONTROL-L in our script.

Figure 1

Figure 1a. Clear

```
echo -n "^L"
```

Figure 1b. Del

```
rm -i $@
```

Figure 1c. Users

```
who | while read NAME TTY TIME
do
      echo -n "$NAME "
done
echo
```

Figure 2

```
:
IFS="
"               #set IFS to newline
case $# in
1)
        prevline="+_-~" # unlikely text
        time1=1
        match=no

        for line in `cat $1`
        do
                if [ "$line" = "$prevline" ]
                then
                        prevline=$line
                        match=yes
                else
                        if [ "$time1" = "1" ]
                        then
                                time1=2
                                prevline=$line
                        else
                                echo $prevline
                                prevline=$line
                        fi
                        match=no
                fi
        done

        if [ "$match" = "yes" ]
        then
                echo $prevline
        fi
        ;;
*)
        echo "Usage uniq filename."
        ;;
esac
```

Deleting Files With Confirmation

The program called **del** is used to delete or remove files. However, it is designed to ask you whether or not you really want to delete the file in question before it does its job. The **rm** command, on the other hand, works silently. That is, it deletes the file without saying anything. Sometimes this results in files being deleted when you didn't really want them deleted. Thus, the **del** command is a slightly safer way to remove a file than the main **rm** command because it gives you one chance to think about what you are doing before the irreversible happens.

As you can see in Figure 1b, our **del** shellscript is also a one-liner. And not only that, but it is really the **rm** command with the **-i** flag. Most users probably don't know about the **-i** flag for rm and even if they did, they probably wouldn't use it. Thus, setting up a new command called **del** which prompts the user whether they really want to delete the named file or not may just save the day once in a while.

A Concise list of Logged In Users

The program called users in Fortune's Development Utilities simply lists out the login names of everyone currently on the system. Presumably, this concise listing is used as a tool in other shellscripts as the information can be gleaned quite readily from the **who** command.

In our shellscript we indeed use the **who** command to get the information we need. Figure 1c shows the commands for **users**. The output from **users** is simply the name of the people logged on - but they are displayed on one line. The following is what I get when I run users on the system I am using:

```
$ users
root jnl beth mbp
```

Finding Unique Lines in a File

Then next command we discuss is called **uniq**. It is a UNIX command which reads through a file and compares adjacent lines and prints out just one copy of any lines that are repeated. In other words, it prints out *unique* lines. First, for **uniq** to work properly, the input file *must* be sorted. The other thing to note is that the real **uniq** does a few more things than our shellscript. The real **uniq** allows the following options:

-c Each line that is printed is preceded by a count of the number of times that line appears in the file.

-d Causes uniq to print only the lines that are repeated.

-u Causes uniq to print only the lines that are NOT repeated.

Our shellscript, shown in Figure 2, basically reads the file line by line and compares each current line with a copy of the previous line. If the lines are different, the previous line is printed out. If the lines are the same, nothing is done. Some special programming is

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Figure 3.

```
#include <stdio.h>
main(argc, argv)
char *argv[];
{
    int i,nlines;
    FILE *fp;
    nlines = 1000;

    while (-argc && ((*++argv)[0] == '-' || (*argv)[0] == '+'))
    {
        for(i=1;(*argv)[i] != '\0';i++)
                if (!(isdigit((*argv)[i])))
                        usage("Bad number for split.");
        sscanf(*argv,"%d",&nlines);
        if (nlines < 0)
                nlines = nlines * -1;
    }
    fp = stdin;
    do {
        if (argc > 0 && (fp = fopen(*argv, "r")) == NULL) {
            fprintf(stderr, "split: can't open %s\n", *argv);
            argv++;
            continue;
        }
        split(fp,nlines);
        fclose(fp);
        argv++;
    } while (-argc > 0);
}

usage(string)    char string[]; {
    fprintf(stderr, "%s\n",string);
    exit(1);    /* replace X with suitable integer */
}

split(fp,nlines)
FILE *fp;
int nlines;
{
        char c;
        int count=1;
        int fn1,fn2;
        FILE *mkfp(), *outf;
        char line[1024],outfile[100];

        fn1 = 97; fn2 = 97;
        outf = mkfp(fn1,fn2);

        while  ((fgets(line,1024,fp)) != NULL) {
                if (count++ <= nlines)
                        fprintf(outf,"%s",line);
                else {
                        count = 2;
                        fclose(outf);
                        if (fn2 < 122)
                                fn2++;
                        else {
                                if (fn1 > 122) {
                                        printf("Too many files\n");
                                        exit(1);
                                }
                                else {
                                        fn2=97;
                                        fn1++;
                                }
                        }
                        outf = mkfp(fn1,fn2);
                        fprintf(outf,"%s",line);
                }
        }
}

FILE *mkfp(f1,f2)
int f1, f2;
{
        char fn[100];
        FILE *fp;

        sprintf(fn,"x%c%c",f1,f2);
        if ((fp = fopen(fn,"w")) == NULL) {
                printf("can't open %s\n", fn);
                exit(1);
        }
        return(fp);
}
```

required on the first pass through the **for loop** so that the previous line (which was initialized to something unlikely to be found in a file) is not printed out.

This script is very basic in nature but does find adjacent lines that are the same. One caveat is in order. Since this is programmed in the shell it is much slower than the real **uniq**.

Splitting Large Files into Smaller Ones

The last utility we discuss is called **split** and is used to split large files into smaller ones. There are times when it may be useful. For example, some programs may only be able to handle files of a certain size. If you had a file that was too big, then you would be stuck. A concrete example is editing with **vi**. Since **vi** holds everything in memory it is limited in the size of files it can edit. If you wanted to edit a truly large file, then you would need to split it up into smaller portions, edit those portions, and then put the individual portions back together again. **Split** is useful for this kind of splitting.

If we type:

```
$ split -500 bigfile
```

then **split** would begin making files each with 500 lines until it had completely split up bigfile. If bigfile had 1700 lines in it, then we would be left with four files, the first three with 500 lines in them and the fourth with the balance, or 200 lines. The files would be called xaa, xab, xac, and xad.

We present a C-program which mimics this behavior of the split program in Figure 3.

Conclusion

In this article we discussed five of Fortune's Development Utilities and provided either shellscripts or C-programs which mimic their behavior. The five programs were **clear, del, users, uniq and split.** We hope these will be added to your UNIX toolbox. □

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Continued from page 1

alphabetically by title. Each listing includes the name of the product, the name of the ISV, the price if available, the language the product is written in and finally whether the source code is available.

Following the software listings, there is a list of addresses and phone numbers for the ISV's.

We are publishing this index as a service. We regret any inadvertent errors or omissions in this list. We expect to revise and update this list on a regular basis. Your dealer should have more information on any of the products contained in this list.

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TetraPlan Business Accounting
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Computer Information Services of New Mexico, 12800 Lomas Blvd, NE, Suite D, Albuquerque, NM 87112, **505 292-4555**

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March 1988/Volume 5 Number 3

Timemaker
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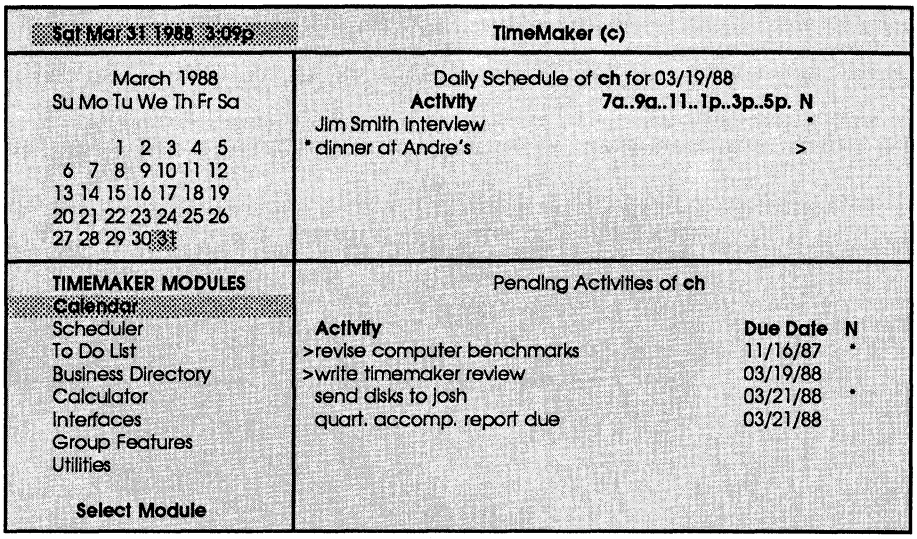

Learn more about SCI/ Fortune's personal desktop organizer... Page 17.

PLUS MORE...

- ❑ /u/help - Incremental Backups
- ❑ Hard Disk Partitioning
- ❑ How To Transfer Fortune:Word Files For Use With Other Word Processors
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Subscriptions cost $48 for one year within the U.S.A. For foreign subscriptions, add $27 each year for added postage and handling costs.

Back issues are offered at:

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From The Editors...

Way To Go SCI/Fortune!

As you know, we are pro-SCI/Fortune. We have been using Fortune equipment for over five years and have been writing about if for almost as long. We think the hardware and software are very hard to beat.

As you also know, the management of these products, in the past, has had a bumpy history. We, as well as many of you, have ridden out the hard times and have been rewarded by seeing a steady improvement in the performance of the hardware and software.

What we wish to discuss, in this editorial, are the very real efforts SCI/Fortune is putting into providing their dealers with significant supports and tools.

In the November, 1987 issue of **/u/fortune *news***, we printed an interview we had with Mr. Ron Borelli who is Vice President of SCI's Computer Division. In that interview, Mr. Borelli mentioned that SCI would be bolstering their Fortune dealers by providing training in sales. We are happy to say that this promise is being fulfilled.

We had the opportunity to sit in on one of the sales seminars and to watch SCI/Fortune employees in action. It was gratifying to us to see the resources that SCI/Fortune is turning towards their dealer base. And if it was gratifying to us, we are sure that it is turning some heads among SCI/Fortune dealers.

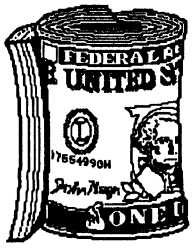
In the seminar, Frank Watts, the acting Director of Marketing for SCI/Fortune, spent the day discussing successful marketing techniques. These techniques are designed to aid SCI/Fortune dealers be successful at selling computers to specially targeted vertical markets. We felt the seminar was very successful - and noting the reaction of SCI/Fortune dealers present, the enthusiasm was unanimous.

However, resources provided by SCI/Fortune do not end at the seminar. District Sales Managers (in this case Mr. Tom Weinert assisted by Ms. Lisa French) follow-up the seminar by spending days at a time with each dealer in the dealer's office offering further personalized training. It is clear from these efforts that SCI/Fortune is serious about building a credible and knowledgeable network of dealers.

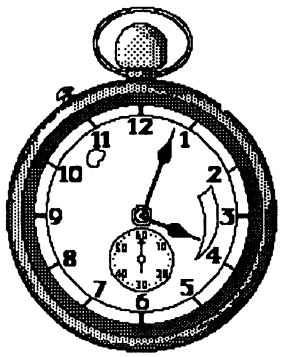
We applaud these efforts by SCI/Fortune. Basically, we feel that such a network of dealers will directly and indirectly benefit the owners and users of SCI/Fortune equipment. A network of truly knowledgeable and successful dealers will yield definite dividends for end users in useful products offered and timely service and maintenance. In turn, a successful dealer channel will give SCI/Fortune the firm base upon which to launch new hardware and software products. These products will eventually end up in the offices of SCI/Fortune owners and should increase productivity.

Again, we applaud SCI/Fortune's efforts in promoting programs that will enhance their dealer network and we wish them resounding success.

We are, however, hoping that this is just the first step in firming up the relationship between SCI/Fortune and you, the end user. We look forward to programs that will promote and improve this very important and, until now, overlooked relationship.



Money and Time Savers



This month we discuss a money and time saver related to **Fortune:Word**. We were called recently by one of our subscribers who wanted to transfer quite a few Fortune:Word documents to their DOS machine for use in another word processor. They knew that there was a program, called **WPstrip**, that would strip out all the Fortune:Word codes and basically leave an ASCII file. They would transfer this file to their DOS machine and read it with the other word processor.

Using WPstrip on one file manually is not a big deal. But, if you have *hundreds* of files that you want to transfer, then stripping them manually would take many hours and cost you alot of money. That's the bad news. The good news is that since this process is fairly straightforward, we can use the shell language to reduce this task to something much more manageable (and less costly, and less time-consuming).

We developed a little shellscript for them that does the job and we thought we would share it with you. The script, called **stripall**, is shown in Figure 1. We also attack the problem of copying just your Fortune:Word files from some directory to your floppy. This shellscript, called **fwcp**, is listed in Figure 2.

Stripall

The first thing we require is that you copy all the files you want to strip to your floppy. Once you have a floppy full of Fortune:Word files, including the **.dc** and **.fr** files, you simply have to type **stripall** to a Unix prompt.

How Stripall Works

For this program to work, we assume you have copied all the Fortune:Word files that you wish to strip to your diskette drive. We also assume that the associated **.dc** and **.fr** files are there as well. (See the **fwcp** command below for how to do this.)

Our task is to select all the non **.dc** and non **.fr** files from the floppy and WPstrip them. We do this through the magic of the **find** command. The **find** command is listed on Line 3 of the shell script. It looks on the floppy drive and lists all the files (`-type f`) that do not end in either a **.dc** or a **.fr** (`\! \( -name "*.dc" -o -name "*.fr" \)`).

The **for** shell loop feeds this list from the **find** command to the commands between the **do** (Line 4) and the **done** (Line 11). We then check to see if the file that the **find** command has found is a Fortune:Word file by checking to see if there is an associated **.fr** file on the floppy. We could have checked to see if there was a **.dc** - either way would have worked. If it is a Fortune:Word

Figure 1.

```
 1  :
 3  for file in `find /f \! \( -name "*.dc" -o -name "*.fr" \) -type f -print`
 4  do
 5     if [ -f $file.fr ]
 6     then
 7        echo "working on $file"
 8        /bin/WPstrip $file > $file.st
 9        rm $file.fr $file.dc $file
10     fi
11  done
```

file, then Lines 7 through 9 are executed. Line 7 is just an informational statement to let us know which file we are processing.

The stripping is done in Line 8. We call the **WPstrip** program and send the output to a file that ends in **.st**. Next, in Line 9, we delete the Fortune:Word files. That way, when the program is over, only the **.st** files are left on the floppy.

The fwcp Command

The **stripall** command does the appropriate stripping once all the Fortune:Word files are on a floppy. However, getting all the files to the floppy could be just as tedious as doing the stripping. Therefore, we present a short shellscript in Figure 2 which does this job.

In order to use this program, you should be in the directory that has the Fortune:Word files that you want to copy. You also need to mount a disk in the floppy drive. Once this is done, you simply type **fwcp** to the Unix prompt.

The way the program works is to generate a list of all the **.dc** files in your directory. This is done in Line 3 of Figure 2 (`ls -1 *.dc` - note that the `-1` is a one and not an ell). Once we have this list we process the filenames one at a time. We use the **basename** program (see Line 5) to get at the root name. Basename does two things to its arguments. First, it strips off any preceding directory information. For example, if I type `basename /u/mbp/save/reports.dat`, then basename returns just reports.dat. Second, basename chops off any suffixes that we specify. If I type `basename/u/mbp/save/reports.dat .dat`, then basename returns `reports` - it chopped off the suffix `.dat` also.

Figure 2

```
1  :

3  for file in `ls -1 *.dc`
4  do
5      ROOT=`basename $file .dc`
6      cp -V $ROOT $file $ROOT.fr /f
7  done
```

Thus, if we have a file called **smith.dc**, we call everything before the period, i.e., smith, the root. Once we have the root, it is a simple matter of copying the root along with the associated **.dc** and **.fr** files to the floppy (see Line 6). The **-V** in Line 6 tells the **cp** program to list the file names that it is copying on your terminal so that you can monitor its progress.

Conclusion

In this month's Money and Time Saver column we presented two shellscripts. One, **stripall**, was designed to run the WPstrip program on many Fortune:Word programs all at once. This saved someone the trouble of typing hundreds of WPstrip commands one at a time on their terminal. The second program, **fwcp**, was designed to copy all the Fortune:Word programs in your directory to a floppy. □

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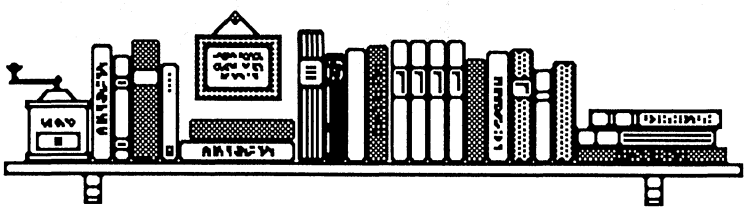

The BASIC Advisor is brought to us from Ray Wannall. Ray is President of BaSiC Software Corporation which is located in Baltimore, Maryland.

Question: *Sometimes I get an Error 0 when I am trying to change the terminal date and time. The program is CUTSA2, line 7115 which simply says "SAVE". I get around the error by going to the next line and running. I don't seem to be doing any damage. What gives?*

Question: *Ever since we installed Thoroughbred BASIC 6.5.12 my programming efforts have been interrupted by other operators with error zeros. I must be the culprit, because the problem is always resolved when I log off the system. I'm beginning to feel this BASIC doesn't like me personally.*

Question: *I am enclosing a software bulletin from Fortune Systems Product Support which may be of interest to your readers. It has to do with strange error zeros in 6.5.12 Thoroughbred BASIC. I think you will find potential problems in IDOL programs CUTSA2 (line 7115), CUTFI2 (line 1055) as well as in several applications programs (lines 9980 and following).*

Answer: We all have been bothered by the **Error 0** in 6.5.12. It started becoming a hot topic last summer. By now, most Fortune dealers know about Fortune Systems Product Support Software Bulletin number 48 (what did they do, re-number these things?), released on November 11, 1987. For the benefit of those still frustrated, I will recap.

When one user edits an existing program and then enters SAVE 'CR', another user attempting to load or run the same program will experience an Error 0 after a 15 second time out. Error 0 means the file (or program) is in use by someone else. The Error 0 will remain until the user who executed the SAVE logs out of BASIC. The error occurs regardless of whether the SAVE was executed by a program line or from the command mode.

Fortune says the condition may be resolved by turning off the Open File Caching option. This may slow the system, but not significantly. (There's always a price to pay, isn't there?)

It seems there is an undocumented 7th field in the CNF line of the IPL file which sets the open file caching option (is anyone surprised?) which you may edit. Even though you probably see only six fields, you may add a "1" in what would be the 7th field of the CNF (first) line of each IPL file in order to turn off open file caching.

If you are leery about slowing your system, you may instruct programmers executing a SAVE to log out of BASIC (or RELEASE from the console) when other users will be accessing the file. The software bulletin does not address the Error 0 caused by programs containing the SAVE command, so let's take a look at the ones mentioned.

The coding in lines 9980 and following in the BAS programs is a hold over from earlier versions of the BASIC. The SAVE command is used to write the most current version of your program back to the disk. Rookie programmers learn quickly to SAVE programs frequently as they are being written or edited. (One brown out sends 800 lines of code, and sometimes hours of work, directly into the Twilight Zone.) Saving a program is relatively easy today: just type SAVE and press the carriage return. Back in the dark ages we had to type SAVE "(program name)" and 'CR'. If you accidently saved the program under the wrong name, you probably destroyed another program of monumental importance. So some programmer who was either irritated by the extra key strokes or completely unaware of the name of the program he was working on came up with an ingenious solution. He decided to use the unused lines available beyond line 9900 in each program to have the program save itself. The coding usually looked something like this:

```
9980 LIST 9990
9990 SAVE "CPRRB1"
9999 END
```

Each time he wanted to SAVE the program, he typed GOTO 9980 'CR' and RUN 'CR'. This was so easy it became a standard tool in the development of BAS and other programs.

Even though the code is no longer useful, it has been

carried along during all of the translations over the years. I have never seen a case where the SAVE command in line 9980 or 9990 of a BAS program has been executed by the program itself. You should never receive the Error 0 as a result of running a BAS application program.

Unfortunately, IDOL is a different animal. We have two programs mentioned which use the SAVE command in the coding. The first is in the selector program, CUTSA2:

```
7115 SAVE
```

This statement is executed when you change your terminal date and time, and I cannot for the life of me understand why it is necessary to SAVE the program at this point. (If anyone out there has a clue, please fill me in.) I can see no harm in killing the line if you are able (LOAD "CUTSA2" 'CR', 7115 'CR', SAVE 'CR'). If CUTSA2 is one of those "protected" programs on your Fortune, you will have to live with the Error 0 at line 7115. In this case, you will have to type GOTO 7116 'CR' and RUN 'CR' whenever you encounter the error. I have been using this solution for about eight months now with no ill effects.

The second IDOL program is CUTFI2 which is a part of the report generator. It features the following line:

```
1055 SAVE M7$
```

I cannot imagine this line ever causing the Error 0. The variable M7$ is linked directly to a Terminal Number. It will be "CUTFTn", where "Tn" represents the designation of the terminal running the program (T0, T1, T7, etc.). Unless two operators manage to miraculously enter BASIC under the same terminal number, no two terminals will ever be accessing the same file with this program.

Question: *What is the status on the availability of newer levels of Thoroughbred BASIC for the Fortune? Also, will we be able to get IDOL-II anytime soon?*

Answer: According to a Concept Omega press release issued in February, 1987, the Thoroughbred Software Division had signed an agreement with Fortune Systems Corporation under which Thoroughbred BASIC, Level 7.2, was to be ported to both the 32:16 and the Formula . Prices were to be in the range of $895.00 to $2495.00, depending upon the number of users. Very shortly thereafter we were given Thoroughbred BASIC 6.5.12, and SCI entered the Fortune picture. Nothing more was ever said of the agreement.

I called Mr. Keith Wimberely, the newly appointed director of corporate communications for Concept Omega, who was unaware of the press release. He told me, however, that Thoroughbred BASIC release 7.3.2 was now available for the Formula. There is yet no release of the language available for the 32:16 beyond 6.5.12. As for IDOL-II and Fourth Generation Language business applications, none have been ported to date. I was advised to contact Fortune for further information.

A source at SCI/Fortune (whom I have reason to believe is reliable) verified the Thoroughbred BASIC 7.3.2 on the Formula and 6.5.12 on the 32:16. Everything else is on hold *until such time as a demand* for other Thoroughbred products is found to exist. This is where you and I come in. It seems that certain key people at Fortune keep an eyeball on /u/fortune news, so how about it? Is anyone besides myself interested in IDOL-II, Fourth Generation Language or upgraded business applications for the 32:16? Give me a call at (301) 448-9460 or write to me at 5201 Powhatan Street, Baltimore, MD 21207 with your positive or negative feelings. I imagine our readers as well as SCI/Fortune would be very interested in what we all think.

By the way, while I had Fortune on the line I asked if there was any truth to the rumor going around that the 32:16 was being discontinued. I was told that no such plans were in the offing at this time. I hope we can all sleep better now. □

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System Administration: Part 11

No Longer Requres a Degree in UNIX Wizardry

This series is a must for all owners and users of the Fortune computer. Dave is President of UNI-KOMP which is located in Houston, Texas. He provides UNIX seminars, software for the Fortune Computer, and is president of the Houston UNIX User's Group. He contributes independently to ***/u/fortune news.***

by Dave Kloes

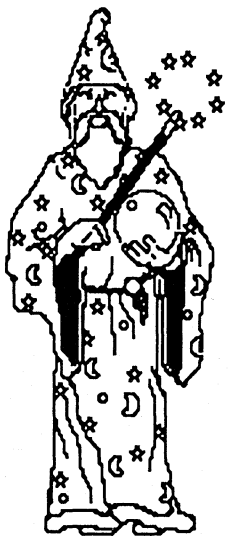
In the last issue, we ended by saying that you could create multiple partitions (or filesystems) on your second hard disk drive. Two reasons we might want to do this would be:

CAUTION: BE SURE TO BACKUP ANY DATA ON THE HARD DISK YOU ARE GOING TO PARTITION BEFORE YOU BEGIN THIS PROCEDURE.

1) To put our most frequently accessed data files and programs closest to the center of the disk to improve performance.

2) To store our programs and data in logical partitions for ease of administration - particularly for backup purposes. We may have two partitions on our second hard disk, for example, but only use one of them on a daily basis. So, instead of backing up the entire disk every day, we only backup the partition that has been used. We might also put programs on one partition and data on the other. The program partition would only have to be backed up when program changes are made and the data partition would be backed up daily.

We mentioned two ways that we could partition the second hard disk. The first (and preferred) method would involve the following eight steps:



This month Dave discusses the creation of additional partitions on disk drives. These can be useful for segmenting your data in logical ways.

1. Login in as "root". Make sure all users are logged off the system by issuing the "who" command.

2. If you issue the "mount" command itself with no arguments, it will tell you which partitions have been mounted and what directories they are mounted to. Make sure the partition that you are going to work on is unmounted by issuing the "umount" command.

3. If the second disk has already been formatted and has a filesystem on it, proceed to step 4 (one way to check this is to issue the "rdconf /dev/hd10" command. If you get an error message, then the drive has not been configured. If the configuration information is returned to you, then you can proceed to step 4). Otherwise, we must tell the system what kind of drive it is and format it. Let's assume we have added a 45MB CDC drive to our system. If we look at the /etc/disktab table, we will see that the "code" for this drive is "C45". We would then enter the command:

```
# dskselect C45
```

When this command is run, we will get

a list of all the drive types that are defined in the **/etc/disktab** file. Since our drive is a C45, we would select the number corresponding to this drive type. After the selection is made, you will be returned to the For:Pro prompt. The result of this process is that a file will be created in the current directory that will be named for the disk type you selected (in this case a file named "C45" will be created in the current directory).

Now we will use this file to create the configuration block on our second hard disk by issuing the following command:

```
# mkconf -i C45 /dev/hd10
```

Note that you will use your drive type instead of the "C45" we used in this command line. Proceed to step 4.

4. If your second drive has already been configured and you did not do the "mkconf" command in step 3, then make your configuration block by issuing the following command:

```
# mkconf -i /dev/hd10 /dev/
hd10
```

Whether you issued this **mkconf** command or the version in step 3, you will now be prompted to enter the configuration information in the form of "?" prompts. Depress the return key until you are prompted for the data relating to the number and size of partitions. In particular, we are looking for the prompt:

```
Number of partitions =   ?
```

Enter the number of partitions you want plus 1 for the configuration block (partition 0 is for your configuration block). In this case, let's say we want two data partitions on our second drive. For this prompt, we would then enter the number "3". The next questions we will be asked is for the starting block number and length for each of the partitions. This requires a few calculations and a piece of information. First, we must know what the capacity of the drive is in blocks. There are three ways to determine this number:

a. One of the prompts that we passed above before we got to the "Number of partitions"
b. Compute the number of blocks as:

Sectors/track x Number of heads x Number of cylinders

This is the formula that the system used to compute the "Capacity in blocks" in "a" above. For the "C45" drive, the following numbers are used:

Sectors/track = 17
Number of heads = 6
Number of cylinders = 925

17 x 6 x 925 = 94350 blocks

c. Look at your current configuration block for the second drive (using the "rdconf" command) or look at the **/etc/disktab** file. If your drive is not listed in the **/etc/disktab** table, this information can be obtained from the documentation that came with your drive or from the manufacturer.

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The questions that ask about the size and starting blocks of the partitions look something like this:

```
Number of partitions = 3?
   Size of partition 0 = 204?
   Starting block = 0?
   Read only (no)?
   Size of partition 1 = 7140?
   Starting block = 204?
   Read only (no)?
   Size of partition 2 = 87006?
   Starting block = 7344?
   Read only (no)?
```

This is the "default" partitioning that would be taken if we depressed the "return" key to take the defaults like we did for the other questions. Notice that we said the total number of blocks for this drive should be 94350. We can verify this by adding up the "Size of partition" numbers:

204 + 7140 + 87006 = 94350

This default information is intended for the first drive on the system since it allocates 204 blocks to the configuration partition, 7140 blocks for the swap area and 87006 blocks for the data partition. What we wanted to have on our second hard disk, however, was two equal data partitions. To achieve this, we would change the defaults as follows (the bold numbers are the ones we changed):

```
Number of partitions = 3?
Size of partition 0 = 204?
Starting block = 0?
Read only (no)?
Size of partition 1 = 7140? 47073
Starting block = 204?
Read only (no)?
Size of partition 2 = 87006?
47073
Starting block = 7344? 47277
Read only (no)?
```

In this example, we left the configuration partition alone so that it would be set like the default (as a general rule, do not change the configuration partition). Then we changed the size of partition 1 to 47073 which is half of the remaining space and the size of partition 2 to 47073 which is the other half. Our calculation looked something like this:

```
94350 total blocks
 -204 configuration partition
94146 remaining blocks

94146 / 2   = 47073 per partition
```

From this, we changed the size of partition 1 and 2 to 47073. We also changed the starting block of partition 2 to 47277 (204 + 47073). Notice that again we can add the size of the three partitions to check that our total is 94350:

240 + 47073 + 47073 = 94350

The main reasons for partitioning your disk include improving disk performance and to ease administration chores such as backups.

5. Once we have set the size and starting block number for each of the partitions, we can complete the making of the configuration block. Again, we will depress the "return" key to select the defaults until we reach the prompt that says:

```
Spare 0 (block 3) = diag?
```

In response to this prompt, we will enter "done" and the For:Pro prompt will return.

6. Now that the configuration block has been made, we can check it by entering:

```
rdconf /dev/hd10
```

In this example, we have created the following logical partitions on our second drive: **/dev/hd10**, **/dev/hd11**, and **/dev/hd12**. (See Figure 1.)

If the drive has not been formatted, we would format it at this point by issuing the following commands:

```
# rdconf -b /dev/rhd10 > conf
# format -c conf /dev/rhd10
```

The first command reads the configuration information and puts it into a file called "conf". The second command takes the information from the 'conf" file and formats the drive accordingly.

CAUTION: BE EXTREMELY CAREFUL THAT YOU USE THE CORRECT DEVICE NAME. IF, FOR EXAMPLE, YOU ENTER "/dev/rhd00" INSTEAD OF "/dev/rhd10", YOU WILL FORMAT YOUR FIRST HARD DISK DRIVE.

7. The next step would be to make a filesystem on each of the two data partitions. We would do this by issuing the following two commands:

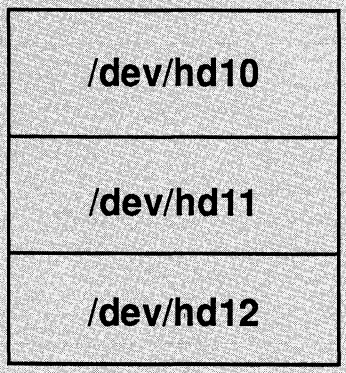
```
# mkfs -a /dev/hd11
# mkfs -a /dev/hd12
```

The first command makes the filesystem on the first data partition and the second command makes the filesystem on the second data partition.

8. We can now use the two partitions we have created. In order to use them, we must first decide which directories we are going to associate with each. Let's assume that for this example, that we are going to create two new directories:

Figure 1.

Schematic representation of a partitioned disk



```
# cd /
# mkdir y z
# mount /dev/hd11 /y
# mount /dev/hd12 /z
```

Here we have made two new directories - "y" and "z". We then tell For:Pro which partitions are logically associated with which directories by issuing the "mount" command. In this case, any work done in the "y" directory will be stored in the first data partition (/dev/hd11) and any work done in the "z" directory will be stored in the second data partition (**/dev/hd12**).

Here is one more common example. Let's say that we want to put the **/u** directory in the first data partition. Remember that the **/u** directory is where Multiplan and Fortune:Word files are stored in the user directories. Here is the sequence of commands that would be used to do this:

```
# cd /
```
change to the root directory

```
# mv u u.save
```
rename u directory to u.save

```
# mkdir u
```
make new empty u directory

```
# chmod 777 u
```
change all permissions to rwx

```
# mount /dev/hd11 /u
```
mount new empty u directory

```
# cd /u.save
```
change to old u directory

```
# cp -outr * /u
```
copy all data to new u

Verify that the files/directories copied OK, then:

```
# rm -r /u.save
```
remove old u directory

All of the data that used to be in the "u" directory on the first hard disk is now on the first partition of the second hard disk.

7. We have two more steps before our procedure is complete. Each data partition on each hard disk must have a "lost+found" directory. Whenever a "fsck" is done on a partition of a hard disk, there are times when For:Pro finds problems with files and directories that do not pass the check. When this happens, For:Pro stores these files in the "lost+found" directory on that partition *IF IT EXISTS.* We can then go in and try to resolve the problems. If the **lost+found** directory does not exist, the files or directories that do not pass the check are removed - never to be seen again. Here is how we would make the lost+found directory for our two new partitions:

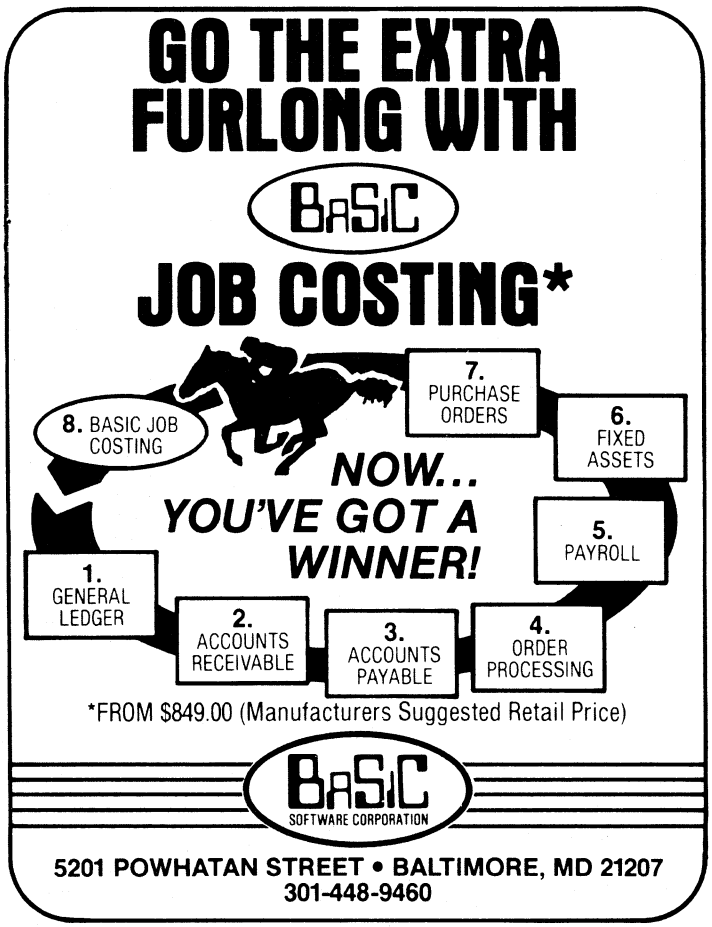
```
# mklost+found /y
# mklost+found /z
```

8. The last step is to change the "fstab" file (see previous issue for a discussion of this file and its format) to automatically mount the two new partitions when the system is started. We would edit this file to include the following two lines for our example:

```
/dev/hd11:/y:rw:1:2
/dev/hd12:/z:rw:1:2
```

The second method for configuring partitions on your second or third hard disk would be to modify the **/etc/disktab** entry for that disk type to show the partition information. If you have a disk that is not defined in the **/etc/disktab** file, you could also edit the file to create an entry for your disk. *We feel that discussion of these two items are beyond the scope of this series of articles.*

This should be enough to keep you busy till next time. We do caution you about doing this procedure on an expansion disk that you are currently using. Obviously, in this case, you should back up your data before you do the re-partitioning. Next time, we will have a full discussion of the commands in For:Pro that you can use for backup. This will be a slight diversion from our discussion of the **/etc** directory. □



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/u/help

Answers to Users' Questions

Gentlemen:

I've been meaning to write for months and finally broke my arm today to get down to it.

I have two incremental backup programs in my system. One or both came off your disks. A friend installed these programs. For months they worked with some degree of success...

After awhile, the program failed. It may have been that my data base went over the one disk length, but nonetheless, failure has been abject.

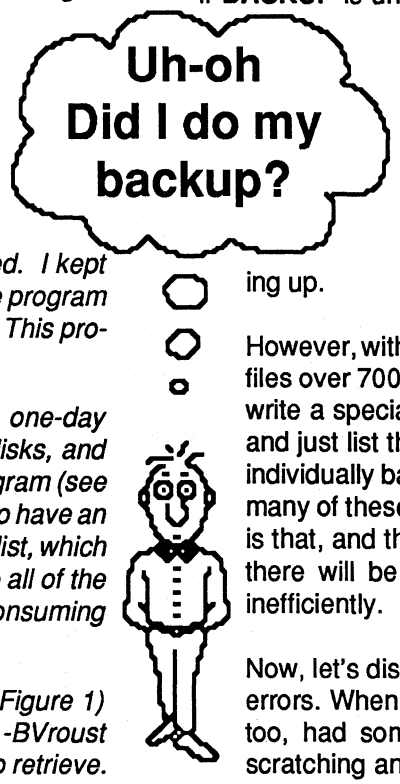
I fiddled through the system and found another backup program...This, likewise, failed. I kept fiddling with the system until I came up with the program number 1 I've sent to you (shown in Figure 1). This program ceases to work above thirteen days.

What I do now, is to use the program on a one-day increment, a seven-day increment, rotating disks, and then at the end of the month, I run another program (see Figure 2 below). This program does not seem to have an incremental limitation. I then use the directory list, which I cull from my program number 2 and back up all of the accessed directories. This backup is time consuming and disk consuming.

Do you know any way to make my program (Figure 1) work for over thirteen days? I like the cp -BVroust backup. It is terrific when I'm looking for a file to retrieve. It is indexed.

Sincerely,

M. Arthur Auslander



Answer: Backing up your valuable data is very important.

Why did the **BACKUP** program stop working? (By the way, BACKUP can be found on our D.C. Grab Bag Diskette.) Without more information, we must assume that the reason you stated in your letter is the correct one. That is, you tried to copy a file to your floppy that was larger than 790 blocks. If **BACKUP** is unmodified, it can not handle this problem. One potential fix is to modify the **find** command in the **BACKUP** shellscript. For example, you could add a **-size** field onto the command. An example of this would be **-size -700** which would limit the size of the file the command would find to less than 700 blocks. This would prevent the program from completely blowing up.

However, with this solution, your data base (or any other files over 700 blocks) will not be backed up. You could write a special shellscript to look through your system and just list the files over 700 blocks. Then you could individually back these up. Presumably, there won't be many of these files. Another problem with this solution is that, and the **BACKUP** command in general, is that there will be times when you will use your floppies inefficiently.

Now, let's discuss Figure 1 and what might be causing errors. When we reproduced this command exactly, we, too, had some errors. After a few minutes of head scratching and puzzling over the error messages, one apparent problem was located. The trouble lies with the **-exec {}** portion of the command. The **-exec** on the **find** command is usually followed by a Unix command of some sort. For example, if you wanted to list all the files found by the find command, you would have **-exec ls {}**. By leaving out a command between the **-exec** and the **{}**, you in essence instructed the **find** command to actually try and run all the files found. When we did this, we got many errors.

What you want to do is to modify the command to look like part b of Figure 1. This will correctly find the files and feed this list to the **cp** command. We have tested this and have had no problem. It seems to handle any number of days.

There is one limitation that will cause a problem with this

Figure 1

1a.

```
cp -Broust /dev/fd02 790 `find / -mtime -28 \
-type f -exec {} \;`
```

1b.

```
cp -Broust /dev/fd02 790 `find / -mtime -28 \
-type f -print \;`
```

command. The limitation has to do with the Bourne shell and the number of arguments that you can pass to a command. Since we are using the **find** command to, in essence, create a long list of files that need to be backed up, then if that list gets too long, the **cp** command will bomb out.

We present a very simple shellscript in Figure 3, which we call **bu**, that will perform an incremental backup of any directory on your system (including the whole system). This shellscript suffers from the limitation cited in the previous paragraph. However, it is *faster* than other alternatives and this program probably can be used for *daily* and *weekly* backups without any problem. We present another incremental backup program which does not suffer from this limitation in Figure 4. Wewill explain it in a moment.

Our shellscipt, listed in Figure 3, asks you two questions. First, it needs to know what directory you want to backup. If you want to back up the entire system, then you should enter a /. Second, it asks you for the number of days for the incremental period. For example, if you want to do a weekly backup, then respond with a 7. In the **Backup Strategy** section below, we explain how to use this program to keep a good backup of your system.

The shellscript in Figure 4, which we call **bu2**, tackles the problem in a different way. In order to overcome the file number limitation of the shell, we use the **find** command to find all the files that need to be backed up (See Line 23). This **find** command, though, links these files to a special directory that we create (see Line 19 and 20). (Note: In Line 14, in the sequence `-1F`, the 1 is a one and not an ell). After the **find** command is done, we have effectively created a directory on our computer that contains all the files that need to be backed up. However, since we have simply linked copies of the files to this directory, we have not used very much space on our hard disk. You will need only several hundred blocks of free space to back up 20 megabytes.

A Backup Strategy

There are many different strategies for backing up, and we can't possibly touch on them all - we'll save that for a future article. (**Editor's Note:** Dave Kloes in the *System Administration Series* will discuss this topic next month). However, you could use our shellscripts along with a relatively widely used method to ensure the safety of your files. (By the way, this discussion assumes that you are using your floppy drive to back files up. For those of you who have tape-streamers, other methods may be appropriate.)

First, you must backup up the entire system. We suggest that you do this on either a Friday or a Sunday. You can do this relatively easily with the **cp** command as in:

```
cp -Broust /dev/fd02 770 /
```

After you have the full backup, which should be kept in some other location than your computer to completely ensure its safety, you can follow this schedule:

On Monday run our **bu** command with a 3 day increment, which will cover the weekend. On Tuesday, Wednesday, and Thursday, run **bu** with a 1 day increment. These are your daily backup diskettes. You should have a set for Monday, Tuesday, Wednesday, and Thursday. During the week, you will not overwrite them. The next week (after you perform the weekly backup on Friday) you will reuse them.

On three Friday's in four, you will perform a weekly backup. That is, run the **bu** program with an increment of 7. You will thus have a set of floppies for each of these three weeks. You will only reuse them after you have performed a monthly backup.

On the Fourth Friday, you will perform a monthly backup. Use the **bu2** program with an increment of 28. You will eventually end up with 12 of these monthly backup floppies.

Figure 2

```
 1  :
 2  # backup program
 3  prompt "Enter Starting Directory: "
 4  read DIR
 5  prompt "Enter Days Old: "
 6  read TIME
 7  echo "Backing up all files in $DIR that are \
    younger than $TIME days."

 9  /bin/cp -BVroust /dev/fd02 790 '/usr/bin/find \
    $DIR -mtime -$TIME -type f -print'
```

Figure 3

```
 1  :
 2  # backup program:links files to a directory
 3  case $# in
 4   2)
 5     DIR=$1
 6     TIME=$2;;
 7   *)
 8     prompt "Enter Directory to be Backed Up: "
 9     read DIR
10     prompt "Enter Days Old: "
11     read TIME;;
12  esac
13  echo "Backing up all files in $DIR that are \
     younger than $TIME days."
14  for TDIR in `ls -1F $DIR | grep "/"`
15  do
16  FDIR="$FDIR $TDIR"
17  done
18  cd $DIR
19  SCRDIR=$DIR/00
20  mkdir $SCRDIR
21  echo "Files are going into $SCRDIR"
22  cp -lptous * $SCRDIR
23  /usr/bin/find $FDIR -mtime -$TIME -type f  \
    -exec cp -lptous {} $SCRDIR \;
24  /usr/bin/find $SCRDIR -mtime +$TIME -type f \
    -exec rm -rf {} \;
25  cp -Broust /dev/fd02 790 $SCRDIR
26  echo
27  echo "Everything is backed up. Removing \
    Scratch Directory..."
28  rm -rf $SCRDIR
29  echo
30  echo "^GAll done."
```

Since there are 52 weeks in the year, there will be 13 sets of 4 weeks. On the thirteenth Friday of the year, you would perform a *full* backup.

There are other methods of scheduling backups. One quick simplification would be to perform full backups *quarterly* rather than yearly. This would reduce the number of "monthly" backups you would need to keep around. The reduction would be from 12 to 3.

Another simplification might depend on how often your system changes. For example, you may not change files or add files so often that daily backups are needed. If this is the case, then a schedule of weekly, monthly and quarterly backups will probably do.

A final simplification would be to backup sections of the computer separately. For example, the /u directory (where all the user accounts are kept) is the one that probably changes the most frequently. You could back this directory up according to the schedule outlined above while backing up the rest of the computer less frequently.

Conclusion

Backups are important! This cannot be overemphasized. However, we realize that if backing up your computer is too tedious, then it will tend to be put off. The method and programs suggested here should be easy to do. If you have any questions, or suggestions, please call or write. ☐

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News About SCI/Fortune

Last Qtr Results Revealed

SCI Systems recently announced their financial statement for the quarter ending 12/27/87, which is their 2nd quarter of 1988. Revenues for that quarter were a record $173.2 million, as compared with 134.6 million for the previous year. Earnings per share where $.19, as contrasted with $.17 last year. Profit margins were reduced by the startup expense of a number of new surface mount technology assembly lines, integration expense of several new facilities, manufacturing inefficiencies caused by severe component shortages, and reduction of other income as investment cash was utilized to fund the sharply higher work-in-process inventory levels result from component shortages.

During the last quarter, SCI completed the purchase of the operating assets of Magnetic Peripherals, Inc.,s Rapid City, South Dakota plant. MPI is a joint venture of Control Data and Honywell which manufactures magnetic disk drives. The company has the capability to produce both pin-in-hole and surface mount technology electronic assemblies as well.

During the first two quarters of this fiscal year, SCI has more than doubled its plant space, adding an additional 1.2 million square feet to its existing 1.1 million square feet. This includes new facilities in Alabama, Colorado, New York and South Dakota. Additional expansions are planned for Alabama, California, New England, Scotland, and an Asian country.

From Tigera there was this news:

We know Tigera has nothing to do with SCI/Fortune anymore, but we have a feeling many of our readers may still have some interest in the financial health of that company.

It was announced on March 21 that three directors of Tigera Group Inc., who are part of an investment group which holds a 19.5 percentage stake in Tigera, said they may seek a greater role in the company.

In a filing with the SEC, the directors said that possible actions could include an acquisition of Tigera by acquiring additional securities or by "other means", the formation of a slate of nominees for election to Tigera's board at the next annual meeting, and a restructuring of the company's board.

The group, which lists Citicorp Capital Investors Ltd. as one of its members, holds a combined 3,947,000 Tigera common shares. According to the filing, the group holds its Tigera stock for investment purposes and to participate in the management of Tigera. ☐

Timemaker

A Personal Calendar/Desktop Organizer

by
Carlton Haywood
Assoc. Dir. for Technical Services,
Interstate Commission on the Potomac River Basin
President, Capital Area Fortune Users Group

Personal calendar/desktop organizer programs (Sidekick, etc) have become popular on PC type computers for moving various personal desktop tools into the computer and integrating them with word processing and other software. Keeping up with the MS-DOS world, SCI/Fortune last year added TIMEMAKER to its line of office automation products. TIMEMAKER combines the functions of several items that sit on everyone's desk: a calendar/scheduler, a calculator, a rolodex, and myriad scraps of paper that are 'notes to myself'. In this review, I'll discuss how you can use TIMEMAKER and offer some opinions on how well it succeeds at improving personal productivity.

The **Timemaker** User's Guide is brief, only 79 pages long including appendices, easy to read and understand. I particularly appreciate the appendices which include explanations of error messages, examples of using **Timemaker**, and specifications for **Timemaker** data files. Would that SCI/Fortune included such appendices with all their products. The User's Guide is the best source from which to learn how to use **Timemaker** so I won't repeat its contents here. Being quite familiar with the resistance people have, sometimes including myself, to reading software manuals, I repeat: *read the User's Guide*, its easy, quick, and comprehensive. Having made that point, I hope, here's a brief description of what's in **Timemaker**.

One enters **Timemaker** from the Global Menu via selection **E3**, or from the UNIX operating system by the command **tmi**. There are four major blocks in the screen display (see Figure 1 on page 19) which contain different 'modules'. In addition, at the top of the screen, always displayed, is the current date and time. On first entering the program, the displayed modules are, clockwise from upper left: the monthly Calendar, the Daily Schedule, the To Do List, and the Command Menu. The Calendar is always on display and indicates, in reverse video, which day's Daily Schedule has been selected. As options are selected from the Command Menu, that block changes to display new options and the lower right block is replaced either with instructions or with a new **Timemaker** module. In **Timemaker** parlance, the lower right block is the 'work' block. Other modules include: two calculator programs, a business directory (rolodex), interfaces to other software, utilities for **Timemaker** maintenance, and access to other user's daily schedules (group features).

Anyone familiar with Fortune:Word will find **Timemaker** intuitively easy because the logic of working through menus is the same. The cursor is moved through menus using the cursor keys, the <RETURN> key, or by entering the first letters of an option. The <EXECUTE> key is used to select options, and the <CANCEL> key is used to 'back out of' functions and menus and to exit from **Timemaker**. There is no special HELP command but, at nearly every step, a brief instruction statement is displayed that I find to be perfectly adequate. There is a lot of information on display at any one time. However, with the exception of the Business Directory, displays are made quite readable by intelligent use of bold, reverse video, and blinking reverse video, to highlight important information and indicate what the current activity is.

THE CALENDAR MODULE

The Calendar module is used to change the date for which a Daily Schedule is displayed. There are two ways to get to the change date function: by selecting **Calendar** on the **TIMEMAKER MODULES** menu; or by pressing the function key **<f16>**. Then a new date is entered (a prompt appears in the Scheduler block) by typing the numbers, or by pressing these special keys to move the reverse video date indicator around the monthly calendar:

<UP> and <DOWN>
change the date one week,

<LEFT> and <RIGHT>
change the date by one day,

<NEXT SCRN>
advances the date one month,

<PREV SCRN>
moves the date back one month.

Press <EXECUTE> after selecting the new date and the Calendar block

changes as appropriate and a new Daily Schedule is displayed.

The quick function, **<f16>**, key and the cursor keys are the best way to change the date. It takes only a few minutes of adding appointments to your Daily Schedule to realize the advantages of fewer keystrokes and less 'thinking' about what you are doing than the alternative. (A lesson: I used **Timemaker** for some weeks before actually reading the User's Guide to learn about the Quick Function keys. All that time I was grousing about how inconvenient it was to change the Calendar Date!).

THE SCHEDULER MODULE

The Scheduler module is used to set up your daily schedule for any date. Initially the displayed schedule is for today's date, but any other date can be selected using the Change Date functions. The schedule includes (see fig. 1), for each listed activity, a 24 character description field, a time span line, and indicators to show which items are private or have a notepad attached. Private appointments, (asterisk (*) before the description field), will not be displayed if another user views your schedule. The Notepad, (asterisk after the time span field), is an 8 line by 52 character window into which may be written any notes about the appointment. Left and right arrows (<>) are used to indicate appointments that extend outside the 7 a.m. to 6 p.m. range of the time scale.

Scheduler module functions include: Enter, Modify, Delete, Copy, and Find, Notepad editor, View Time, and Print Reports. Performing any of these functions is quite easy. When any function is selected, as always by moving the cursor in the menu block to the desired function and pressing <EXECUTE>, instructions appear in the lower right block to guide you. A clever feature of the Scheduler Module is that you can use the cursor keys to change dates for activities just as in the Change Date Function. You can also type the dates, but the cursor keys make date selection especially easy. The View Time Function converts the time span lines into a list of begin and end times. The **<f13>** key is a quick (and better) way to View Times. The Print Reports function allows one to print, to printer or to file, a weekly or monthly schedule.

THE TO DO LIST MODULE

The To Do List module replaces, for me, myriad scraps of paper littering my desk with reminders of what I should be doing and by when. Each entry in the to Do List consists of a description, due date, optional project name, and an optional notepad. To Do List functions are much like those for the Daily Scheduler, including: enter, modify, delete, complete, and find, activity; notepad editor; print a list; view a list of completed activities; and view list for only a specified project. The list is sorted by due date, with earliest dates displayed first. Activities past due, or due today are indicated by (>). Executing any of these functions is easy, directed by instructions that appear on the display. Completed activities are removed from the current list and stored with a completion date for later review.

BUSINESS DIRECTORY

The Business Directory is a rolodex type list of names, phone numbers, and addresses. Functions, similar to the To Do and Scheduler modules, include: enter, modify, delete, and find, listing; notepad editor; view by company; and print a list. This module stands in marked contrast to the rest of **Timemaker** for being poorly designed, even dysfunctional! Each address is required to fit into a specified set of very short fields. Two lines only are allowed for the address, one 14 characters long, the other 29 characters. Very few addresses on my rolodex will fit into the Business Directory's limits. The module is made worse by a confusing and hard to read display. There are twelve fields, each with a label and an underscore. The block is so crowded its hard to tell the information from the labels, and fields are jammed side by side rather than appearing as one expects to read an address on a card or letterhead. Fortunately, there is an alternative: the **rolo** program, available from /u/fortune, is everything the Business Directory is not, with easy to read displays, and flexible enough to handle addresses of any size or form. Read on to see how rolo can be integrated into your **Timemaker**.

CALCULATOR MODULE

Included here are a 'Desktop Calculator' and an 'Adding Machine'. The Desktop Calculator is fine for what it does, but I wish it could do more. The calculator is easy to use and functionality much improved by using the keypad's COMMA, DASH, and DEC TAB, keys for '*', '-', and '/', operations (the keypad icon in the display shows this). However, the calculator has just one memory and +, -, *, and /, is all it can do. If this is all you need then perhaps you'll find it more useful than I do. But when I use a calculator, almost always it is to solve more complicated operations than this one is capable of. Gary Perlman's **calc** program, part of UNIXSTAT (available from /u/fortune) is almost as easy to use and is a much more powerful, programmable, calculator. (**Editor's Note**: Next month we will discuss calculator programs that are available fo SCI/Fortune equipment.)

Adding columns of numbers is very easy with the Adding Machine. Sums and averages are automatically computed, and a tape can be printed as a permanent record of the transactions. I'm not a bookkeeper, so I don't have much use for this function, but you might.

INTERFACES

This module is simply a menu to run other programs on the computer. Fortune:Word, Multiplan, the Global Menu, and the UNIX Shell, are built in interfaces. A very nice feature of **Timemaker** is that it allows you to add your own programs to the Interfaces module, in effect designing your own office automation integrated software package. Some examples: you could make up for Business Directory and Calculator module shortcomings by

adding **rolo** and **calc** to this module; or you could add your own custom software.

Implicit in having the Interfaces module is a suggestion for how **Timemaker** should be used. That is, that **Timemaker** could be the program that runs automatically when a user logs in. In other words, **Timemaker** is the base program for an account. From here the user gets to Fortune:Word, Multiplan, etc. via Interfaces. **Timemaker** includes a special utility, and instructions in the User's Guide, for modifying an account so that **Timemaker** is executed automatically on login.

An alternative way to use **Timemaker**, a way that I prefer, is with SCI/Fortune's WINDOWS software. Consider the way that my account is set up: after login, I execute the WINDOWS program with my preset window definitions. These include **Timemaker**, Fortune:Word, and two UNIX shells. Throughout the day, as I work in word processing or programming in UNIX, my daily schedule and ToDo list are always just a keystroke away in the **Timemaker** window and can be checked without interrupting other work in progress. (In writing this article, I frequently jumped from Fortune:Word to **Timemaker** to check a feature, and then back again.) With WINDOWS, **Timemaker** achieves its full potential.

GROUP FEATURES

The Group Features module contains only one function, the Group Scheduler, but it is a valuable one. This function allows one to view the daily schedule of another user. Depending on the permissions that the other user has given you, you can either read, or read and write, to the other schedule. With this feature you can check for conflicts for a group meeting, and actually enter the appointment on other user's schedules

UTILITIES

The Utilities module contains various **Timemaker** housekeeping functions. These include: Archive **Timemaker** data files to floppy Disk; reading files from floppy disk; printer setup; remote scheduler permissions; modifying the Interfaces module. As always, read the User's Guide.

CONCLUSION

The key to enhancing personal productivity is making things easier to do. With the Daily Scheduler, To Do List, and Group Scheduler, **Timemaker** succeeds admirably. You need to have **Windows** software to get the most from **Timemaker**, but the Interfaces module gives it functionality even without Windows. I'm neutral on the calculator functions, but only because I need the power of a programmable calculator. For simple arithmetic, the calculator is just fine. The Business Directory is a disaster, but the rest of **Timemaker** is worth the price of admission, and since I have **rolo** (so should you) I don't need it.

Finally, I like **timemaker**, its always running on my terminal, but I do have some suggestions for improvements. Just in case anyone at SCI/Fortune reads this, here they are:

1) Option to display on screen a week of daily schedules.

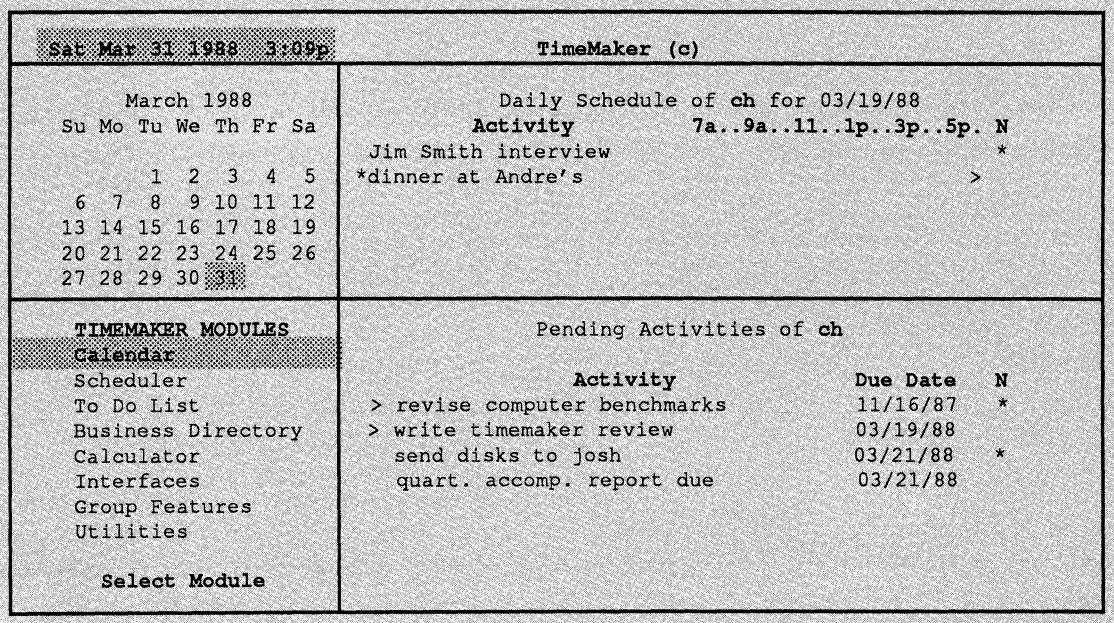
2) Option to keep the daily Scheduler in View Time Mode.

3) Group Scheduler option to write to daily schedules of all, or some, users a common meeting time. Of course, also checking for schedule conflicts.

4) Option to reverse the sort of ToDo List.

5) Allow user to program his own function keys, including ability to link function keys with programs in the Interfaces list. □

Figure 1. Timemaker Screen Display



Software Diskette Library Highlights:

Compressor's Delight and Fortune Utilities

What Is Our Software Diskette Library?

Our Software Diskette Library is a collection of floppy diskettes. Each diskette contains programs that we have gathered together from various places. Almost without exception, these are programs that are freely distributable. They are donated to us by our subscribers or we find the programs in other arenas and compile them so that they will run on the Fortune computer.

The fact that the programs are freely distributable is the reason why they are *such* a good deal! We only charge you for our time in handling the orders. Thus, each disk costs at most **$10**. If you buy four or more disks, then the cost per disk drops even further.

In this first installment, we list the contents of two of our disks and give some brief descriptions of some of the programs. You will find a treasure chest of useful utilities, exciting programs and fun games listed. We hope you will take the time to evaluate whether or not any of these diskettes will help your computer work harder for you.

Pricing and Availability

We currently have 10 diskettes as follows:

1) Fortune:Word Tutorial
2) Fortune Utilities
3) D.C. Grab Bag
4) Compressor's Delight
5) Ckermit
6) Unix|Stat
7) Unix Tools
8) Editor's Choice
9) Zip Tease
10) Ispell

Each disk costs **$10** separately. However, we do offer substantial quantity discounts according to the following table:

	Your Cost	
Any 4	$33.00	Save $ 7.00
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Any 9	$67.50	Save $22.50
Any 10	$74.00	Save $26.00

Compressor's Delight

This disk has several useful utility programs along with many games. Two of the highlights are the programs **compress** and **grep**. **Compress** is a program that *shrinks* files from 25-90 % of their original size. It is very useful for making more room on your disk by shrinking inactive files. It is also an efficient way to transfer files via modem. Also included is an interesting program called **dtree**, which lists out the tree structure of a directory.

The games on this disk include **cribbage**, **craps**, **hack**, several **banner** programs and a **big clock** program. This disk is also installable from the Global Menu and you can install the programs in an *ala carte* fashion.

Below, you will find listed the programs along with a short description.

calen - This program prints out a blotter type appointment calendar. You need 132 columns or the output will look quite messy. The program does accept certain arguments that control the month and the year that gets printed. For example, **calen 12 1985** will print out an appointment calendar for December on your screen.

clock1 - This is a program that makes your terminal into a digital clock. The display is a little different than the clock on the D.C. Grab Bag. Use **CANCEL/DEL** to leave the clock.

craps - A computer simulation of the exciting gambling game of the same name. It is easy to play, just type "craps" to your prompt.

cribbage - The card game. If you don't know how to play cribbage, don't despair. When you run the program it asks you if you would like some directions. If you say yes, you'll see a chapter from Hoyle that gives the nitty gritty details of the game.

gothic - This is another banner type program. It, however, prints the input message out using gothic style type. You will notice that rather than using x's as the character that the letters are made of, it uses periods. This is helpful, because it allows you to print your banner out in a very compressed format. If you have a printer that is supported by

Fortune:Word, (e.g. other than PLAIN1), try typing: **gothic "Hello" | lpr +P40 +V40 <RETURN>.** This will give you a shrunken banner. Gothic is also slightly more interactive than the other banner programs - simply type gothic to your prompt for some medieval delights.

hack - An adventure game like **rogue**, but is rumored to be more sophisticated.

loan - This program takes as input the amount of a loan, the interest rate of the loan and the length of time of the loan and prints out the payments, giving the principal and interest amounts.

loan2 - This program allows you to see the effect a range of interest rates or a range of principles will have on your periodical payments. For example, if you know you want to borrow 25,000, the program will tell you your monthly payments for interest rates varying from 10% to 15%. The amounts are all supplied by you. The step amounts are the increments that are used between the upper and lower values. If the step amount was .25, then you would get payments for 10.00%, 10.25%, 10.50%, etc.

numberwords - This nifty little program takes as its input a string of numbers and prints out that number in words. For example, if you input "33" the program responds "thirty-three". You'll have to run the program to see what it will do with 184,256,903,278,384,283,485,372,001.

compress - This program is useful for reducing the amount of space a file takes up on your hard disk. For example, if you have a report that you don't expect to use for a while, but you want to keep readily accessible, you can compress it. Compress will reduce file size by 20-90%, depending on the individual file.

grep - This is used to search your files for a particular string of letters or words. For instance, it could be used to search through a directory to find which letter contains the word "abracadabra". To do this, you would type: **grep "abracadabra" * <RETURN>**

menu.sh - This is a shellscript that can be used to navigate around the Unix system without learning all of the Unix commands. It provides a menu that will allow you to obtain directory listings, look at file contents, etc. It is also an interesting example of shell programming that is instructive to study.

charset - This is a program that prints out on the screen the characters in a particular character set. This is particularly useful for programmers. For example, suppose you want to know the octal value of the character "t", or its decimal value, or its hex value. For example, charset o would give you the octal table. The other thing charset does is to show the values associated with the special character sets the Fortune supports. For example, the block graphic character set could be displayed by typing the following: **charset 3.** To get all allowable options type "charset" by itself.

tables2 - This is not a program! It is a file that contains some reference materials on UNIX and the bourne shell which are useful for shell programming. To see the contents of the file, type **more /usr/ucb/tables2 <RETURN>.**

This file contains information on the following topics: 1) SHELL COMMANDS, 2) PARSING, 3) METACHARACTER RULES and 4) SIGNALS.

tables3 contains information on: 1) SHELL METACHARACTERS, 2) SHELL I/O REDIRECTION and 3) SHELL BUILT-IN VARIABLES.

tables4 contains information on: 1) SHELL PATTERN MATCHING RULES, 2) EVALUATION OF SHELL VARIABLES and 3) SHELL SPECIAL COMMANDS.

dtree - This is a program which will print out a graphic representation of a directory tree. For example, if you run dtree on this floppy (assuming the floppy was properly mounted), you would see:

```
                    |-bin-----
                    |-dtree---
|-f-------|-installd--
                    |
                    |-src-----|-compress--
                    |
                    |-usr-----|-games-----
```

dtree has many flags. Some of the more interesting ones

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are the **-a** flag, which prints out all of the files in the subdirectories, and **-l** which prints out their sizes as well.

banner2 - This is a program that takes some text, which you input, and prints it out in large letters - usually on your line printer. You then take this banner and hang it somewhere. For example: **banner2 "This is a test" RETURN** will print a large banner with This is a test on it. You can send this to your printer by typing: **banner2 "This is a test" | lpr RETURN**. Further, the **-w** flag will specify the width (or height) of the letters.

Fortune Utilities

This disk is also known as the Marketing Support Utilities and was originally donated by Fortune Systems, *although it is not supported by Fortune.* As is the case with a lot of free software, these programs were developed to be used by a certain group of people, and hence you may want to tailor them to your situation.

The disk contains several sorts of things. First, there is a system for making your **function keys** perform UNIX commands quickly and easily. Second, there is a system for setting up a **phone modem autodialer.** Third, there are programs that will allow you to run commands at any point in time in the future. Fourth, there are some useful **miscellaneous utilities** including editors. And fifth, there are several **games** included for your amusement.

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Function key programs

These programs give meaning to the function keys if you're in the UNIX shell. For example, by pressing **F1** you would automatically mount a floppy disk. A nice menu is included that is displayed when you hit the **HELP** key. Also, programs are provided that allow you to update this menu and create new programs. These programs are in **bin** on the floppy.

Modem Autodialing

If you have **ITE** or **kermit,** this group of programs will give you some ideas about how you can make your modem autodial telephone numbers for you. These programs are found in the phone directory on the floppy.

at & cron

These two programs are used for executing programs at predetermined times. They can be used to remind you of things or to automate your system. A related program, called **rem,** uses these programs to send yourself messages.

sc & hexed

Sc is the program **screen**, which is a very powerful (but easy-to-use) editor which is very helpful for writing shell scripts and general system maintenance. It is much easier to use than the **ed** editor. **Hexed** is similar to **sc**, except it edits in hex format. ASCII on left, hex on right. This is very handy for analyzing data, and can even be used to edit the strings in binary programs.

Electronic Mail

Fortune used Fortune-to-Fortune copy (**uucp**) and **cron** to create an automated electronic mail exchange. This is customized for their needs, but can be altered for yours. Their system uses Fortune:Word to create the messages.

Miscellaneous Utilities

Included on this floppy are the following:

SWITCH - Changes baud rate of workstation while logged in.
xfer - An easy way of using uucp.
fisp - Print files out FIS 1000 printer port.
games - A games menu.

Games

This disk has some fun games on it including:

banner - use your printer to make LARGE signs.
blob - an arcade like game where you trap a bouncing ball in the corner of the board.
breakout - an arcade like game where you break through a boundary.
fortune - a program that randomly produces witticisms for amusement
pacman - a version of the famous arcade game.
twinkle - make your Fortune terminal produce patterns. □

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The Newsletter for Users of SCI/Fortune Computers

May 1988/Volume 5 Number 5

From ASCII To Fortune:Word Format...

The Easy Way!

See Page 14.

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- Increase Disk Capacity for pennies per block
- What is the C-Shell?
- /u/help - Computer Communications and more
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Subscriptions cost $48 for one year within the U.S.A. For foreign subscriptions, add $27 each year for added postage and handling costs.

Back issues are offered at:

Vol 1, Numbers 1 - 3	$1/each
Vol 1, Number 4	$.50/each
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5/88

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System Backup - one of the System Administrator's major responsibilities. The discussion of this important topic is continued in this month's issue.

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Would You Like To Increase Your Disk Space For Between $10 and $15?

In this article we show you how to increase your hard disk capacity 10 to 30 percent *or more* for pennies per block. Don't miss the Special offered at the end of the article!

In this Money and Time saver feature we will show you how to get the most out of your hard disk(s). Nearly every Fortune computer has a hard disk and nearly every hard disk fills up *too* quickly. So, what can you do about it? Continue reading and we will show you **three** ways to increase the capacity of your hard disk.

We want to say at the outset that we discussed this topic in much more detail in Volumes 2.6 and 2.7 of **/u/fortune** *news*. We highly recommend that you read these articles for an in-depth treatment of managing disk space. If you don't have those issues, we are offering a special reprint of the two-part article. See the end of this column for details.

Finding Large Files

Before we can discuss how to increase the capacity of your hard disk, we must discuss how you *find* the files that are hogging up space on your disk. The basic idea behind managing your disk is to locate files that are large and/or old that can be **removed** from your system. This removal obviously increases the space available to you.

df and du - Indispensable commands

The first command, **df**, is used to get a bird's eye view of the current amount of space that is being used on your disk. By running this command frequently, at least once per day, you can usually avert problems before they occur. We have the program **df** run *automatically* every time we log in. This saves us from having to remember to run the program and it always keeps information regarding disk usage in front of us.

The second command, **du**, is used on separate directories. It can either give you the total size of that directory (by just typing **du**) or it can give you the size of each individual file in the directory (by typing **du -a**). By using **du** you can hunt down large files that might be good candidates for removal or *compression* (see our discussion on compression later in this article).

The find command

Using **du** to find large and/or old files is basically a hunt and peck approach to managing disk space. The more useful command to use is the **find** command. For example, you can get a listing of all the files that take up more than 100 blocks, regardless of where they are on your hard disk, by typing to a Unix prompt:

```
find / -size +200 -print
```

The **find** command is a very useful Unix utility and we discuss it in more detail in the two-part article we mentioned above. In addition, we presented an easy-to-use shellscript in the **Volume 4.12** issue of **/u/fortune** *news* (page 11) that will find files that are larger than a certain size and older in days than a certain number. We called the shellscript **bignold** and we use it frequently in order to control disk usage. (This article is also included in the special reprint article.)

How to Increase Disk Capacity

Once you have found files that are not truly needed for the daily running of your computer you can either remove them or compress them. If you choose to remove the file, you should copy it onto a floppy for safe keeping before you remove it. That way, if you decide at a later date that you want the file, you can put it back on the system. You can see the **System Administration** series, especially this issue, for more information on backing up files.

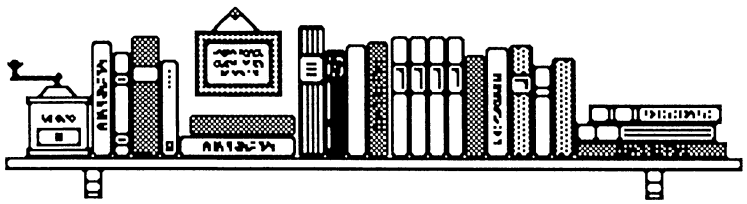
Compressing files is often an ideal solution for making more room on your hard disk. Oftentimes you will find a file that is used frequently enough that it would be a nuisance to take it off of the disk and then have to put it back on. Compressing the file leaves it on your hard disk but in a form that takes up *much* less room than the original version. When you need the file at a later time, you simply uncompress it. You will need a program that compresses and uncompresses files and we offer just such a program on our **Compressor's Delight Diskette**. You can order the disk from us for just $10.

Another way of preserving disk space is by linking files together. The effect of linking is to keep one copy of a file somewhere but to let other people have access to it as if there were multiple copies of it. The advantage is that only one copy of the file is needed, thus saving disk space.

Conclusion

You can increase the capacity of your hard disk by simply practicing good hard disk management. We have been brief in this article, but if you want more information, please ask for the special reprint of our two-part **Managing Disk Space** article which also includes the article on the bignold shellscript. You can purchase this in-depth report for $10.00 (Overseas locations please add $9.00). In addition, you should not be without the versatile Compressor's Delight disk. If you don't have your copy, send $10 and we will ship it immediately. As a very special offer, order *both* the Managing Disk Space article and the Compressor's Delight Diskette and pay only $15! Send your requests to us at: The Cambridge Consortium, 225 Crescent Street, Waltham, MA 02154.❑

The BASIC Advisor



The BASIC Advisor is brought to us from Ray Wannall. Ray is President of BaSiC Software Corporation which is located in Baltimore, Maryland.

Question: *In your March article (/u/fortune news, Volume 5, number 3) you said that, according to Concept Omega and SCI/Fortune, IDOL-II, Fourth Generation Language (4GL) and the upgraded business applications were not available for the Fortune computers. I have had IDOL-II and the Thoroughbred Report Writer on a Formula for about eight months now. I called Concept Omega and requested these products, and CO manufactured and shipped them for me. Furthermore, I have seen a demonstration of 4GL on the Formula. I do not believe, however, that any of these products have been ported to the 32:16 yet.*

Answer: IDOL-II and Thoroughbred Report do not require the 4GL environment. According to Keith Wimberly of Concept Omega, both are now available for the Formula.

Thoroughbred BASIC 7.3.2 has been ported to the Formula and was available as of May 3, 1988. IDOL-IV and Script IV require BASIC 7.3.4, which has been ported to the Formula but not yet released. I believe the holdup has to do with the "tar" and/or "cpio" commands which are needed to install these products on a UNIX machine.

As for the demonstration of 4GL software on the Formula, are you sure it was a demo of Script IV? Concept Omega offers a self-contained demonstration diskette of 4GL products for AT's or AT compatibles, but nothing for UNIX. If this is what you saw, it had to be either booted on a co-resident DOS section of the Formula disk (if that is possible) or translated by some unknown third party into the UNIX or FRO:PRO environment. Either way, the demonstration diskette is not a complete package. The fact that the diskette works on a specific machine does not indicate that the software is available for use on that machine.

As far as the 32:16 is concerned, it looks like we are going to be left out in the cold. The following letter, which I received just two days ago, came from Mike Smith in Atlanta GA. With apologies to Mike, I have toned down some of the verbiage.

Dear Ray:

I just received the new issue of /u/fortune news [Volume 5, number 4].

On the subject of Thoroughbred software on the 32:16: based on my conversations with Concept Omega people at Comdex last week, I don't think it will happen.

Of course when Fortune announced the 6.5.12 version, the literature included their intent to have 7.3 available later in the year (1987) and upgrades would be available from 6.5.12 to 7.3 but not directly from the old version to 7.3. Seems that we have again been led astray. Per Concept Omega people, 7.3 requires UNIX System V for specific calls not available in the 4.2BSD variety used by Fortune. The new Thoroughbred and IDOL products require 7.3.

We differ in opinions on the BAS documents. The documentation is the pits. Much of the initial parts of the manuals address you like an idiot, then when you need some real help the manuals are near worthless. I am an accountant by background, and consider myself to be above average in knowledge of BASIC and the ability to read manuals, but most of the BAS manuals leave me wondering. For example, try learning about how the chart of accounts and statement formats should be for consolidated financial statements with the General Ledger Manual.

Keep smiling!

Dear Mike: Apparently many of us were suckered into buying the "intermediate" version of BASIC. (It is sometimes very difficult to keep smiling.) I cannot say, though, that I am totally disappointed with 6.5.12. Although it came with its own set of quirks, the added utilities and processing speed are worth at least some of the bucks spent.

Nevertheless, you are right. Fortune never should have promised us future upgrades unless they were seriously committed. I'm sure SCI/Fortune will respond that they are a new company and not responsible for empty promises made by their predecessors, but some of us old time 32:16 users are getting a little tired of being patient. I, for one, think SCI/Fortune could do much to help their own cause by addressing our needs and desires. If we are allowed to just slip into obsolescence, how many of us are going to be

willing to replace our outdated systems with new Fortune products?

Now about that documentation. Obviously you have never tried to work with the original, computer-generated BAS documentation. That, my friend, was the pits! Here is a sample of what was provided for the Income Statement (or, as you call it, the "Financial Statement"):

"Using the General Ledger Master File as input, this function will list and total all revenue and expense accounts in income subnumber sequence showing current and previous year totals. All accounts having the same subnumber will be summarized to that subnumber for this report. . . . If all companies have been updated for the month, a consolidated Income Statement may be produced."

No word was given about how to operate the darn thing. Nor was there any further reference to the consolidated report. Considering what Fortune had to work with, I think they should be commended for their efforts.

If your business accounting needs are simple, the Fortune version of the BAS documentation may be sufficient. But the very best bet for those purchasing or initializing a new BAS package is to engage the training services of a dealer who is familiar with the software.

Question: *I have IDOL on my Fortune and would like to be able to use it, but the manual does not seem to be the best of sources for a beginner. Can you give me some pointers?*

Answer: Over the years I have discussed IDOL on many occasions. If you are a new subscriber, you may be interested in ordering the back issues of **/u/fortune** *news* listed below in which the BASIC Advisor addresses IDOL. If you still have questions after reading these articles, feel free to call me or drop me a line.

Volume 2, Number 6: IDOL Selector shortcuts
Volume 3, Number 1: Define a Report
Volume 3, Number 5: Assigning Passwords
Volume 3, Number 8: Element Definition
Volume 3, Number 11: Element Definition, follow-up
Volume 3, Number 12: Advanced Report Writing
Volume 4, Number 6: A Guided Tour of IDOL
Volume 4, Number 7: Element Characteristics
Volume 4, Number 9: More Report Writing Techniques
Volume 4, Number 11: IDOL File Sizes❑

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System Administration: Part 13

No Longer Requres a Degree in UNIX Wizardry

This series is a must for all owners and users of the Fortune computer. Dave is President of UNI-KOMP which is located in Houston, Texas. He provides UNIX seminars, software for the Fortune Computer, and is president of the Houston UNIX User's Group. He contributes independently to ***/u/fortune news.***

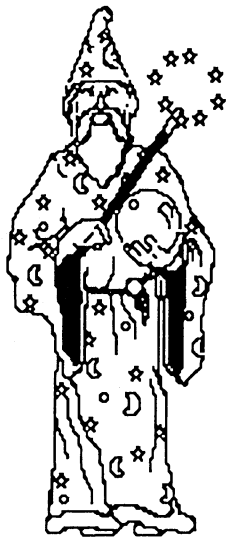
by Dave Kloes

Last time we ended our discussion of backup commands by talking about the "__part__" and "__vol??__" files that are created when we do a backup using the "cp -B" command. We will continue our discussion of the "cp" command is this article and talk about some other "flag arguments" (or options) that can be used.

Before we continue our discussion; however, let's take a step back and cover another way to copy files to a diskette without using the "-B" option. Last time we gave examples of copying a file from one directory to another (or within the same directory) on the hard disk. We did not discuss copying a file (or files) from the hard disk to a **floppy** disk. The following sequence of commands give you an example of how to do this:

```
# mount /dev/fd02 /f
# cp /u/davek/letter /f
# ls /f
letter
# umount /dev/fd02
```

First, we mount a **FORMATTED** floppy disk to the **/f** directory. The **/f** directory is an empty directory that is on the system especially for mounting floppy disks. In our other articles, we explained that the **mount** command actually attaches our floppy diskette as another directory on the system. Once a floppy disk is mounted to a directory, we can perform operations in that directory just like any other directory on our hard disk. As a sidenote, we could have mounted our floppy to *ANY* empty directory. For example, if we created a directory in the root (/) directory called "floppy" we could mount the floppy to that directory.



SYSTEM BACKUP

Once the floppy is mounted, we can copy any files to it. In the above example, we copied the "/u/davek/letter" file to the floppy directory (**/f**). Once the file copy is complete, we then must **umount** the floppy (detach it from the **/f** directory).

There are a couple of differences between using this method files and using the "cp -B" option:

1. No calculation of the number of volumes required to do the copy is performed. If the file(s) we were trying to copy exceed the amount of space available on the floppy, the copy operation will fail with an "out of space" error message. This is different from the "cp -B" option where the backup is continued on subsequent volumes, if needed.

2. As far as FOR:PRO is concerned, we are just copying a file or files to another directory on the system. With this method, no "__part" or "__vol??__" files are created. It is up to us to label these diskettes or do an "ls" command on them to find out what files are there.

3. The rules about ownership and permissions of the copied file(s) are the same as if we had copied the files to another directory on the hard disk (see last article).

4. No automatic mounting and unmounting of diskettes is performed.

To restore a file from a backup that is done using this method, we would again mount the diskette, copy the file back onto the hard disk and then unmount the floppy. Here's an example of restoring our "letter" file back to the "/u/davek" directory:

```
# mount /dev/fd02 /f
# cp /f/letter /u/davek
# umount /dev/fd02
```

Remember that the form of the "cp" command is relative to what directory we are in on the system. For example, the same restoration of the file could be done as follows:

```
# mount /dev/fd02 /f
# cd /f
# cp letter /u/davek
# cd /
# umount /dev/fd02
```

Here we mount the floppy and change directory to the floppy directory (/f). We then restore the file to the **/u/davek** directory. Why did we change directory back to the / directory before unmounting the floppy? If you remember the discussion of mounting and unmounting the floppy disk in our previous articles, you should recall that we cannot unmount a directory that we are in. In fact, if you try to do this, you will get this error message:

```
umount: Working directory is
on /dev/fd02, Can't unmount
```

Another point we have not covered yet is the use of "multiple arguments" with the "cp" command. What if we wanted to copy two or more files to the diskette. To accomplish this, we would simply include each of the file names on the command line, with a space between each. For example, let's say that we have three files in the current directory that we want to copy to the diskette - "letter", "resume", and "resignation":

```
# mount /dev/fd02 /f
# cp letter resume /f
# ls /f
letter  resume
# umount /dev/fd02
```

FOR:PRO always looks at the last "argument" as the directory to be copied to. Here we have copied all three files with one command to the **/f** directory.

We would also like to mention here that when you "archive" a file in Fortune:Word, the above method of mounting, coping and unmounting is used to backup the files onto diskette. This means that you can look at and retrieve the files. We do not recommend this, however. The best rule to follow is that **WHATEVER METHOD YOU USED TO CREATE THE BACKUP SHOULD BE THE METHOD YOU USE TO RESTORE FROM IT**. In other words, to stay out of trouble, if the backup was made using the "archive" function in Fortune:Word, you should use the "archive" function in Fortune:Word to restore a file.

Now that we have simple copy operations to and from a floppy diskette under our belts, let's continue with the discussion of other options that are commonly used with the "cp" command.

-o Option

We stated earlier that when a copy is done to a diskette without any options, "root" becomes the owner (assuming **root** is doing the copy). Normally, when you copy files to a diskette, you want the original ownership of the file to be unchanged. If "davek" is the owner of the file when we do the backup, "davek" should be the owner if the file is restored. We want this be-

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cause "davek" may have problems using the file after the restoration if he is no longer the owner. To preserve the original ownership of files, we would use the "-o" option. Based on this, the form of our backup command is now:

```
cp -Bo
```

-t Option

We also stated earlier that when a copy is done to a diskette without any options, the date and time of the file are changed to the current date and time. Normally, when you copy files to a diskette, you want the *original* date/time to be unchanged. If the date/time is May 15 08:36 when we do the backup, it should also be the date/time if the file is restored. In administering our system, we frequently use the date/time to tell when the file was last worked on. One reason for this would be to insure that we restore the most recent version of the file. To preserve the date and time of files, we would use the "-t" option. Based on this, the form of our command is now:

```
cp -Bto
```

You will notice as we add these options, the order of the options in our command line does not matter.

-u Option

We stated earlier that when a copy is done to a diskette without any options, permissions (modes) of the file are changed to the system defaults. Normally, when you copy files to a diskette, you want the *original* permissions of the file to be unchanged. If the permissions are "`-rwx-rwx--`" then these should also be the permissions if the file is restored. That way we don't have to worry about setting permissions back after the restoration. To preserve the original permissions of files, we would use the "-u" option. Based on this, the form of our backup command is now:

```
cp -outB
```

-V Option

Normally, for both backup and restores, "cp" does its work silently. The only messages we see are to insert the next volume or that is "generating" a backup. If we want to see the files that are being backed up or restored, we can use the "-V" (verbose) option. Each file (or directory as we will see later) is listed with the "from" and "to" pathnames as the backup is being done. This is one of those "good news", "bad news" options. The good news is that we can tell by looking at the files coming across the screen that what we wanted to be backed up is being backed up. The bad news is that if there are any error messages, we many miss them as the files are scrolled off the screen unless we continually watch the screen (which most of us don't do). If we want to see our files as they are being backed up, the form of the command is now:

```
cp -BVout
```

-X Option

Normally during a backup, no diskette verification is done. If we want to verify the diskettes during the backup, we can use the "-X" option. Note that this only verifies that the diskette is readable. **IT DOES NOT CHECK SYSTEM INTEGRITY OR DATA.** Also the backup will take much longer to do if this option is used. The **-X** option can only be used if the **-B** option is used. With the **-X** option, our command now looks like this:

```
cp -BVoutX
```

-s Option

We use the -s option when we want to backup special files. Most of the files in the **/dev** directory, for example, are special files. This option should be specified whenever we do a full system backup.

-r Option

The -r option is used to do a recursive backup. Using the recursive option means that we can backup directories as well as files. If we do a recursive backup of the **/etc** and **/u** directories,

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for example, our command would look like this:

```
cp -BVoutXrs /dev/fd02 790 /etc /u
```

Since we used the -r option, the "cp" command would backup the /etc directory and all of the files and sub-directories in it. To backup the entire system, we would enter:

```
cp -BVoutXrs /dev/fd02 790 /
```

We can also put directory and filenames in the command line. For example, the following command would backup the **/etc** directory and the **/u/davek/letter** file:

```
cp -BVoutXrs /dev/fd02 790 /etc /u/
davek/letter
```

The last subject we will cover in this issue is how the file and directory names are stored depending on the way we do the backup. You will need to know this in order to properly restore the files or directories. Let's look at two examples:

EXAMPLE 1:

```
# cd /u/davek
# ls
letter  resume
# cp -BVoutXrs /dev/fd02 790 *
```

EXAMPLE 2:

```
# cp -BVoutXrs /dev/fd02 790 /u/
davek
```

Both commands would accomplish the same task - the files in the **/u/davek** directory will be backed up. In example 1, all of the files will be put in the **/f** directory. The "*" says to backup all files and directories in the current directory (which is /u/davek). In this form, no reference to the fact that the files originally came from the **/u/davek** directory will be found. An "ls" of the / f directory will only produce the following:

```
__part__  __vol01__  letter  resume
```

This is different from example 2 where we put the full pathname of the directory as the directory to be backed up.

In this form, the **/u** and **/u/davek** directory entries are also backed up. If we do an "ls" of the **/f** directory, we will see the the following:

```
__part__  __vol01__  u
```

In this case, the "u" and "davek" directories as well as the files in **/u/davek** are backed up. It is important to keep this distinction in mind when we talk about restoring files. We would use the form in example 1 to backup files that could be restored to any directory. The form of example 2 would be used whenever we want to restore files to their original pathnames. This point will become clearer when we talk about restoring from a backup that was done using the "cp" command.

Here are two examples that are incorrect in form and will produce error messages:

```
# cd /etc
# cp -routsBVX /dev/fd02 790
```

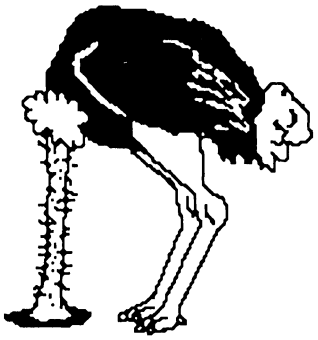
This command will produce a "usage" error since we have not identified any files or directories to backup. Even though the system defaults to the current directory when doing a normal "cp", you must specify at least one file or directory to be backed up when using the -B option.

```
# cd /etc
# cp -routsBVX /dev/fd02 790  .
cp: could not copy file with '.' or
'..' in name
```

Normally the "." in FOR:PRO represents the current directory. Notice that the copy command with the -B option will not let you use this symbol and thus you get the error message.

In the next issue, we will talk about restoring files from a backup done using the "-B option.❑

/u/help!



Are Computer Problems Causing You To Hide From The World? Don't Hide, We Have The Answers!

The following questions and answers come from the technical support group at SCI/Fortune:

Question: *My company has two Fortune computer systems. The first one is a Fortune 32:16 located in our Denver office and the other is a Formula 4000 located in our Phoenix office. We would like to use each others files. Is this possible and if so, how do we do this?*

Answer: Yes! This is possible and there are two different ways to accomplish this. The way you pick will depend upon the urgency of the situation and the amount of money you have for communications equipment and media.

The first and least expensive way to accomplish your goal is by using magnetic media (diskettes, or tape if you have tape on both machines). You can backup your files onto the media and send the media via the mail or a delivery service.

Fortune to Fortune Copy (**FFCP**) is the other way of transferring files between two Fortune computers, as well as transferring files to other systems running a UNIX operating system. For this method you will need to attach a modem to each computer. You will also need to have a phone line available for each modem. Consult with your SCI/Fortune dealer for more information regarding FFCP.

Question: *Is there an automatic way to insert the current date in a Fortune:Word file other than manually typing it in or using the glossary "date" function?*

Answer: Yes, Fortune:Word 3.1 has a wonderful new date feature that allows you to insert the system date in a document in letter format by pressing **COMMAND** @. In addition, when you type an @ symbol on a header or footer page, the date is automatically printed at the location of the symbol.

Question: *Why is it so important to "shutdown" before turning a Fortune System off?*

Answer: For efficiency, Fortune systems utilize a *cache* disk method for all accesses to the file system. Special buffer areas in memory are used for reads and writes to the disk. The contents of the buffers are transferred to the disk on a periodic basis as determined by the operating system. The "shutdown" procedure ensures that all intended updates to the file system have been actually written to the disk before the power is turned off and the contents of the memory buffers is lost.

Question: *How often should the air filter on the Formula 8000 be replaced?*

Answer: The frequency varies depending on the environment in which the system is installed. However, it is recommended that the filter be checked once every four to six weeks. Check both sides of the filter, and if either side is clogged, replace the entire filter with a new one. Washing the filter is **NOT** recommended as it works on an electrostatic charge principal to attract dust particles, and washing will reduce the charge and negate its purpose.

Question: *How do I know when my serial pal is failing?*

Answer: Hardware error #26 during the system boot or during normal operation indicates that the serial pal has gone bad. A way of checking the serial pal is to log in as root and execute the mid command. If the system serial number and common group ID successfully prints, the pal is good. This verification can only be done providing the system is up and working, however.

The following are questions /u/fortune has received from readers...

Question: *I tried your insistent alarm program and couldn't seem to get it to work. When I run the alarm shellscript, it just hangs. What am I doing wrong?*

Answer: Maybe nothing. There are a couple of changes that need to be made to the script before it will work properly. First, there is a typo in line 28 of the shellscript as it appears on page 13 of the April 1988 issue. Line 28 should look like this:

```
if [ -f $HOME/alarm.$ALARMNO.cmd ]
```

A second change that is needed is to insert a new line between lines 35 and 36 that looks like this:

```
cd $HOME
```

and then change line 36 to look like this:

```
at $TIME alarm.$ALARMNO.cmd
```

Also, the **alarmloop2** in line 35 should be changed to **alarmloop**.

Those changes should fix the **alarm** shellscript. The **alarmloop** shellscript works fine, but two notes are in order. First, line 13, which looks like this:

```
IFS=' '
```

is important. There are two characters between the single quotes and the two characters are a **SPACE** and a **TAB**.

The second note has to do with line 34 which prints out the message. We use the program **block** to print out the message but not every system has **block** on it. If your system doesn't have block, then line 34 should look like this:

```
echo "$ALARMNO $message" > $line
```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We hope these notes will help solve any problems and we hope you will get many useful alarms out of these shellscripts.

Question: *Whenever I use the lpr command to print something out of my printer, I always get a leading page with my username on it. Since I am the only one using the computer, this page is very unnecessary. Is there any way I can disable this leading page?*

Answer: That leading page is sometimes called a header page or a banner page and the answer to your question is yes, there are ways to disable it. First, you can disable it on a use-by-use basis by using the **-h** flag on the **lpr** command. The other way to disable it is more permanent in nature. To do this, you need to be logged in as **root** and at a Unix prompt type the following:

```
lpdun -b off
```

This will disable the printing of the header page. If you ever want to turn it back on, you would merely type:

```
lpdun -b on
```

Question: *Sometimes when I try to print very large files on my printer, I run out of disk space. This causes no ends of problems. Is there anything I can do about this?*

Answer: There are a couple of things you can do. First, you can read the article in this issue pertaining to increasing disk space (see page 4) and try to free up more space on your hard disk. This may solve the problem.

Actually, you should only run into this problem under two conditions. First, if you have two or more hard disk drives and you are trying to print a file from a disk other than the root filesystem. The reason this is the case is because a brand new copy of the file is copied onto the root filesystem. The second scenario is if you are *piping* the output of some program to **lpr**, then a temporary file is created. This temporary file could very well swamp the available disk space.

The solution involves the **-i** flag on the **lpr** command. In the first case, instead of typing **lpr bigfilename**, type the following:

```
cat bigfilename | lpr -i
```

The big file will print out but will not be copied to the root filesystem. In the second scenario, you will need to modify whatever command or shellscript that you are using and add the **-i** flag to the **lpr** command. Once again, no temporary file will be created.❑

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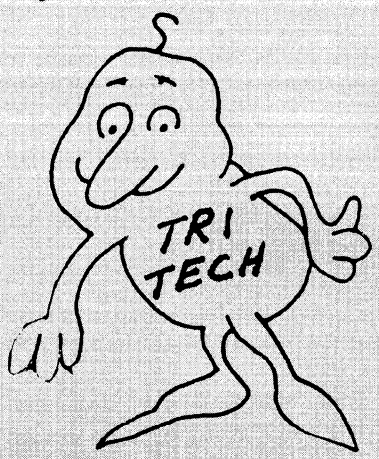

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How To Automate The Fortune:Word Conversion Process

In this article we show you how to convert hundreds of ASCII files to Fortune:Word format without having to spend hours and hours at the computer doing it.

***Question**: We recently needed to convert numerous files from another word processor to Fortune:Word. It was a tedious process to dump the files out to ASCII. Then when we loaded them on the Fortune, we could read them into Fortune:Word, but we wouldn't see the new files on the Index screens until we had first edited them. It seems like it would be even more tedious to read them all in to Fortune:Word and save them. Is there any way to avoid all this work and have the computer do it while I'm playing golf?*

Answer: I guess that depends on your handicap.

Actually, we had to perform a similar operation recently converting files from a WANG-PC using the WANG word processor to the Fortune using Fortune:Word.

As an introduction to the process of conversion, it is helpful to understand how Fortune:Word stores documents. Your basic documents are stored in basic ASCII format (which means there are no funny control characters, sad faces, etc. contained in the files). Special formatting commands are just ASCII letters sandwiched between backslash characters, e.g. **B**\ is a hard return. In addition to the main file, which might be called **jlletter**, there is a file called **jlletter.dc** which contains the information on the document summary screen, and **jlletter.fr**, which contains information about format lines, file length, etc. Because Fortune:Word files are in this format, it is relatively easy to move files into Fortune:Word.

Now back to our problem. As with most word processors, the WANG allows you to save your files in ASCII format. This is what Fortune:Word wants as input from an "External" file. Ideally, you should go through the file and put **B**\ at the end of each line where you want a hard return, e.g. between paragraphs. Otherwise, your entire document will be word wrapped.

We ended up writing a relatively simple "C" language program to strip the funny characters out of the WANG files and insert the appropriate hard returns, tabs, indents, etc. Unfortunately, the WANG format is complicated, and we didn't take the time to include formatting modes such as underline, bold face, etc. Our program was very rudimentary, but it provided a quick and dirty solution.

Next we were faced with bringing the files into Fortune:Word. As our questioner implies, this can be done simply, but tediously, by just using the Edit Old Document selection, inputting the name of the document, EXECUTING to the editing screen, CANCEL/DELing to save the file, and then doing the same thing for the next file. That takes a lot of operator input, which we don't like.

Remembering how we "automated" Multiplan to automatically retrieve and save spreadsheets so that external links would be updated, we thought we might use the same trick. What we did with Multiplan was to use the UNIX redirection command "<" to change the "input" from the keyboard to a file. This means that a program which normally expects to get keystrokes from the keyboard will instead get them from our input file. The file contains all of the keystrokes which we would have entered manually. We call this the player piano approach. The UNIX command looks something like this:

```
wp2 < wpconv.auto
```

where **wpconv.auto** contains all of our keystrokes.

Now, if you're still with us, you might be thinking that if you have to create a file with all of the keystrokes, you might just as well enter them into Fortune:Word. Not so! First of all, to enter the keystrokes, you don't have to actually wait for Fortune:Word to read and write the documents. Second, as you might have guessed, we used a program to create the file filled with keystrokes.

What the program does

Our program performs a simple function. Remember that Fortune:Word documents actually consist of three files, the main file, let's say **jlletter**, a file with the document summary infor-

mation called **jlletter.dc** and a file with the format information called **jlletter.fr.** If all of these files are not present, Fortune:Word assumes you are reading from an External file and automatically creates the **.dc** and **.fr** files. Our program does the following:

It's purpose is to determine which files are in the current directory. Any names that are not Fortune:Word files should be entered into our keystroke file with the necessary Fortune:Word keystrokes placed before and after it. Once this file is filled with the names of all files to be converted, it can be used as the input file. This is how it works.

First, it reads the names of all of the files in the working directory. Next, it checks to see if the **.fr** and **.dc** files exist for that file, and that the filename doesn't actually end with **.dc** or **.fr.** If both of those conditions are true, then this file is one which should be converted. That being the case, the keystrokes are inserted before and after the filename, and the program goes on to the next file. Once all of the file names in the directory are examined, the program finishes.

An abbreviated version of the shell script which accomplishes all of this is in Figure 1. Line 1 indicates that this shellscript is written for the Bourne shell. Line 2 feeds a list of files into the for loop. The **ls -1** command enclosed between two backwards apostrophes (the gray key just to the left of the ESC key - oh, and by the way, that's a numeral one after the ls) produces the listing which is fed to the **for** command. The loop begins on line 3 with the do command. Line 4 uses one form of the **test** statement to see if a file exists with the same name with a **.dc** on the end of it. If a **.dc** file already exists, there is no reason to read it into Fortune:Word again. Assuming the file isn't a Fortune:Word file, line 6 echoes out the special characters and filename and pipes the whole thing into Fortune:Word. The keystrokes aren't too difficult to understand once you know that **^Aq^M** is the EXECUTE key and **^?** is the CANCEL/DEL key. (Note: **^A** is actually a CONTROL-A, **^M** is a CONTROL-M and **^?** is the actual CANCEL/DEL key. In order to enter these characters into a shell script, you'll have to first hit CONTROL-C if you're in screen, or CONTROL-V if you're in **ed** or **vi**.) Once you're in Fortune:Word you know you hit EXECUTE to select EDIT AN OLD DOCUMENT. Next you are asked for the document name. That's provided from the variable **$i** which is created in line 2. Next we need to enter another EXECUTE to get to the Document Summary Screen. Another EXECUTE takes us past the summary screen into the document. Once we've gotten this far, the **.dc** and **.fr** files are created. We CANCEL/DEL out, hit EXECUTE to save the changes, and we're all done. At the end of these keystrokes, Fortune:Word terminates, and the program gets ready for the next file. The loop between line 2 and line 8 will continue for as many files as there are in the directory.

Figure 2 contains a slightly enhanced version of the same program. The only difference here is a more elaborate test in line 4. This version not only tests to be sure that the file is not already a Fortune:Word file, but by using the basename command, it also checks to see if the current file is actually a **.dc** or **.fr** file.

If you put either of these figures into a file, make it executable, and run it in a directory filled with files you'd like to convert, you'll see the fun begin.

Some important points

1) Modify the 0000 prototype in the directory you're converting before you start to represent your most general format line. If a 0000 file doesn't exist, create one and then modify it. When Fortune:Word creates files, it will use the 0000 prototype to set the format line(s), printer number, heading and footing pages, etc.

2) If you want to put **\B** at the end of every line in your file there are several ways to do it. We recently published a shell script which will accomplish this. If you have a newish version of Multiplan, see if you have a file called **/m/mp/wpx.** This is a program that automatically appends the **\B\.** To use it, just type **wpx** filename(s).

Those are the only real hints. Unless you don't know that you should never use a 9-iron in a sand trap.❑

Josh Lobel

Figure 1

```
1  :
2  for i in `ls -1`
3      do
4      if test ! -f $i.dc
5      then
6          echo "^Aq^M$i^Aq^M^Aq^M^?^Aq^M" | wp2
7      fi
8  done
```

Figure 2

```
1  :
2  for i in `ls -1`
3      do
4      if test ! -f $i.dc -a \( X$i = X`basename $i \.dc` -o X$i = X`basename $ i \.fr` \)
5      then
6          echo "^Aq^M$i^Aq^M^Aq^M^?^Aq^M" | wp2
7      fi
8  done
```

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What is the C-Shell and what do I use it for?

It is a Unix shell with lots of useful features. Read this article and learn how its history and aliasing functions can help you with re-running often used commands, and much more.

The C-shell is a command interpreter. When you bought your Fortune, it came with two standard command interpreters. The most noticeable is the Menu system. When you choose its options you could say that it (the Menu) interprets those options and causes a command (e.g., directory listing Fortune:Word, Multiplan, games, etc.) to begin executing.

The other command interpreter that came with your Fortune is the Unix shell. Chances are you have used the shell in your travels with the Fortune. From the Menu, you would type **.unix** or **!sh** or simply **!** to access the shell. You can usually tell when you are interacting with the shell because you will see the **$** or **#** prompt. You probably know that it is at this point that you would type in Unix commands and the computer would respond. For example, if you type in **ls**, the computer would give you a directory listing. If you type in **mp68**, the computer would start Multiplan.

The C-shell is *another* shell. But you might ask, "Why bother with another shell, or command interpreter, when I already have one, or two, if I count the Global Menu?"

That's a good question. The main answer is that the C-shell offers certain advantages over both the standard Unix shell (known as the **Bourne** shell, named after its creator) and the Global Menu (not named after anyone called Global). A secondary answer is that the C-shell is a widely used shell in the Unix community and is part of Fortune's Development Utilities. In other words, it may be useful to know of its existence and its capabilities.

This article is just a short introduction to some of the features of the C-shell and is not intended to be a complete exposition of all of its complexities.

History

One particularly useful feature of the C-shell is its *history* mechanism. The history mechanism is the C-shell's ability to remember the commands that you have issued during your session. You will see how useful this is when we discuss **Re-running commands** in the next section.

To use history, you must turn it on. To turn it on, you type the following to the C-shell prompt (which is usually a **%** unless you change it):

```
% set history=10
```

The above command has instructed the C-shell to remember the last 10 commands. You can set history to any number that you like. To see what the last 10 commands are, simply type:

```
% history

61  clear ; sb
62  mv nagel* /h/u/mbp/nagel
63  cd /h/u/mbp/nagel
64  ls
65  lpr nagelr.spx
66  lpr nagel7.spx
67  km
68  clear ; sb
69  ^A-
70  more /.cshrc
71  history
```

The above list is the output from the history command. You will notice the numbers preceding each command (i.e., the numbers 61 to 71). When I first invoke the C-shell it keeps count of my commands. Thus, in the above display, the 67, for example, shows

that this was my 67th command issued since I started the C-shell. These numbers are important for re-running commands which is explained in the next section.

Re-Running Commands

In the Global Menu or the Bourne shell, there is no easy way to re-run a command. If you want to re-run it, you must type in the entire command again. However, in the C-shell, you can re-run a command with as little as two keystrokes.

At the % prompt, if you type **!!**, the C-shell will re-run the *immediately* preceding command. You must have **history** set for this to work. If you want to run a command that you issued 5 commands ago, you would do a history, find its number (e.g., 67) and then type **!67**. Another way of re-running a command that you issued 5 commands ago would be to type **!-5**.

Changing and Re-Running Previous Commands

Another valuable feature of the C-shell is its ability to change a former command and then re-run it. For example, suppose you wanted to change directories to **/usr/games/chess**, and suppose you typed:

```
% cd /usr/gaems/chess
/usr/gaems/chess: No such file or directory.
```

In the C-shell you can correct your mistake by typing the following:

```
% ^gaems^games^
```

This method, using circonflexes (^) surrounding first the mistake (e.g., gaems) and then the correction (e.g., games) will *only* work for the immediately preceding command. If you want to change a less recent command, what would you do?

Take a look at our history listing above. Notice command number 66 (lpr nagel7.spx). If I wanted to send nagel8.spx to the printer, I could type:

```
% !66:s/7/8/
```

The syntax is simple. First choose the command by typing **!66:**. Then use the sequence **s/oldstring/newstring/** in order to change the old to the new. Being able to make changes or corrections to former commands is incredibly useful at times.

There is a setup file associated with the C-Shell that is indispensable. You can put C-Shell commands into this file that you want to run every time that you start a C-Shell.

Noclobber - Protecting Files

Another very useful feature is **noclobber**. Noclobber protects already existing files from being overwritten when you use redirection. The Bourne shell does NOT protect you from this occurrence. For example, if you were to type, in the Bourne shell, the following:

```
$ cat file1 > file2
```

Then a copy of file1 would be written to file2 even if file2 already had something in it. This sometimes results in the inadvertent loss of information. In the C-shell, you need to turn noclobber on by typing:

```
% set noclobber
```

Then, if you type `cat file1 > file2` and file2 already existed, you would see the following message:

```
file2: File exists
```

When you have noclobber set, there may be times that you indeed want to overwrite files. You can do this by using an **!** like this:

```
% cat file1 >! file2
```

Aliasing - Abbreviating commands

The last feature we will discuss is the **alias** mechanism. This is a way of abbreviating commands. For example, suppose we want to see a history listing of our commands. We would type:

```
% history
```

Now, why type that long word? Why not type just an h? Well, in the C-shell we can do that by setting up an alias, like this:

```
% alias h history
```

From now on, while we are in the C-shell, all we have to do in order to get a history listing is type an h. Any command, and even entire sequences of commands, can be shortened to just one keystroke by using the aliasing capabilities of the csh.

The .cshrc File

There is a setup file associated with the C-shell that is indispensable. You can put C-shell commands into this file that you want run every time you start a C-shell. If you don't do this, then you will have to manually type many commands just to get the C-shell to work the way you want it to. The **.cshrc** file is a way of customizing your computer so that it works the best for you.

In order to explain the **.cshrc** file and some C-shell commands in more detail, we will list our standard **.cshrc** file and explain each command. The **.cshrc** file is shown in Figure 1.

Line 1 shows what should be a familiar command, the **set history**. We like to have our history list 20 deep. Lines 2 and 3 show some **setenv** commands. The **setenv** command stands for **set environment** variables. These are usually special variables used by other programs. For example, some programs look to an environment variable called EDITOR in order to invoke a particular editor (e.g., the **more** command). Line number 2 sets this to **vi**, our editor of choice.

Line 4 sets our path to all of the direc-

tories listed between the open and close parentheses. You could modify this list to suit your needs.

Line 6 provides us with a fancy prompt. Remember that we said the default prompt is a %. The **set prompt** command allows you to make the prompt whatever you want. For example, suppose you wanted your prompt to be a **>**. You would type:

```
set prompt = >
```

We made our prompt echo out the directory that we are currently in. We actually do this with Lines 6 and 7. First, Line 6 sets the prompt. Then we use the alias command to redefine the **cd** command.

Let's explain Line 6 in more detail. First, the prompt is being set to everything between the double quotes. The **\!** stands for the number of the command (this is the same number that would be printed out in a history listing). The **^[H** turns on reverse video on the Fortune terminal and the **^[I** turns the reverse video off. By the way, **^[** means CTRL-[. The **'pwd'** runs the **pwd** command which gives us the current directory that we are in. Thus, when we are done, we get a prompt which looks something like:

```
1 </u/mbp>
```

if I were in my home directory.

Line 7 is somewhat more complicated but we will try to explain it piece by piece.

First we note that it is an **alias** command and we are saying that **cd** will refer to everything between the single quotes. Now, "everything between the single quotes" actually refers to three commands as follows:

```
cd \!*
set WDIR = 'pwd'
set prompt = "\! ^]H<`basename
$WDIR`>^]I "
```

The whole purpose of this aliased command is to make our prompt always show what directory we are in. In order to do this, we have to "rewrite" the **cd** command. Our "new" **cd** command first runs a real **cd** command (**cd \!***). Then we set the variable WDIR equal to the directory that we have just changed to. Thus, if I type `cd /u/mbp`, WDIR will equal /u/mbp. The final command, the set prompt command, takes care of making my prompt reflect which directory I am in. We have explained components of this above (see Line 6). What is new is the use of the **basename** command. The **basename** command is used to give us the *final* component of a long path name. For **/u/mbp**, **basename** would return just **mbp**. For a path like:

```
/h/u/newsletter/vol5.5
```

basename would return just **vol5.5**. We use **basename** in this case so that our prompt does not get too long.

In essence, then Line 7 of our **.cshrc** file redefines the prompt every time a **cd** command is issued.

Lines 8 through 12 demonstrate the alias command further. We've already explained Line 8 in the text. Line 9 sets up the fortune cookie program to generate a fortune when we depress the f key. We've abbreviated the **more** command to m in Line 10. Finally, in Lines 11 and 12 we set up some aliases for our alarm clock programs (discussed in a recent article).

Conclusion

The **C-shell** is another command interpreter that is widely used in the Unix community. It offers several convenient features that make it attractive when compared to either the Bourne shell or the Global Menu. You can purchase the C-shell on Fortune's Development Utilities. Check with your local dealer for availability.❑

Mark Palmerino

Figure 1

```
 1  set history=20
 2  setenv EDITOR /usr/ucb/vi
 3  setenv TERMCAP /etc/termcap
 4  set path=( . /bin /usr/bin /etc /usr/ucb /usr/cmd \
 5  /usr/games /h/u/mbp/unixstat /h/usr/local/stat)
 6  set prompt = "\! ^[H<`pwd`>^[I "
 7  alias cd 'cd \!*; set WDIR = `pwd`;set prompt = "\! ^[H<`basename $WDIR`>^[I "'
 8  alias h history
 9  alias f fortune
10  alias m more
11  alias alarm /usr/cmd/alarm.at
12  alias sa /usr/cmd/sa
```

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Our Software Diskette Library is a collection of floppy diskettes. Each diskette contains programs that we have gathered together from various places. Almost without exception, these are programs that are freely distributable. They are donated to us by our subscribers or we find the programs in other arenas and compile them so that they will run on the Fortune computer.

The fact that the programs are freely distributable is the reason why they are *such* a good deal! We only charge you for our time in handling the orders. Thus, each disk costs at most **$10**. If you buy four or more disks, then the cost per disk drops even further.

In this third installment, we list the contents of three more of our disks and give some brief descriptions of some of the programs. You will find a treasure chest of useful utilities, exciting programs and fun games listed in this article. We hope you will take the time to evaluate whether or not any of these diskettes will help your computer work harder for you.

Pricing and Availability

We currently have 11 diskettes as follows:

1) Fortune:Word Tutorial
2) Fortune Utilities
3) D.C. Grab Bag
4) Compressor's Delight
5) Ckermit
6) Unix|Stat
7) Unix Tools
8) Editor's Choice
9) Zip Tease
10) Ispell
11) Chess, Yahtzee and More

Each disk costs **$10** separately. However, we do offer substantial quantity discounts according to the following table:

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Unix Tools Diskette

This diskette includes many useful programs for you and your computer. For example, one of the highlights is an electronic **Rolodex** program which stores peoples *phone numbers, addresses* and other pertinent pieces of information. All this information can be retrieved with a keystroke or two. Of course, don't miss the *games*, either. Read the capsule descriptions of the other programs listed below.

rolo - With the electronic **Rolodex** you can store people's *names, addresses, company names, phone numbers* and any comments that are relevant. Then the computer can easily search for an "entry" using the person's name or any of a number of fields. This makes it an easy matter to locate someone if you can only remember their first name, city, or street, etc. It's also easy to find someone using their company name. This can be tedious in a manual rolodex where cards are rarely cross-indexed. In a sense, the electronic **Rolodex** is like a data base program, but since it is specialized for this purpose, it is smaller and less complicated.

last - This program is a useful addition to the system administrator's arsenal. It essentially lists the *login times* for everyone who has logged into the system. This program requires that you have accounting turned on and that you have an active **wtmp file** in the **/usr/adm** directory. The last program produces an output as follows:

```
jnl      tty03     Mon Mar 31 12:28
- 12:36  (00:08)
jnl      tty02     Sat Jan 25 08:05
- 08:06  (00:00)
jnl      console   Tue Jan 21 10:19
- 07:31 (3+21:11)
```

This particular listing was produced by the command "**last jnl**" which instructs **last** to print out these statistics for the user "**jnl**." The source code is included so you can modify its operation if you are so inclined.

less - This program is essentially like the UNIX **more** command in that it is used to view files on your terminal. It provides, however, much greater *flexibility*. For example, you can move backwards at will in the file. This is difficult and sometimes impossible with **more**. Once inside of **less**, you

can learn about its commands by typing "**h**". You will be presented with two screens which summarize how to use **less**.

finger - There are three output formats, all of which give *login name, teletype line number*, and *login time*. The **short** output format is reminiscent of **finger** on **ITS**, and gives one line of information per user containing in addition to the *minimum basic requirements* (MBR), the *full name* of the user, his *idle time* and *office location* and *phone number*. The **quick style** output is UNIX *who-like*, giving only *name, teletype* and *login time*. Finally, the **long style** output give the same information as the **short** (in more legible format), the *home directory* and *shell* of the user, and, if it exits, a copy of the file **.plan** in the user's home directory. **Finger** may be called with or without a list of people to finger — if no list is given, all the people currently logged in are fingered.

cut - Use **cut** to cut out columns from a table or fields from each line of a file; in data base parlance, it implements the *projection of a relation*. The fields as specified by **list** can be *fixed length*, i.e., character positions as on a punched card (**-c** option), or the length can *vary* from line to line and be marked with a *field delimiter* character like **tab** (**-f** option). **Cut** can be used as a *filter*, if no files are given, the standard input is used.

paste - concatenates corresponding lines of the given input files. It treats each file as a column or columns of a table and pastes them together *horizontally* (parallel merging). If you will, it is the counterpart of **cat(1)** which concatenates *vertically*, i.e., one file after the other. It also mimics older commands with the same name by combining subsequent lines of the input file (serial merging). In all cases, lines are *glued together* with the **tab** character, or with characters from an optionally specified list. Output is to the standard output, so it can be used as the start of a *pipe*, or as a *filter*, if - (dash character) is used in place of a file name.

monitor - This program will continually run a program and display its output on the screen. This is a great way to monitor the progress of some process on your computer.

Bm, a **grep** like program, searches for lines that contain one of the (newline-separated) strings, using the Boyer-Moore algorithm. It is far superior in terms of *speed* to the **grep** (**egrep**, **fgrep**) family of pattern matchers for fixed-pattern searching, and its speed increases with pattern length. **Bm** strings are fixed sequences of characters: there are no *wildcards*, *repetitions*, or other features of regular expressions. **Bm** is also *case sensitive*.

para - Every paragraph within a filename containing the sought after string is printed. The line containing 'string' will be seperated from the paragraph by newlines so it will be easier to see. After each printed paragraph, a "— M O R E —" prompt is issued, along with the options availiable to you ('**e**' invokes **ex(1)**, '**v**' invokes **vi(1)**, '**q**' to **quit** and the **default action** is to continue searching for subsequent occurances of 'string'). When one of the selected editor is invoked, it will start up on the line containing the found string.

Games

Eliza is a semi-intelligent script directed conversationalist. Most scripts attempt to mimic the questioning of a psychologist. Generally, **Eliza** will ask you to talk about yourself. If your answers are not thoughtful and honest the conversation can deteriorate. **CTL-D** will terminate the session.

puzzle - Try it! You'll quickly recognize this computerized implementation of a childhood game.

block - Type "**block**" to your unix prompt and then type something. It will display whatever you type in large letters.

Hack is an adventure game. Up and down stairways, fighting all manners of fiendish creatures, using mystical weapons and magical potions are part and parcel of this implementation.

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Editor's Choice Diskette

We have packaged several powerful editors on this diskette. Ranging from one of our all time favorites, **sc**, to editors that support *windows* to editors that work on *binary files* and *directories* in Unix. You really shouldn't be without **sc** or **hexed**, as these are sometimes indispensable for assuring that your computer will run properly and for modifying and enhancing it. Below you will find a description of the editors we include on this disk:

TED is a full screen text editor developed by Rick Sullivan for source code and text editting. It is a simple, but relatively powerful editor. It allows you to browse and edit text files using simple keystroke commands.

The best way to learn **TED** is to play with it. **TED** is invoked from the UNIX Shell by typing:

ted <filename>

where <filename> is the name of any file. If the file exists, **TED** will display the first page on the screen. If the file does not exist, **TED** will display a blank screen.

You should remember from the start that the **CANCEL/DEL** key is the panic button. Should anything go wrong, hit this key and you will exit **TED.** There are better ways to get out of **TED**, but this key will get you out no matter what.

E17 is a "what you see is what you get" screen editor for unix systems. It is also known as the **RAND** editor, named after the corporation that developed it. It is sometimes called "the window editor" because it draws a border around the screen that looks like a window frame. This can be further subdivided into smaller windows.

E17 always preserves the old version of any file it changes for you. The saved version has a comma (",") in front of the old file name. **E17 DOES NOT PRESERVE LINKS.** The old version of the file is renamed to be the backup, and the new version is written in a newly created file. It also maintains a keystroke file of your editing session, so in the event of a problem, the entire session can be replicated.

Sc is a general purpose screen editor that is used to manipulate UNIX ASCII files. **Sc** can be used for rudimentary word processing, to edit shell script files, or for preparing input to be redirected into UNIX processes. **Sc** is very easy to learn and use. There is a tutorial included with **sc** which takes you through its basic functions. This is a standard ASCII file which can be printed on your printer, or viewed on your screen. You can even read it using **sc**!

It is *especially* good at manipulating non-printing control characters, providing a very useful tool for manipulating shell scripts to embed control characters in strings output by shell processes. This makes it easy to use features like *highlighting*, *reverse video*, or *blinking* in echo commands from shell scripts. **Sc** is reasonably intelligent about commands and files. It will scroll vertically and horizontally, so you may work on lines or files that are more than 80 characters wide.

Dired is an editor especially designed to edit directories. There is limited help available which you can get by hitting the "**h**" key once you enter **dired**. Other than that there is really no other help included with this program, so *please* be careful when using it. We do not recommend the use of this program unless you are familiar with directories in UNIX. If, on the other hand, you have information about its use, please send it to us.

Hexed is a **sc** like editor but it is designed to edit *binary files.* This is a very handy tool to have in your UNIX toolkit.

Emacs - This version of **emacs** is known as **micro emacs** because it is a smaller version of the popular **emacs** editor. Nevertheless, it is very powerful. It supports *windows* and many other features. Once inside of **emacs** you can obtain help by pressing the **ESCAPE** key followed by the **question-mark** key. This opens a window in **emacs** which displays the help file (**/usr/local/emacs.hlp**).

Perhaps the best way of exploring the features of **emacs** is to use the **emacs tutorial**. The file will teach you much of what you need to know. In order to get started, simply type the following at a UNIX prompt:

$ emacs /usr/local/emacs.tut

Also included on this diskette are the *sources* for **emacs**. These are not installed by the installation procedure. If you want them, look at the **/f/emacs** directory.❑

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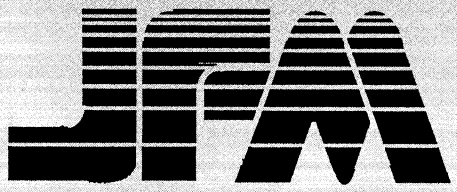

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The Newsletter for Users of SCI/Fortune Computers June1988/Volume 5 Number 6

Prototype Documents -

How to Get the Most from Fortune:Word

See Page 14.

PLUS MORE...

- **Move around in Unix with ease with CDPATH**
- **A Backup Menu that makes backups easier**
- **File Size Limits in Business BASIC**
- **More Software Diskette Library Descriptions**

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Uni-Komp has the following software available in limited supplies at 50% off of the list price:

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/u/fortune *news* is published 12 times per year by The Cambridge Consortium, Inc. Neither **/u/fortune** *news* nor The Cambridge Consortium are affiliated with Fortune Systems/SCI Technology, Inc.

Subscriptions cost $48 for one year within the U.S.A. For foreign subscriptions, add $27 each year for added postage and handling costs.

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This month we highlight the Fortune:Word Tutorial, Zip Tease Delight and Ispell Diskettes. You shouldn't be without them.

News From SCI/Fortune

Fortune:Windows 1.2

Product Description: SCI/Fortune Systems announces the availability of Fortune:Windows Release 1.2, an enhanced version of Fortune:Windows 1.0.1. Fortune:Windows is a sophisticated windowing software package providing Fortune users with simultaneous access to and integration of Fortune applications. Users move quickly between applications, transfer data from one application to another, and process multiple interactive tasks simultaneously - all from one termninal.

New Features

Fortune:Windows has been enhanced by these additional features:

Background processing
Expanded menu bypass support
Automatic environment variable defaults
Start-up file from the Global Menu
Save take-up buffer to a file
Append take-up buffer to a file
Multiplan numeric and alphabetic insert

Performance improvements in Fortune:Windows 1.2 are found in the following key areas:

1) The **WINDOWFAST** function has been expanded to include all functions available from the Fortune:Windows Main Menu. This key is now automatically defined as the RETURN Key to the right of the numeric keypad.

2) A new environment variable, **WINDOWSTOP**, is automatically set to permit processes running in the background to execute even if the window is not completely visible.

3) A new environment variable, **WINDOWSTART**, has been added to permit designation of a specific startup file when Fortune:Windows is initiated.

4) A selection has been added to the **Save to File** Menu allowing the contents of the take-up buffer to be saved or appended to a file.

5) New selections have been added to the **Insert Data Formatting** Menu that allow you to designate *Alpha* or *General* format for Multiplan spreadsheet cells.

Fortune:Windows is targeted for work groups in small businesses and departments in larger corporations. It provides the versatility and responsiveness needed in productivity tools by these groups. With Release 1.2, managers, salespeople, technicians, professionals, executive secretaries, bookkeepers, and word processors all benefit from using Fortune:Windows.

The latest features in this release provide more flexibility in transferring data between applications, and do so with fewer keystrokes. This is all in keeping with the original intention of this product. Fortune:Windows 1.2 also has much greater capabilities in transferring files in Multiplan.

Prerequisites

Fortune:Windows 1.2 can be installed and used ONLY on Fortune systems meeting the following requirements:

1) FOR:PRO 2.0 or later
2) Minimum of 512K, 768K recommended
3) Maximum process size at least 256K
4) Fortune:Word 2.1.2 or later recommended for use with small editing windows.

Proximity Thesaurus for Fortune:Word 3.1

This **Thesaurus** is a software package that displays synonym information about user-selected words within a Fortune:Word document. When activated, the **Thesaurus** displays the word itself, the part of speech, the meaning of the the word, and synonyms for that word. The **Thesaurus** contains entries for 40,000 words. The total number of synonyms available is 470,000, which includes phrases as well as single words.

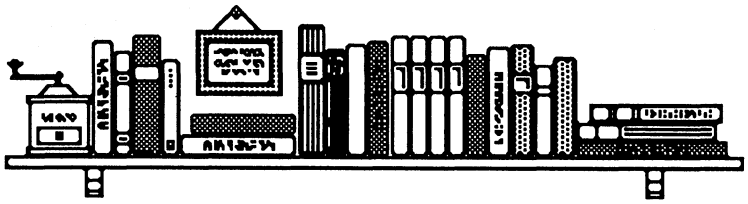
The **Thesaurus** is quite simple to use. Place the cursor on a word in a Fortune:Word document, then press **COMMAND** and **GO TO PAGE**. Half of the Fortune:Word screen becomes the **Thesaurus** display. You can enter new words without leaving the **Thesaurus**, or press **CANCEL** to leave the **Thesaurus** and return to your Fortune:Word document.

GIS Judicial Management

Over the years, one of the areas excluded from the development of sophisticated "Office Automation" has been the court managment function. **General Information Systems (GIS)** recognized this deficiency nearly ten years ago and has since been developing such a system in cooperation with the West Virginia Supreme Court of Appeals.

From early beginnings on a single user computer system, this application has developed into a total automated management system for various court levels, now available on state of the art multi-user, multi-tasking computers running UNIX operating systems. As a result of successful installations, **GIS** also has under development an application that will automate judicial administration and control. If readers are interested in more information, call **General Information Systems** at (304) 342-7108.❑

The BASIC Advisor



The BASIC Advisor is brought to us from Ray Wannall. Ray is President of BaSiC Software Corporation which is located in Baltimore, Maryland.

Question: *In my accounting business I use the BAS Payroll software on the Fortune 32:16. Recently, it became necessary for me to expand my master files to accommodate new clients, and I have run into trouble. My dealer informs me that direct files in Business BASIC cannot contain more than 100,000 records. I need at least 150,000 now and probably more later. Am I up a creek?*

Answer: It is possible that some versions of BASIC on some hardware systems restrict the number of records in a single file to 100,000 because of the record index numbers (zero to 99,999), but I have experienced no difficulty with version 6.5.12 on my 32:16. I was able to use both the DIRECT command and the "*OPSD" (Define Files) utility to create a direct file of 200,000 records with a key size of ten and record size of 1024. I was also allowed to create an indexed file containing 200,000 records of 1024 bytes each, or 400,000 total sectors in size. I did not, however, attempt to fill the files with data in order to see if the program would bomb on record number 100,001. I do not have enough space on my disk to store such garbage. Besides, who wants to sit and listen to a computer grind nonstop for sixteen years? As far as your problem with payroll is concerned, why don't you create separate sub-directories in **Unix** such as ADATA, CDATA, DDATA, etc., to contain duplicate file names for different clients? You can then adjust your **ipl** files to open the new "disks" and use the "*JPSD" utility (Initialize Disk Environment) to enable or disable whatever you want at the moment. (Or, if you feel really adventuresome, play with the BASIC interpreter. Just don't tell anyone I suggested this.)

By the way, I have received several similar inquiries in recent months and am becoming more interested in BASIC file sizes. If any of you have encountered file size restrictions on any version of Business BASIC on Fortune systems, I would appreciate hearing about them so that I may report back. Call me at (301) 448-9460 or write to 5102 Powhatan Street, Baltimore, MD 21207.

Question: *Do you know of any way to retrieve data after the ERASE and FILE commands have been executed in BASIC? It must be out there somewhere! We had an error in the invoice update portion of Invoice/Memo Printing in Order Processing (I believe it had to do with a bad record in the Invoice Detail File). We got the "Error, 'Return' to continue, 'F4' to end" message, and when 'F4' was pressed, two files, CIVHD and CIVDT were erased and redefined before the program returned us to the menu. Since not all of the invoices had updated, our Accounts Receivable and Inventory quantities are both incorrect. This, by the way, is not the first time this has happened, and it sure gets frustrating!*

Answer: I cannot say for sure that all of your data has been lost after the ERASE and FILE procedure, but I certainly would not want to go on a tour of the hard disk looking for it. It is best to assume that the information is gone and look for another way to avoid future problems. The program which created your out-of-balance situation is CBIUA2. The general error handling routine is contained in lines 8000 through 8040. Pressing the Return key causes the program to retry executing the statement which caused the error, while a response of F4 sends the program to statement 9020 where CIVHD and CIVDT are emptied of data before you exit to the menu. You can escape out of the program at the error message before you press 'F4', and maybe locate and correct the error, but most end users would not know to do this. After all, there is no prompt on the screen offering this option. So, by the time a support person is notified, all of the invoice data which was not updated has been relocated to the twilight zone.

As most of you know, the BAS software is a reworked version of Thoroughbred Accounting. The erasing of CIVHD and CIVDT after an error in invoice update is not a feature of the Thoroughbred products; it must have been added by Fortune. By not erasing these two files after an error, you tend to get accounts receivable detail records which do not add up to the totals contained in the associated customer master file record. This shows up when you print an aged trial balance report in AR. Since fields in the customer master file such as "OPEN INVOICES" and "CREDIT AMOUNT" are not changeable through normal file maintenance, most end users have the option of either living with the disorder or calling support people to adjust the balances.

So we have a strange case here: Which type of mess do you wish to correct the next time it happens? If you don't mind reentering all of the invoices which did not update, stick with what you have. Otherwise, you can salvage the data by adjusting CBIUA2 as follows:

From any BAS menu type: `BASIC`
At the prompt (>), type: `LOAD "CBIUA2"`
At the prompt, type: `EDIT 8040 C[GOTO 09]R[1]`
(The computer will respond by printing a statement)
At the prompt, type: `SAVE`
At the prompt, type: `RUN "DOL"`
(You will go back to your menu)

This adjustment causes the program to bypass the file emptying procedure when you exit invoice update after an error. Now you have another problem: if you reprint the invoices, those which updated before will update again, causing double totals to be written to the customer master (detail records will be overwritten and therefore will not be affected). To avoid this, you must remove all records from CIVHD (file number 86) and CIVDT (file 85) which previously updated before you print the invoices the second time. You will know which ones these are because the invoice number and line number appear on your screen when the error occurs, just be sure to record them. (Inventory quantities will be very difficult to straighten out if the error occurred in the middle of an invoice. You will probably have to examine all lines after the last line updated for that one invoice and adjust fields in the inventory master file such as total quantity on hand, and total quantities in each of the warehouses.) You may be able to kill the updated records in the two files with the Delete feature in standard file maintenance (797 from any BAS menu). If not, here is a little homemade utility program you can key in and run when needed:

```
00010 REM "KILLIV - REMOVE INVOICE RECORDS"
00020 BEGIN
00110 CLOSE (1); OPEN (1) "CIVHD"
00120 CLOSE (2); OPEN (2) "CIVDT"
00200 INPUT (0,ERR=00200) 'CS',@(10,10),"ENTER LAST UPDATED
00200:INVOICE NUMBER: ",X7$:("="=00220,"END"=09500,LEN=0,6)
00210 GOTO 00230
00220 IF CTL=4 GOTO 09500 ELSE GOTO 00200
00230 IF LEN(X7$)<>6 GOTO 00200
00240 READ (1,KEY=X7$,ERR=00200)A$
00300 PRINT @(10,10),'CL',"REMOVE ALL INVOICES UP TO AND
00300:INCLUDING ",X7$
00310 INPUT (0,ERR=00300) @(10,12),'CL',"DATA CORRECT (Y/N):
00310:  ",X7$:("="=00330,"Y"=00400,"N"=00200,"END"=09500,LEN=
00310:0,3)
00320 GOTO 00300
00330 ON CTL GOTO 00300,00400,00200,00200,09500,00300
00400 PRINT @(10,12),'CL'
00410 READ (1,KEY="",DOM=00411)
01000 LET K$=KEY(1,END=09000)
01010 IF K$>A$ THEN GOTO 09000
01020 PRINT @(10,12),'CL',"WORKING ON INVOICE ",K$
01030 READ (2,KEY=K$,DOM=01031)
01040 LET K1$=KEY(2,END=01080)
01050 IF K1$(1,6)<>K$ THEN GOTO 01080
01060 REMOVE (2,KEY=K1$)
01070 GOTO 01040
01080 REMOVE (1,KEY=K$)
01090 GOTO 01000
09000 PRINT @(10,12),'CL',"INVOICES HAVE BEEN REMOVED ",
09100 WAIT 2
09500 RUN "CUTSA0"
```

This program removes entire invoices and allows Accounts Receivable to remain in balance when the second printing and updating of invoices is conducted. (Warning: if you cannot see exactly what the program is doing by looking at it, do not attempt to use it. A little knowledge can be very dangerous!)

As we go to press I have just received the announcement from Concept Omega on the 1988 Thoroughbred Leaders Conference. It will be in Newport Beach, CA, this year on October 5-7. Fees increase on July 1, so if you want to register quickly, call Nancy Dempsey at Concept Omega, (201) 560-1377 for information. More on this in our next issue of **/u/fortune** *news*.

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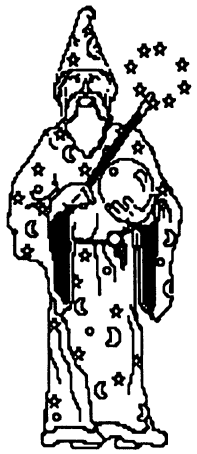

This series is a must for all owners and users of the Fortune computer. Dave is President of UNI-KOMP which is located in Houston, Texas. He provides UNIX seminars, software for the Fortune Computer, and is president of the Houston UNIX User's Group. He contributes independently to ***/u/fortune news.***

by Dave Kloes

In the last issue, we completed our discussion of doing backups using the "cp" command using the "-B" and other options. In this article, we will be discussing how to restore files and directories from a backup made using "cp -B".

Before discussing restoration, however, there are two more areas about backups that we want to cover. First, the information that follows was provided by Fortune (and given in a previous issue of **/u/fortune** *news*). If you are using the multi-volume copy (**cp -B**) option and you cancel out of the process, or if the process aborts, the following procedure can be used to restart the backup where it left off:

1. Insert Volume 1 of the backup; mount it; and read the __part__ file. The sequence of commands would look something like this:

```
# mount /dev/fd02 /f
# more /f/__p*
```

If you remember, this file serves as a table of contents for the entire backup. The leftmost number or first "field" displayed is the backup volume number. To identify where to restart the copy, select a volume that does not have a "-" in the second field. For example, if you aborted the backup on volume 5, but the second field displayed for volume 5 is a *dash,* you would begin the backup with volume 4 (providing that it does not also have a dash). Remember that the dash says that this volume is a continuation from a previous volume. The system cannot restart your backup with a continuation volume so we must designate a volume that does not start with a continuation (dash).

SYSTEM BACKUP

2. Be sure to unmount volume 1 before entering the following command. To restart the copy, you would enter:

```
cp -BroustXC /dev/fd02 790 vol# /
```

Note that the "-C" (continue) option is used in the command line to tell the system to continue with the backup starting with the designated volume. Also note that `vol#` refers to the volume of the backup at which you want to start..

3. In response to this command, the system will ask you to insert Volume 1. It will then read this volume and instruct you to insert the volume you requested to restart the backup.

The second area we need to discuss is the temporary files that are created whenever we do a backup or restore operation using the "cp -B" or "cp -R" options. If a backup or restore should not complete for any reason, the temporary files and directories associated with these two options are created in the **/tmp** directory. These files and directories have names that begin with "part???" and "ls????". If a backup or restore operation is not in progress and you see these files/directories in the **/tmp** directory, they should be removed using the following command:

```
# rm -r /tmp/part* /tmp/ls*
```

Now that we have completed our discussion of "cp -B", let's talk about restoring files and directories using the "-R" option to the "cp" command.

-R Option

The "-R" option is used to indicate that we want to restore data from a backup that was done using the "cp -B" option. The most difficult part in using this option is understanding the format to use to get the files to go back onto the system where we want them to go. If you remember from our last article, the format of the command we use to restore data depends on how we did the backup to begin with. We also mentioned (and will reemphasize here) that, if you used a utility within an application to make a backup, you should also use that facility to restore files. Here are two examples:

1. You use the "archive" function in **Fortune:Word** to backup a file to a diskette. You should use the "archive" functions in **Fortune:Word** to restore the file.

2. You use the **BAS** "END OF DAY PROCEDURE" to backup your accounting files. You should use the **BAS** "START OF DAY PROCEDURE" to restore the files.

There are cases where an administrator would deviate from the above rules. One case would be where we only want to restore one file from a **BAS** "END OF DAY" backup. There is no utility within **BAS** to accomplish this procedure. However, if you know that the **BAS** "END OF DAY PROCEDURE" uses the "cp -B" command to make the backup, you can use what you will learn here to recover or restore one file. This assumes, however, that you are knowledgeable enough about the implications of restoring a single file or files in **BAS** to perform the operation. (This should normally be done in conjunction with whomever is supporting your **BAS** accounting software). As a sidenote, the shell scripts that are run when you do a **BAS** "END OF DAY" and "START OF DAY" are **/b/cutug.eod** and **/b/cutuf.sod**, respectively.

First of all, the form of your "restore" command will be the same as the form we used to make the backup except we will replace the "-B" option with the "-R" option. We also will not use the "-X" (verify) option since this is only used when we do the backup. Let's say that we did a full system backup using the following command:

```
# cp  -routsVBX  /dev/fd02  790  /
```

The command that would completely restore this backup would be:

```
# cp  -routsVR  /dev/fd02  /.  /
```

Notice the two arguments at the end of this command line. These are the "from" and "to" arguments. The "/." says to restore everything on the diskette to the "/" directory. The "-r" option says to do a recursive restore. The "-out" options restores the files and directories with the same owner, modes (permissions) and date/time, respectively. The "-s" option allows special files (such as **/dev** files) to be restored. If you want to see the files and directories that are being restored, use the "-V" option. The "-R" option will automatically mount and unmount each volume and will prompt you for each volume to be restored.

Let's say that we only want to restore the **/etc/passwd** and **/etc/devtype** files. The command line would look like this but typed all on one line:

```
# cp  -routsVR  /dev/fd02
/etc/passwd  /etc/devtype  /etc
```

The form of this command that is used to restore individual files is different than the form used to restore the entire backup. First of all, there are now three arguments at the end of the command and can be compared to the normal "cp" command. Basically, we are saying to restore the **/etc/passwd** and **/etc/devtype** files from the backup set to the **/etc** directory. If we had put "/" instead of "/etc" at the end of the command line, the files would have been restored to the root (/) directory which is not where we wanted them to go. Let's look at one more example to make sure you understand how this works. Assume we did a backup of the

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"/u/davek" directory using the following command:

```
# cp -routsVXB /dev/fd02 790 /u/davek
```

If we wanted to restore a file called "letter" that was in the **/u/davek** directory, we would enter all on one line:

```
# cp -routsVR /dev/fd02
/u/davek/letter /u/davek
```

This says to restore the **/u/davek/letter** file to the **/u/davek** directory.

In order to restore a files/directories from a backup set that was done using the "cp -B" option, we must know the form of the command that was used to make the backup or we must look at the diskette to see how the files/directories are stored in order to use the correct command to restore them. What sometimes happens is that you will enter a "cp -R" command to restore the data and it is restored to the wrong directory because we entered the command incorrectly. Let's go back to two examples we gave you the last issue:

Example 1:

```
# cp -routsVXB /dev/fd02 790 /etc
```

Example 2:

```
# cd /etc
# cp -routsVXB /dev/fd02 790 *
```

In example 1, if we mount the diskette after the backup and do an "ls" command, we will see the "etc" directory. The actual files are backed up in the **/f/etc** directory. In order to restore the **/etc/passwd** file from this backup, we would enter all on one line:

```
# cp -routsVR /dev/fd02
/etc/passwd /etc
```

In example 2, if we mount the diskette after the backup and do an "ls" command, we will see all of the individual files from the **/etc** directory in the **/f** directory. We did not tell it in the backup command to backup the **/etc** directory itself. Now the form used to restore the **/etc/passwd** file would be, again typed all on one line:

```
# cp -routsVR /dev/fd02
/passwd /etc
```

This point is important. To reemphasize it, let's look at the form of the command used to do a **BAS** "END OF DAY" backup (see the **/b/cutug.eod** file):

```
cp -Brt /dev/fd02 790 BDATA
```

If we specify in the END OF DAY PROCEDURE that we want to do a data backup, this is the command that is used to do that backup. Notice that the full pathname is not used to backup the data (i.e. **/b/BDATA**). Therefore, if we do an "ls" in the **/f** directory after mounting the diskette, we will not see the "/b" directory. If we wanted to recover only one file (in this example, the "/b/BDATA/COP/COPAR" file) from this backup we would enter the following all on one line:

```
cp -Rrt /dev/fd02 BDATA/COP/COPAR
/b/BDATA/COP
```

This command would take the **COPAR** file from the diskette and restore it to the **/b/BDATA/COP** directory. Notice that our "from" pathname starts with the same directory that was used when the backup was done. Also the "to" pathname indicates the full pathname of the directory where the file is to be restored. This all indicates that we must have some knowledge about how the data is stored on the diskette in order to restore it.

The most commonly used applications on the Fortune System are **Fortune:Word, Multiplan**, and **Business Accounting (BAS).** Both **Fortune:Word** and **Multiplan** files are stored in individual directories in the **/u** directory. **BAS** files and programs are stored in the **/b** directory. We have already given you the command to be used to backup the entire system. Here are commands that can be used to backup the "/b" and/or "/u" directories:

Backup /u or /b only:

```
# cp -routsVBX /dev/fd02 790 /u
# cp -routsVBX /dev/fd02 790 /b
```

Figure 1

```
ext=n
while test "$ext" = "n"
do echo -n "^L
          FLOPPY DISK BACKUP MENU

 1.  Backup /u Directory Only.
 2.  Backup /b Directory Only.
 3.  Backup /u and /b Directories.
 4.  Backup Entire System.
 5.  Backup Individual Files or Directories.
 6.  Who Is Currently Using the System.
 7.  Exit Menu.

ENTER YOUR SELECTION (Do not use keypad): __^H^H"
read sel
case $sel in
        1) echo "^L
Backing up the /u directory:
"
           cp -routsVXB /dev/fd02 790 /u
           echo -n "^G
Backup of /u complete.  Depress <RETURN> to continue: "
           read bunk;;
        2) echo "^L
Backing up the /b directory:
"
           cp -routsVXB /dev/fd02 790 /b
           echo -n "^G
Backup of /b complete.  Depress <RETURN> to continue: "
           read bunk;;
        3) echo "^L
Backing up the /u and /b directories:
"
           cp -routsVXB /dev/fd02 790 /u /b
           echo -n "^G
Backup of /u and /b complete.  Depress <RETURN> to continue: "
           read bunk;;
        4) echo "^L
Backing up the entire system:
"
           cp -routsVXB /dev/fd02 790 /
           echo -n "^G
Backup of system complete.  Depress <RETURN> to continue: "
           read bunk;;
        5) echo "^L
^GEnter directory(ies)/file(s) to be backed up or 'exit': "
           read dir
           if test "$dir" = "exit"
           then continue
           fi
           echo "^LBackup in progress ........
"
           cp -routsVXB /dev/fd02 790 $dir
           echo '^LBackup procedure complete!
Please remove last volume.
Depress RETURN to continue: '
           read bunk;;
        6) echo "^L
The following people are logged in:
"
           who|more
           echo -n "
Depress <RETURN> to continue: "
           read bunk;;
        7) exit;;
        *) echo -n "^L^G
Invalid response.
Depress <RETURN> to continue: "
           read bunk;;
esac
done
```

Backup of both the /u AND /b directories:

```
# cp  -routsVBX  /dev/fd02  790  /b  /u
```

Note that the "X" option is used only if you want to verify the diskettes. Also the "s" option is not really required for the **/u** or **/b** directories since there are no "special" files there. It is a good habit to use the option whenever you do a backup just so that you remember to put it in when it is needed.

For those of you that are interested, here is a basic backup shell script that you can use (See Figure 1). If you don't have the energy or inclination to enter all of this, a copy has been made available to **The Cambridge Consortium**. Please contact them for details on obtaining a copy. The name of the utility is "backup.menu". You can customize the script for your own particular needs. For example, you might want to remove the "-X" (verify) option.

Next time we will talk about the "tar" command. It is not used much on the Fortune System but is one of the primary means for backing up data on other **Unix/Xenix** systems. We will also provide a "C" program that can be used to make the "tar" command do multi-volume diskette backups.❑

Note: We have put the backup shellscript, that is presented on this page in Figure 1, onto a floppy. If you would like a copy, please send $5 to us, The Cambridge Consortium, Inc., in order to cover duplication, handling and postage costs.

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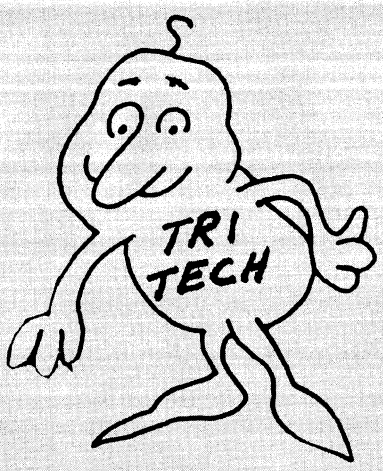

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Leap Tall Hierarchies with a Single Bound...

by Harold Adler
Entrepreneur, Inventor and Investor

Somewhere in an obscure corner of the code of the Fortune **Unix** system, there is a splendid tool which can provide its user with the power to navigate the highways and byways of a directory system with great ease and reliability.

This tool is **CDPATH**.

Perhaps in time past, **CDPATH** was better known; in any event it does not now appear to be in the toolkit of most users, and its appearance in current literature is almost non-existent. No mention is made of **CDPATH** in the 3-volume Seventh Edition of the "***Unix** Programmer's Manual*" of Bell Laboratories. This lack is unfortunate since **CDPATH** can empower one with the ability, like Superman, to leap tall hierarchies with a single bound. For example, suppose you are working in directory A (A is your current directory), and you would like to transfer to directory B (making B your new current directory). Suppose further that B is in a remote branch of the directory tree. Your well-known choices are:

1) To execute **cd** followed by the full pathname of B.

2) To plod step-by-step up and across and down by a sequence of double dots and slashes.

For most of us, the probability of typing errors when typing long strings seems to increase exponentially with the length. Even for those fortunate enough to type without errors, a sequence of technical keystrokes is an annoyance which can interrupt a productive thought process. How elegant it would be if only one could type merely:

```
cd B
```

It is the purpose of this article to show you how to issue just such a command with ease and reliability.

After a little reflection on my statement you may well ask "But what if there are 2 (or more) directories named B in the system?" How can I direct **cd** to the right one? How will I know for sure that I have arrived at the right one? Brief answers, which will be amplified later are:

1) You set up a search sequence similar to **PATH**.

2) In every instance when **CDPATH** gives you expanded power over normal **cd** it will reply with the full pathname on arrival at the destination directory - just as if you had issued a **pwd**.

CDPATH is different from most of the UNIX features and capabilities that one picks up with experience. Other features are principally new commands which give you added power over the system, or they are new options on old commands which expand their power. **CDPATH** is a shell variable which you can customize to your own purposes to modify your environment by specifying the behavior of **cd**. As such it will normally be entered into your **.profile** file.

In this respect, it is similar to **PATH**; indeed, the syntax is identical with the syntax of PATH. Consider a typical directory tree1. You are user "abc", and for you **HOME=/u/abc**. Let's start by writing into your **.profile** file the following:

```
CDPATH=$HOME
```

In order to clarify the implications of this simple-appearing statement, we must take a deeper look at the normal capabilities of **cd**. This is necessary in order to have a working hypothesis of the behavior of **CDPATH**. Otherwise the system would appear to give mysterious and irrational results. The well-known normal capabilities of **cd** are five in number:

1) **cd** can directly access by name alone any subdirectory of any current directory it is in.

2) **cd** can access any directory in the system using the full pathname.

3) **cd** can access any directory at a lower level than its current location by a relative pathname.

4) **cd** can access its parent directory by a **..** argument.

5) **cd** can go home by issuing the command `cd`.

Before assigning the above value to **CDPATH**, **cd** had all five of these capabilities. All took place silently with no confirmation. After the assignment all five of these cabilities are lost. In short, **cd** has been badly crippled.

What has been gained, however, is the ability of **cd** to access any of the subdirectories of **$HOME** from wherever the current directory happens to be. Furthermore, upon arrival at the destination directory, it will confirm its location by announcing on the terminal its full pathname.

There was nothing special about starting with **$HOME**. Any directory listed in CDPATH will give **cd** the same power to access any of its children regardless of the location of the current directory. Indeed, siblings of a listed directory can now access each other. To repeat, **cd** can now transfer from anywhere in the system to any of the children of any directory listed in **CDPATH**. But that is all it can usefully do. To follow up on this feature a little further before effecting a cure, let us append a few more pathnames:

```
CDPATH=$HOME:$HOME/banks:$HOME/realest
```

Now all the children of **/u/abc/banks** and all the children of **/u/abc/reals** are also known to and accessible to **cd** from anywhere in the entire system including from each other.

If any of the three directories now in **CDPATH** have children of the same name, the one found will be the first in the path. This gives you the clue on sequencing the items in **CDPATH**; just put those first which have the highest frequency of use.

To access a later one of the same name, we must restore to **CDPATH** its original five powers. The result of the restoration will be that both capabilities will operate side by side but with the original **cd** rules having precedence over **CDPATH** rules in instances where they both apply. For example, if you issue a **cd** command which was legal before **CDPATH** was installed you will arrive at the destination without the confirming message. If it required the power of **CDPATH**, you will get the message.

Now for the surgery: All that is necessary is to prefix a **":"** to the entire string following the "=". At the same time, let's put in a style change as follows:

```
HB=$HOME/banks
HR=$HOME/realest
CDPATH=:$HOME:$HB:$HR
```

We now have a system that provides us with total navigation control to destinations within our own home territory. Also the surgery has restored all five normal capabilities of **cd** throughout the system. (Again, when using **cd** in its normal mode, don't expect the confirming **pwd**)

How about accessing the outside world? Here is an example of a simple extension which breaks the bonds.

```
CDPATH=:$HOME:$HB:$HR:/:/u:/usr
```

Appending "/ " lets **cd** now access any second level directory: bin, etc, u, usr, etc. Appending **"/u"** lets **cd** now access any user's home directory. Appending **"/usr"** lets **cd** now access every subdirectory of /usr, man, help, games, etc. Now, for example, from down in your /u/abc/banks/city you can type a command like `cd man`, whereupon you will arrive at **/usr/man** and will receive the confirming message `/usr/man`.

If you want to return, you can type `cd city` and you will return with the confirming message `/u/abc/banks/city`.

There is a final wrinkle that you may find interesting. You can start out by including .. in the path:

```
CDPATH=:..:$HOME:.....etc
```

This says that, whatever the current directory, **cd** can access any of its siblings. The verification of arrival with this feature installed is not the *full* pathname for a sibling; it is the *relative* pathname in the form **../B**.

If you want to experiment with **CDPATH**, just type it after a prompt. If you want to install **CDPATH** into your **.profile** file, don't forget that it isn't enough just to change **.profile**; you must log in again in order to reactivate **.profile** before it will take effect. A short cut that sometimes works is merely to type `. .profile`. This processes **.profile** within the same shell.

Good Luck with **CDPATH**.❑

Get More Out Of Fortune:Word with Prototype Documents

What is a **prototype document**? A prototype document contains default parameters for editing and printing which are used when a new document is created. By using your prototype documents wisely you can have all of your format lines, header and footer pages, printing formats, etc. all predefined before you even start typing your document. This is especially useful when you have many similar documents to type — e.g. letters, chapters of a report, memoranda, etc. Prototype documents also have the benefit of being very easy to create and use.

Every time you create a new document you are asked what prototype you want to use. If you don't tell the computer otherwise, it will use a mystery document called 0000. As noted in the **Fortune:Word Operator's Guide**, the 0000 document contains the following default information: line length of 65 characters, tabs every fourth space, and a page length of 54 lines. The Print Document menu defaults to footing starting at line 61, printer number one, and the top choice is selected for all of the options listed at the bottom of the Print Document menu. The very first time you use **Fortune:Word** in a new library to create a document, the **0000** document will be created also with these defaults.

The easiest way to customize a prototype document is to edit the 0000 document. Simply enter 0000 when you are asked for the document name. When you get to the **Document Summary** screen, any information that you enter in terms of operator, author, comments, etc.. will be saved in the prototype document and used with new documents that you create. Once you press <EXECUTE> again, you will be in the actual editing screen. You will probably have an empty page with the Format Line displayed at the top of the page. Note that indeed, the line length is 65 and there are tabs every 4 spaces. Maybe you like your documents to always have a line length of 75 with tabs every 5 spaces — simply use the normal commands to edit the format line to make these changes. Once you have made these changes, use the <CANCEL/DELETE> <EXECUTE> sequence to save the changes. You've just changed the editing defaults.

Now go to print the document. Use the print selection from the **Fortune:Word** menu as you normally would. Once you get to the Print Document menu, you make whatever changes you like. Suppose you want your left margin to be 12 so that it lines up with your letterhead — no problem, just make that change. Once you are done, press <EXECUTE>. Now you've changed the printing defaults.

Try creating a new document now. You will notice that whatever you entered in the prototype document will automatically appear in the new document. This is true for any changes you made, with the exception of any text typed into the actual body of the prototype document — this will not be copied. Save the document and go to the Print Document menu and you will see that your changes there have also been saved. That's all you need to know to take advantage of basic prototype use.

Advanced Prototype Features: We have introduced you to the basics of prototype use. Now we will make some suggestions for more complex use.

Multiple Format Lines: If your documents routinely use several format lines, you can create them in your prototype document and then use them in all of your documents simply by using the <INSERT> <COPY> <FORMAT> # sequence to copy the existing format lines to the proper position in your document. Many glossaries, e.g., automatically preparing an envelope for all of your letters, use a prototype with two format lines — one wide with a large tab for the envelope, and a normal one for the text of the letter. If you are typing a paper and use frequent quotes, you might use one format line for the normal text of the document which would be a long line with double line spacing, and short format line with single spacing for quotations. By creating these two format lines in the prototype document, they would not have to be recreated in each new document that you create.

Automatic header or footer pages: If you frequently create multi-page documents, you may find it useful to include a header or footer page within your prototype document. For example, if you like to have your pages numbered like this:

Page #

you can just put that text into the header page of your prototype. Insert, as you ordinarily would, the <RETURN>'s that you usually use in order to position the page number text at the top of the page (e.g. to leave space between the page number and the body of your document). this text will automatically be included when

you create a new document.

You can also combine the idea of multiple format lines with the automatic header page. If your documents are double spaced, but you want your header page single spaced like this:

```
The Cambridge Consortium, Inc.
                                Page #

This is the double spaced text on the
body of the letter. The best way to
achieve this effect is to use one
format line for the body and second
for the header page.
```

To do this, go to the header page and create a second format line. Use the <COMMAND> s 1 sequence to set the spacing to single spacing, if it is not already set that way. Insert your header text on the header page. Then go back to the beginning of the document with the <GOTO PAGE> B sequence. Again use the <COMMAND> s 2 sequence to select double spacing. These two format lines will be the default when you create a new document.

Print header pages starting with page 2: If you choose to create a header or footer page, you may always want to start page numbering with page 2. To do this, you will need to insert a page break in your prototype document. Then print your prototype document. When you are on the Print Document menu, change the **Starting as page #** to **2** and **First heading page** to **2**. These parameters will then be used when you create new documents. Note that you will only want to use this prototype when you know that your document will be more than one page. If it is only a single page, you will get an error that the header number is out of range.

Use the workpage to store reference material: The contents of the prototype workpage will be copied whenever you create a new document. You might use this feature to store reminders about format procedures in your office, frequently called phone numbers, an outline for a book, etc. Whatever is on the workpage can be easily referenced by using the <GOTO PAGE> W sequence. To return to the text of your document, use the <GOTO PAGE> # sequence where # is the page number you want, or E to return to the end of the document.

Set up defaults for the Print to File command: The **Fortune:Word** print **To file** option is sometimes quite useful (the next to last option offered on the Print Document menu at the bottom right corner of the screen). We sometimes use it for transforming documents that we will be sending via modem to a bulletin board or electronic mail service. Although we have a "document converter" feature with our communications software which works quite well, it doesn't know about line spacing or indents. If we print the document to a file, all of these formatting features are retained. In order to do this, you change the **To file** option at the bottom right of the Print Document menu to **yes**. You will then be prompted for the **output type.** This question refers to the type of printer you will be using. We use something called **EMAIL**, which stands for Electronic Mail. If you do this and you get a message, **No such entry**, then you will have to create it in your **/etc/printcap** file. The entry looks like this:

```
EMAIL:
:lc:
:hf=1:
:tc=Plain2:
```

If you need more information about how to do this, please call us at **617 894-6900**. You are then asked for a document name for your output file. You might select something like **email.tmp**. Once you hit <EXECUTE>, these entries will all be saved. You may want to print the prototype again, and change the print **To file** option to no. That way, most of your documents will be printed to your printer. However, if you do occasionally want to send them to a file, all of the other questions about output type and file name will already be answered.

Using Multiple Prototype Documents: All this may be well and good, but with so many options, it will be necessary to constantly edit the 0000 prototype document so that it will accommodate all of these features. Fortunately there is a better solution — multiple prototype documents. You are allowed to create as many prototype documents as you wish. They don't have to have any special name, although some system for naming them will probably be useful. We begin all of ours with the number 0, just so they will be together in our document index. You are not restricted to just using numbers in their names though. We have **0let**, **0newsltr**, **0memo**, etc. You can even use an existing regular document as a prototype if you want to copy all of its format and print information. None of the text of the document will be copied into your new document. To use an alternate prototype document, simply enter its name instead of 0000 when you are asked for the prototype name when you create the new document.

Prototypes and Libraries: Just like any other document, prototype documents reside in libraries, such as **/u/josh**. The **0000** prototype in my library may be entirely different from yours. You can use my prototype document by specifying its full path name when you create documents in your library, e.g., **/u/josh/0000**. Alternatively, you can make a linked copy of standard prototypes to several users' accounts. This would be done from the UNIX shell and you would need to be logged in as root or manager. Suppose you have a prototype called **0std** located in **/u/josh** and you want to copy it to **/u/fred**. Once you have the # prompt, type:

```
cp -l /u/josh/0std* /u/fred <RETURN>
```

The **-l** flag stands for linked. (That is an ell and not a one). This means that you haven't really made another copy of the document. Rather, you have just added another pointer to it — essentially another name for the same file that makes the one file accessible from both accounts. Both **/u/josh/0std** and **/u/fred/0std** refer to the same single file on the disk. If one person then changes this file, it will be changed within both libraries.

We hope that we have given you some useful ideas about using prototype documents. As you can see, their uses are limited only by your imagination.

Josh Lobel

Software Diskette Library Highlights:

Fortune:Word Tutorial, Zip Tease Delight and Ispell Diskettes

What Is Our Software Diskette Library?

Our Software Diskette Library is a collection of floppy diskettes. Each diskette contains programs that we have gathered together from various places. Almost without exception, these are programs that are freely distributable. They are donated to us by our subscribers or we find the programs in other arenas and compile them so that they will run on the Fortune computer.

The fact that the programs are freely distributable is the reason why they are *such* a good deal! We only charge you for our time in handling the orders. Thus, each disk costs at most **$10**. If you buy four or more disks, then the cost per disk drops even further.

In this fourth installment, we list the contents of three more of our disks and give some brief descriptions of some of the programs. You will find a treasure chest of useful utilities, exciting programs and fun games listed in this article. We hope you will take the time to evaluate whether or not any of these diskettes will help your computer work harder for you.

Pricing and Availability

We currently have 11 diskettes as follows:

1) Fortune:Word Tutorial
2) Fortune Utilities
3) D.C. Grab Bag
4) Compressor's Delight
5) Ckermit
6) Unix|Stat
7) Unix Tools
8) Editor's Choice
9) Zip Tease
10) Ispell
11) Chess, Yahtzee and More

Each disk costs **$10** separately. However, we do offer substantial quantity discounts according to the following table:

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Fortune:Word Tutorial

This disk was donated by Fortune Systems, and contains a basic demonstration script of about 30 pages for Fortune:Word. The disk also contains numerous files that contain the examples that are used in the script. In a concise, and relatively brief document, it is possible to read through and try out most of the features of Fortune:Word. To do so, print out the file called **demopackb,** and then just start reading.

This disk also contains the **WPSTRIP** program which is used to convert a Fortune:Word file to straight ASCII text.

Finally, the disk contains some useful *glossaries*. We have listed the glossaries along with a very brief description of what the entry does. For example, one glossary does math calculations. Another provides an example of a glossary that is used to fill in a pre-set form.

Included Glossaries:

ENTRY b	MAKE A WORD BOLD
ENTRY B	MAKE A SENTENCE BOLD
ENTRY u	UNDERLINE A WORD
ENTRY U	UNDERLINE A SENTENCE

The above four glossaries perform some very useful functions with just two key-strokes. For example, making a word bold without the glossary can be cumbersome. The other glossaries aid you in making a sentence bold or underlining either a word or sentence.

ENTRY C PERFORMS A MATH CALCULATION

ENTRY A LETTER ADDRESS

This entry prompts you for your addressee's name and address. After entering each line, be sure to press the **EXECUTE** key rather than the **RETURN** key. Once all four lines have been entered, they will be copied down onto page two, the date will be inserted, and you will be prompted for the salutation. Once you have entered that, a colon will be tacked on and you will be ready to type your letter. To print it, choose single sheet printing, and first print your envelope. Then insert

your stationary and print the letter.

ENTRY Z FORMATS TOP OF LETTER
ENTRY D REFORMATS DATE TO LOOK NICE
ENTRY L LETTER ADDRESS
ENTRY B CREATES NEW FORMAT LINE FOR ENVELOPE ADDRESS
ENTRY E COPIES ADDRESS TO ENVELOPE FILE

Entries Z through E are used by the **LETTER ADDRESS** glossary but are also separate entries as well. We would like to draw your attention to **ENTRY D** which reformats the date to look nice. Instead of typing the date into your document, you can just run this glossary.

ENTRY A PROMPT FOR FILLING IN THE BLANKS

This glossary is a sample of a glossary created to prompt an operator through "filling in the blanks" in a pre-printed form.

ENTRY F DIVIDE FORMAT LINE

This glossary divides a format line into equal portions upon operator's specification.

ENTRY M CURSOR PLACEMENT AND MATH

This glossary is for use with the Fortune:Word document called "month" that is on the floppy. It does cursor placement and math.

ENTRY L KEY IN NEW PERSONNEL

This glossary is for use with the document "list". It is used to key in new personnel.

ENTRY P PRICE LIST

This glossary sets up a price list of requested systems on a given part number. It then calculates the cost and any discount to give a final total.

Zip Tease Diskette

The following is general information about the files on this floppy.

All *data* is located in the **/f/zips** directory and is copied into the **/usr/lib/zips** directory upon installation, which is created if it does not already exist.

All *programs* are in the **/f/usr/bin** directory. These are a set of sample programs that use the data. Note that although some of the programs installed through the menu, such as **otim** and **loczip**, are compiled programs, there are also shell script versions of the programs called **otim.sh** and **loczip.sh.** The shell scripts may provide you with some ideas for your own programs. The "**c**" source code for these programs is also provided.

Please note that the programs **grep, bm, awk,** and **compress** are also

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supplied on this disk. They are used in the shell scripts that are provided as sample programs.

Telltime is a shell script that produces the approximate *location* and *time* given a telephone areacode. For example:

telltime 617 produces

```
Time is 14:52 in Eastern Mass
(617)
```

In order for this to work properly, it is necessary that your *timezone* setting on your computer be set correctly. You can use the **"Check date function"** on the Installation Menu to check your setting.

telltime uses a data file called **codelist**, which is normally installed in / **usr/lib/zips/codelist**. This is an ASCII file which can be modified, if you like, using an editor such as **screen** or **sc**.

fz - This program is used to determine the possible zipcodes for a given areacode and phone exchange. For instance, if you enter

fz 617 663

The computer responds

```
617 663 01821
617 663 01862
617 663 01865
617 663 01866
```

As you can see, the program responded with the *areacode*, the *exchange* and the *zip code.*

The data files for this program are all located in the **/usr/lib/zips** once this disk is installed.

loczip - This program finds a location based on the zipcode. For example, if you enter

loczip 02138

the program responds:

```
02138 is in Massachusetts
```

The data file for this program is called **statezip.new.** It is located in the **/usr/lib/zips** directory. It can be edited using the **screen** or **sc** editors. Please note that it should be sorted in reverse zipcode order from highest to lowest.

otim - This program finds the time in an overseas location. For example, if you enter

otim France

the program responds:

```
The country code for France is 33
It is now 11:37 pm on October 15 in
France
```

The data file for this program is called **overseas.new.** It is located in the **/usr/lib/zips** directory. It can be edited using the **screen** or **sc** editors.

You can enter the country in upper or lower case. If you enter the beginning of the country, any countries that match it will appear, e.g. if you enter **otim united**, you will get info on UNITED KINGDOM, UNITED ARAB EMIRATES, etc.

Ispell Diskette

ispell is an interactive *spelling checker* that works on ASCII files. It is used from the Unix Shell. It is invoked quite simply. Just type **ispell** and then the name of the file that you want to check, like:

```
ispell filename
```

ispell will load up its dictionary, which is called **ispell.hash** and is located in **/usr/local/lib**, and then will look for errors. Once inside **ispell**, you can type a **? (question-mark)** to get a list of allowable commands. The program **ispell** can be added to your Global Menu, if you so desir,e by using the addglobal program which is included on the diskette. A very simple shellscript will also be needed which we can supply.

curse is a program which allows you perform some fancy screen *updating* from a Unix prompt or shellscript. For example, you could clear the screen, output some text in the middle of the screen in standout mode and then move the cursor to the bottom of the screen. And all of this could be done with one command. The command to do this is shown here:

```
curse -cl -cm 34 11 -so 'TITLE' -se -cm 0 24
```

There are several *documentation* type files included on the floppy. A *formatted* man page is in **/f/curses/curse.mout.** The *unformatted* man page is **/f/curses/curse.1.** These files explain the use and syntax of **curse** in more detail. The source for **curse** is contained in **/f/curses/curse.c.** None of these files are installed. If you want to see them, you should mount this floppy in a normal fashion and **cd** to the **/f/curse directory.** Once there you can copy the files to wherever you want, or view them with **more** or your favorite editor.

stat is a Unix utility which outputs information on files. The information includes the *size* of the file, *last access time,* etc

Vsh is a screen-oriented shell designed to replace the standard shell in many of the simpler operations involved in program and text development. In addition to the commands below, **vsh** is extensible via the **'O'** command. A user can define his own commands with either the **'O'** command or in a file **.vshrc** in his login directory, which will be loaded upon **vsh** startup. The upper case letters, lower case **u-z**, and most printable special characters can be redefined. More can be redefined in multicolumn mode. See the **vsh.intro** documentation for more information.❑

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The Newsletter for Users of SCI/Fortune Computers

July 1988/Volume 5 Number 7

Addressing Envelopes

How Fortune:Word Glossaries can help

See Page 12.

PLUS MORE...

- **Paginating Multiplan Reports**
- **Adding Compress to the Global Menu**
- **More on System Backup -- cp and tar**
- **Inventory Item Numbering in BASIC**
- **More Software Diskette Library Descriptions**

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/u/fortune *news* is published 12 times per year by The Cambridge Consortium, Inc. Neither **/u/fortune** *news* nor The Cambridge Consortium are affiliated with Fortune Systems/SCI Technology, Inc.

Subscriptions cost $48 for one year within the U.S.A. For foreign subscriptions, add $27 each year for added postage and handling costs.

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7/88

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Page 7 — **System Administration**

*This month Dave concludes his description of the **cp** command for backup, and introducers the **tar** command, which is also an effective tool for system backups.*

Page 12 — **Envelope Addressing**

*Sometimes the most basic things are the ones that give computers the hardest time. In this article, we provide a **Fortune:Word** glossary entry that simplifies this cumbersome task.*

Page 14 — **Multiplan Page Breaks**

*Do you have a hard time making those **Multiplan** reports paginate correctly? Here's a tip which simplifies the task of designing spreadsheets with page breaks.*

Page 15 — **Adding to the Global Menu**

Have you installed the Compressor's Delight Disk but been unable to use it. We present a simple shell script which lets you compress from the Global Menu

Page 17 — **Software Diskette Library**

*This month we highlight the **KERMIT** program -- used to communicate between Fortunes, MAC's, PC's. It's great.*

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Current Release Levels of Fortune Software

Product	Formula	32:16
Systems Software		
FOR:PRO Cold Boot Set	3.1	2.1
FOR:PRO 32 User Upgrade	3.1	2.1
Development Utilities	1.2	1.2
Tape Streamer Software	1.4	1.4
Fortune:Windows	1.0.1	1.0.1
Extended Laser Interface	2.2	2.2
Languages & Databases		
Language Dev. Tools (LDT)	2.0	2.0
C	2.0	2.0
Fortran 77	2.0	2.0
Pascal	2.0	2.0
Thoroughbred BASIC	7.3.2	6.5.12
R/M COBOL	2.1	2.1
Informix 3.3	N/A	3.3
Informix File-it!	N/A	3.3
Informix C-ISAM	N/A	3.3
Informix SQL	2.1	2.1
Informix 4GL	1.1	1.1
Informix ESQL/C	2.1	2.1
Informix File-it! (SQL)	3.0	3.0
Informix C-ISAM (SQL)	3.1	3.1
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Unify DBMS Runtime System	4.0	3.2
Progress Full Dev. Sys.	3.2	4.2
Progress Dev.'s Toolkit	3.2	4.2
Progress Query/Runtime Sys.	3.2	4.2
Progress Runtime System	3.2	4.2
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3270 SNA	3.0	3.0
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Multiplan	1.4.2	1.4.2
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The BASIC Advisor

The BASIC Advisor is brought to us from Ray Wannall. Ray is President of BaSiC Software Corporation which is located in Baltimore, Maryland.

Question: *In your April, 1988, BASIC Advisor (/u/fortune **news**, Volume 5, Number 4) you discussed inventory item numbering and the problems associated with an alphabetical listing when item numbers vary in length. I wish you had told me that several years ago when I designed my inventory numbering system. Since there is no sort key in the item master file, it is nearly impossible to locate a specific item from a listing of all items in file. For those in a similar predicament I would suggest that the "Padding Indicator" for "ITEM NUMBER 095" in file number 9 can be changed from "C" (right justify and space fill) to a space or an "A" (pad with trailing blanks). That will cause all item numbers in file 95 (Inventory Item Master File) to be left justified, thus eliminating the alphabetical listing problem.*

Answer: Sure looks good on paper, doesn't it? First, let me compliment you on your ingenuity in discovering this method of IDOL manipulation. Second, let me explain in more detail to our readers what you are talking about. And, third, with your forgiveness, allow me to tear your solution to shreds.

I have mentioned before that I am frequently impressed with the abilities of non technical Fortune end users. It amazes me that anyone with little or no knowledge can learn to operate IDOL so proficiently by simply reading the documentation.

File number 9 (for those less familiar with IDOL) is the Global Element Dictionary, or CGLBD. It is the most important BASIC file on your system. IDOL (an acronym for Interactive Definition Oriented Language) was named for this file, which contains the definitions of all file data elements. By looking into CGLBD, IDOL can tell, among other things, if an element is a numeric field (numbers only) as opposed to alphanumeric, how long the field may or must be, what kind of entry restrictions are in effect, and how entry in the field is to be "padded". When an operator has entered information into a field, for example through file maintenance, IDOL checks to see if the maximum number of characters were entered. If so, the element is stored as entered. Otherwise IDOL looks to CGLBD to determine how to extend, or "pad" the length of the entry to the maximum size before it is stored. Padding characters will be placed either before or after the entered information, and the specific characters used to pad will be either spaces or zeros, all depending upon field 6, "PADDING IND", in CGLBD. See page 2-7 in your IDOL Reference Guide for information about element padding codes "space", "A", "B", "C" and "D".

Now lets talk about changing the padding indicator for the Item Number field in the Inventory Item Master File (file 95). As you suggest, we are able to perform file maintenance on CGLBD by entering 797 at any menu and requesting file number 9. *I hasten to add that this a very dangerous practice!* The Global Dictionary is normally maintained by other IDOL utilities and should not, as a general rule, be changed through file maintenance. Suppose we do change the padding indicator for Item Number in file 95. In order to keep our accounting system in sync, we must also change the element definition in every other file which contains Item Number as a field. These include files 80, 82, 85, 88, 96, 97, 98, 99, and who knows what else. Once this is done, we have other problems: data entry and file maintenance screens which were generated in IDOL used the original padding indicator found in CGLBD. Also, many of the programs which take Item Number input were developed outside of IDOL, and the original padding protocol was followed. By not adjusting all programs and screens which use this element, each time you are asked to enter an Item Number, you will have to include all of the trailing spaces in order to avoid getting an "Invalid Item Number" error message. In the long run, it would probably be easier trashing your entire inventory control system and starting over with a new item numbering design.

Let's just say that the thought was inspired, but the consequences could be disastrous.

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Last month I promised to elaborate on the 1988 Thoroughbred Leaders Conference at the Newport Beach Marriott Hotel and Tennis Club in Newport Beach, CA. The conference will run from Wednesday, October 5 through Friday, October 7, 1988. Concept Omega is in the process of organizing an agenda of sessions, and input from the field concerning topics to be covered is still being considered. Planned entertainment events may prove to be the best yet:

- On Tuesday, October 4, there will be a "Classic Golf Tournament" as well as a "Championship Tennis Tournament". Awards for both (in a variety of competitions) will be presented at the Friday "Winners Circle" luncheon.

- A Welcome Cocktail Party will be held on October 4th from 7:00 to 9:00 p.m.

- Wednesday evening will feature a 50's Casual Night Dinner, complete with a DJ who specializes in 50's type music.

- Thursday night's event will be a "Hooray for Hollywood" Dinner Dance. Concept Omega says, "Rumor has it that some of your favorite stars might make an appearance."

- Outings are being planned for spouses and other family members not interested in attending conference sessions. These may include visits to Disneyland, Knott's Berry Farm, The Queen Mary and Universal Studios.

There will again be a Software Fair, this year extended to three days. Space is limited, so anyone interested in reserving facilities should contact Concept Omega as soon as possible.

It all looks like the usual fun and enlightenment, and yours truly is making every effort to attend. If I do, you can be assured I will submit a report in one of the fall issues of /u/ fortune news.

Finally, a personal note. My hat is off to that person, whoever he or she may be, who, many years ago, included "LSIT" among the commands recognized by Business BASIC. LSIT has endured through the years and, I am happy to report, has also survived into the fourth generation. Imagine how blissful life would be if someone had thought to provide us with "SVAE"!❑

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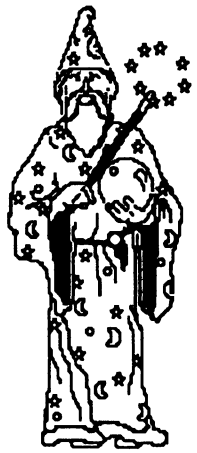
System Administration: Part 14

No Longer Requires a Degree in UNIX Wizardry



This series is a must for all owners and users of the Fortune computer. Dave is President of UNI-KOMP which is located in Houston, Texas. He provides UNIX seminars, software for the Fortune Computer, and is president of the Houston UNIX User's Group. He contributes independently to ***/u/fortune news.***

by Dave Kloes

In the last issue, we almost completed our discussion of using the "cp" command to backup and restore our data files. In this issue, we will complete our discussion of the "cp" command and then talk about the "tar" command.

Last time, we gave you the "cp" commands that you could use to restore directories and/or files using the "-R" option. While this is one way to restore, it is often not the most "user friendly", since we have to know how the files are stored and must enter the correct parameters for the "cp -R" command. Let's put all of what we have learned in the last three issues together and look at another way to recover files.

Remember that we said whenever we do a "cp -B" backup, a "__part__" file is created on each volume of the backup set. The "__part__" file on the first volume contains information to tell us which volume of the backup set each file is backed up on. In other words, if we want to restore a single file, the "__part__" file on the first volume of the backup set can tell us which volume the file is stored on. Here is one way of doing this:

SYSTEM BACKUP

1. Mount the first volume of the backup set:

```
mount /dev/fd02 /f
```

2. Look at the "__part__" file to find the file we want:

```
more /f/__p*
```

Remember the "more" command will let you look at each successive page of the file by depressing the space bar or at each successive line by depressing the <RETURN> key. Let's assume we have scrolled the "__part__" file and the file we want to restore has the following entry:

```
3  r  /u/davek/letter  000006
```

Remember that the first "field" tells us the volume the file is on so our file in this case would be on volume 3. So now we must unmount volume 1 and work with volume 3 where the file we want to restore is.

3. Unmount volume 1:

```
umount /dev/fd02
```

4. Remove volume 1, insert volume 3, then:

```
mount /dev/fd02 /f
```

5. Now we can restore our file from volume 3:

```
cp -out /f/u/davek/letter /u/
davek
```

6. Unmount volume 3 and we are finished:

```
umount /dev/fd02
```

This will work. However, there is an easier way to find the entry in the "__part__" file for the particular file that we want to recover instead of looking through the file with the "more" command. For those of you with FOR:PRO 2.0 or above, there is a command on

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your system called "grep" that can help with this task. The "grep" command can be used to search a file and identify all lines that match a particular pattern. For example, if we mount the first volume of the backup set and want to find the "letter" file in the above example:

```
# grep "letter" /f/__p*
3  r  /u/davek/letter  000006
7  r  /u/june/letter   000001
```

Notice that the "grep" command found two lines that have the pattern "letter" in them. "grep", in fact, will identify all lines in any file that match the pattern we are searching for. If we only wanted the "/u/davek/letter" file, we would have entered:

```
# grep "/u/davek/letter" /f/
__p*
3  r  /u/davek/letter  000006
```

In either case, we have found the information that we were looking for - the fact that this file is on volume 3 of the backup set. Again, for those of you that feel so inclined, Figure 1 presents a small shell script that can be used specifically for checking volume 1 of any backup set to find out what volume a particular file is on. (You can send $5 to **The Cambridge Consortium** for a copy of this script (and the "grep" command which isneeded to run the script).)

In other words, if we want to restore a single file, the "__part__" file on the first volume of the backup set can tell us which volume the file is stored on.

Now that we have finished our discussion of the "cp" command, let's talk about another command that can be used for backup. The "tar" (tape archiver) command is the commonly used command in the Unix community for doing backups. It is not as frequently used on the Fortune system because Fortune has done extensive modification to the "cp" command for backing up and restoring files. For those of you that have access to other **Unix/Xenix** systems, none of the information given to you for the "cp" command will be applicable.

Although "tar" stands for "tape archiver", it can also be used for backing up files to and restoring files from diskettes. Its major drawback on some systems (including the Fortune system) is that it is not multi-volume. That means that you can only back up what will fit on one diskette, which is 808,960 characters worth of files. We have provided the source code, compiled program and documentation for a utility called "**volume**" to **The Cambridge Consortium** that will allow for multi-volume backup using the "tar" command. Our examples will include using the "tar" command with and without the "volume" utility.

The "tar" command is one of the more unusual commands in that there are *two* kinds of options available. One set of options only allows you to use ONE of those available and the other set works like other options in that you can use ANY of them that are available. Again, we emphasize that we will only be discussing the more commonly used options that are available. Let's talk about the "CHOOSE ONE ONLY" options first:

CHOOSE ONE ONLY Options

c - This option is used whenever we want to "create" a backup that begins at the beginning of the diskette.

t - This option is used to "tell" us what files are on the backup.

u - This option is used add files to the end of the backup if they are either not already there or if they have been modified since the last backup.

x - This option is used to extract (or restore) files from a backup that was done using "tar".

As we will see in the examples that will follow, ONLY ONE of these options can be used with any "tar" command (this makes sense - how can we

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backup using "c" and restore using "x" at the same time!). Here are the CHOOSE ANY options:

CHOOSE ANY Options

b - This option is used to tell "tar" what the blocking factor is. The default is 20 which means 20 blocks at a time are either backed up or restored. You should be careful when using other options other than the default 20. The larger this number is, the more chance we have of errors in our backup because the data is being written in larger chunks. A smaller number means that our chance of error is decreased but the backup will take longer because data is being sent in smaller chunks. Somewhere along the line, the number 20 has been determined to be the ideal tradeoff between speed and accuracy. If you do not specify the "b" option, 20 is assumed.

f - This option, when specified, means that you are going to specify a device name for the backup/restore. The default device is "/dev/fd02" (floppy) so the "f" option is only needed when you are using a device other than the floppy.

v - This option works like the "V" option in the "cp" command. Normally "tar" will not display anything while the backup or restore is being done. The "v" option tells it to b "verbose", that is to tell what it is doing while it is working.

Now that we have all of this information, let's take a look at a couple of samples. Remember, without the "volume" utility, "tar" will only backup what it has room for on one diskette. If you get a "**read I/o error**" at the end of a backup, that means that "tar" exited without completing the backup of all the files or directories you specified.

Let's say that you want to backup the /**etc/passwd** file onto a "tar" diskette. First of all, as with any other diskette, the diskette must be formatted before it can be used using "tar" (for those of you that are interested, the "format" command is needed but the "mkfs" command is not needed for a "tar" diskette). A diskette can be formatted in one of three ways:

1. Through the "Global Menu" using System Utilities (#32).

2. Directly from FOR:PRO by entering the command (diskette must be inserted before entering command):

```
# /m/sysutil/bin/fmtflop
```

3. Directly from FOR:PRO by entering the command (diskette must be inserted before entering command):

```
# /etc/format -c /etc/disk/flop.conf /dev/rfd00
```

Once you have a formatted diskette, you can backup using "tar":

```
# tar cvfb /dev/fd02 20 /etc/passwd
```

Here we have specified the device (**f** option) and the block size (**b** option) even though they are not required to give you an example of how they are used. The command says to create (**c** option) the backup and tell us what you are doing while you are backing up (**v** option). By using the "f" option, the "tar" expects an argument (**/dev/fd02**) to follow. It also expects the block size argument to follow. These arguments must be specified in the order they are entered. Since the "f" option was specified first, the first argument to follow is the device name. The "b" option was specified second so it fol-

Figure 1

```
 1  :
 2  # Script name:  whatvol
 3  trap 'umount /dev/fd02 > /dev/null 2>&1; exit' 2
 4  ext=n
 5  while test "$ext" = "n"
 6  do echo -n "^L
 7     Depress <CANCEL> and <RETURN> to exit.

 9     Enter name of file you are looking for: "
10     read filename
11     umount /dev/fd02 > /dev/null 2>&1
12     echo -n "
13     Put volume 1 of the backup set in the floppy drive.
14     Depress <RETURN> to continue: "
15     read bunk
16     if mount /dev/fd02 /f > /dev/null 2>&1
17        then
18           vol=`grep "$filename" /f/__p*`
19              if test "X$vol" = "X"
20                 then vol="File not found on this backup set"
21           else
22                 set $vol
23                 vol="$1 $3"
24              fi
25              echo "
26  Volumes file was found on:
27  "
28              echo $vol
29              echo -n "
30  Depress <RETURN> to continue or <CANCEL><RETURN> to exit:
"
31              read bunk
32              umount /dev/fd02 > /dev/null 2>&1
33     else echo -n "
34  Could not mount floppy diskette.
35  Depress <RETURN> to continue: "
36        read bunk
37     fi
38  done
```

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lows the device argument. Since the "f" option defaults to "/dev/fd02" and the block size defaults to "20", these options are not needed so the required command would normally be:

```
# tar cv /etc/passwd
a /etc/passwd 3 blocks
```

Notice the output you receive from "tar" when you use the "v" option. The "a" means that the file is being added to the backup. This is followed by the file name and the size of the file in blocks. We also have specified "c" as the ONE ONLY option which means that the backup will start at the beginning of the media. Here's an example where we backup the **/etc/passwd** and **/etc/devtype** files along with the **/u/davek** directory:

EXAMPLE 1:

```
# tar cv /etc/passwd /etc/
devtype /u/davek
a /etc/passwd 3 blocks
a /etc/devtype 1 blocks
a /u/davek/letter 6 blocks
a /u/davek/resume 2 blocks
```

This time four files were added to the backup. Once this command is executed, any information on any previous "tar" volume is overwritten since we told it to start at the beginning of the media (**c** option).

The specification of the file name or directory name works with "tar" just as it did with "cp". The form of the pathnames on the backup are relative to where we are. Look at this example:

EXAMPLE 2:

```
# cd /etc
# tar cv passwd devtype /u/
davek
a passwd 3 blocks
a devtype 1 blocks
a /u/davek/letter 6 blocks
a /u/davek/resume 2 blocks
```

Notice that the full pathname of the "passwd" and "devtype" files is not displayed. This will be important when we go to restore the file(s) as we will see in the following examples. To restore the "passwd" file from a backup that was done using EXAMPLE 1:

```
# tar xv /etc/passwd
x /etc/passwd, 1276 bytes, 3
tape blocks
```

When we extract files from a backup done using "tar", the "x" indicates that the file is being extracted and in addition to the block size of the file, the number of characters in the file (bytes) is also displayed. Here is the command that would be used to extract the file from the EXAMPLE 2 backup:

```
# cd /etc
# tar xv passwd
x passwd, 1276 bytes, 3 tape
blocks
```

In this case, we changed directory to the **/etc** directory because when we did the backup, we did not specify the full pathname for the file. Here, the file is restored to the current directory so we changed to **/etc** to insure the file was restored in its proper place. What if we wanted to restore the **/u/davek** directory? Here's what the command would look like for a backup that was done using either EXAMPLE 1 or EXAMPLE 2:

```
# tar xv /u/davek
x   /u/davek/letter,   3000
bytes, 6 tape blocks
x /u/davek/resume, 999 bytes,
2 tape blocks
```

We have provided the source code, compiled program and documentation for a utility called "volume" to The Cambridge Consortium that will allow for multi-volume backup using the "tar" command.

If we wanted to restore the entire backup done using EXAMPLE 1:

```
# tar xv
x /etc/passwd, 1276 bytes, 3
tape blocks
x /etc/devtype, 314 bytes, 1
tape blocks
x   /u/davek/letter,   3000
bytes, 6 tape blocks
x /u/davek/resume, 999 bytes,
2 tape blocks
```

If you can't remember what is on a "tar" backup diskette; want to look at it; or need to see how the pathnames are stored, you would use the "t" option:

```
# tar tv
r--r--r-- 0/1  1276  May 1 08:33
/etc/passwd
rw-rw-rw-  1/0     314   Jan
3 15:22 /etc/devtype
rw-rw-r-- 101/100 3000  Nov 15
07:18 /u/davek/letter
rw-rw-r-- 101/100  999  Nov 15
08:30 /u/davek/resume
```

This gives us a bit more information and also indicates that "tar" backs up more than just the file itself. Notice that the output from the "t" option is similar to doing an "ls -al" command. We see the file permissions; user id and group id numbers; size of the file; date of modification and the file name.

Next time we will talk about the options available for the "tar" command. We will also extend our examples to include using the "volume" command.

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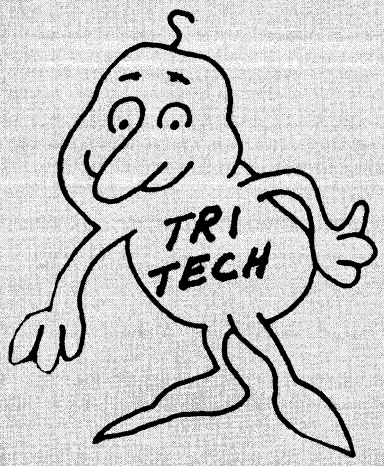

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Addressing Envelopes with Fortune:Word

We received the following letter from Mr.M. Arthur Auslander in New York City. We thought that his question would be of interest to many of our readers.

I have just ordered a NEC bin and envelope feeder. I will need, or would like, software or a Fortune glossary to take addresses from letters typed, to be set aside to be printed out on my second printer so that my envelopes can be turned out separately. For regular correspondence I photocopy from my tractor paper to letterhead.

I would like to be able to abstract addresses from the letters that I type. I do not want to have a permanent data base in ***Records Processing*** *in order to be able to do this though. If there were a way to have a set up, even in* ***Records Processing*** *for transferring addresses to a file for printing out on a daily basis as letters are typed, that might be satisfactory.*

I am reluctant to build a data base in ***Records Processing*** *in view of the address book I have, which is a* ***Conetic*** *data base. I hope that one day I will figure out how to use Fortune:Word to abstract addresses from the* ***Conetic*** *data base and insert them in letters, while at the same time inserting them into an envelope file that would be printed daily.*

I hope there are simple answers to these questions.

Answer: Well, there are some relatively simple solutions to your problems. There are several different approaches you can take to envelope addressing, which is problematic for many people.

1) Put the address on page 1 of a document with a special format line that has a long margin and a single tab stop at around 40. Start the letter on page 2 with a "letter" format line. When it's time to print, first print just page one with an envelope in the printer, and then load stationary and print the rest. If you are lucky enough to have an envelope feeder, and mostly single page letters, you could print the first page feeding from the envelope bin, and the next page from the stationary bin.

2) Create a special file for the envelope addresses, and print these as a batch once a day. This approach seems to be the one you are leaning towards. A glossary entry would automatically copy the addresses from your letters into the special file for you.

3) Use window envelopes. While perhaps the least aesthetically pleasing, this is the simplest approach. Our printer friends tell us that you can get very nice window envelopes for this purpose.

There are several different approaches you can take to envelope addressing, which is problematic for many people.

Some time ago, in Volume 2 Number 4 of the newsletter, we discussed a glossary entry for approach #1 above, so at this time we'll talk about #2, which will probably meet your needs. What we want is a glossary entry which will automatically copy the name and address that we have entered to a special envelope file that will be printed out once at the end of the day. We also need a way of clearing that file so that once the envelopes have been printed, the file will be ready for the next day's addresses.

Let's start with the basics — defining the address section of the letter. Your letter to us was formatted something like this:

May 23, 1988

Mr. Mark Palmerino
*/u/fortune news**
The Cambridge Consortium, Inc.
225 Crescent Street
Waltham, MA 02154

Dear Mark:

Note that the date is at the top, followed by our address, which is followed by some blank lines and the salutation. It is important to note these things because the glossary entry may need to be customized for your particular letter format. For the above format, our entry will look for the blank lines between the address and the salutation. It appears in **Figure 1.**

We'll start by talking about lines 4-11. The entry assumes that you will put the cursor at the start of the address before you start it. Line 4 puts the current cursor location into a variable called start. We have assumed that the cursor is on the first letter of the address. Lines 5-8 executes what is known as a loop, or repeating section. The program will continually do whatever command is between the braces, in this case move the cursor down 1 row, until the condition in the **while** statement is satisfied. Since we are looking for a blank line (a line with a return triangle in the far left column), we say that the loop should continue as long as the first character is **not** a hard return. Note that the `!=` signifies not equal to, and that the "`\\B\\\012`" is

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special **Fortune:Word** code for a hardreturn. Information about special characters such as hard returns can be found in **Appendix C** of the **Glossary User's Guide**. Once the cursor has been moved down a line at a time to the blank line, the loop stops and in line 10 the variable called end is loaded with the ending location of the address.

Line 11 creates a new variable called address which is filled with the text from the start location to the end location. Now that we have the address, it's necessary to copy it into our envelope file, which we call envelopes. Line 12 takes care of this by opening a window with the `command "w"`, splitting it half way down the screen with down(10), entering the file name, and finally going to the end of the document to insert the address.

Line 13 inserts the address into the file with the finsert command. Line 14 inserts a page break so that each address will be printed on a new envelope, and finally line 15 issues a `CANCEL/DELETE EXECUTE` sequence to save the changes to the envelope document and return us to our original letter.

The commands `call display(false)` in line 3 and `call display(true)` in line 16 speed up the processing time by not making **Fortune:Word** display all of the editing work as it is happening.

That completes the entry to copy the addresses. If you put your name and address at the top of the file with the date below it, you might even be able to add a line which says `goto "b"` at the very beginning before line 4 which would move the cursor to the top of your file and begin identifying the address from there. Or you could customize it to go to the beginning of the document and then move down 3 lines past the date or any blank lines to the top of your address. That would be done by inserting a line with `down(3)` after the `goto "b"` line. As long as you are consistent with the way you format your letters, you can automate a great deal.

Figure 1

```
 1  entry x
 2  {
 3    call display(false)
 4    start = loc
 5    do
 6    {
 7        down
 8    } while (char != "\\B\\\012")

10    end = loc
11    addr = text(start,end)
12    command "w" down(10) execute "envelopes" execute goto "e"
13    call finsert(addr)
14    page
15    CANCEL EXECUTE
16    call display(true)
17  }
```

Figure 2

```
 1  entry v
 2  {
 3  call display(false)
 4  command "w" down(9) execute "envelopes" execute delete goto "e"
 5  execute
 6  cancel execute
 7  call display(true)
 8  }
```

Using the entry

In order to use this entry, you will first have to either create a glossary or add the entry to an existing glossary. If you are creating a new glossary, just use the **Glossary Functions** choice from the main **Fortune:Word** menu, then choose **Create Glossary**, and then type in the entry. When you `CANCEL/DEL` out you will get the message "(verifying)",and presuming you have typed it in correctly, you will get back to the **Fortune:Word** menu. Next you must create a file called envelopes. Do that just as you would any other document. Once you get into the document, it is not necessary to type any text in—just `CANCEL/DEL` out to save the file. Next you should attach the glossary using the **Glossary Functions** option again. After this preparation, you'll create the file with your letter in it and type in the name and address. Once it's in, move the cursor back up to the first letter of the address. Finally, you will touch the blue `LF/GL` key followed by the letter "e" to activate the entry. That's all there is to it.

We have also included an entry in **Figure 2** which will go into the envelopes document and delete everything in it. This is entry d and is fairly self-explanatory. **Entry d** should be done every day after the current addresses are printed out, so that the next day can start fresh. (Another approach to this would be to create a shell script which copied a set of blank files into the envelopes document, e.g. `cp env.proto envelopes, cp env.proto.dc envelopes.dc, cp env.proto.fr envelopes.fr.`)

Printing the file

When you print the envelopes file out, you will have to be sure to instruct **Fortune:Word** to use a left margin of about 45 so that the addresses will appear on the correct place on the envelopes. This is done from the **Print Menu**. If you have an envelope feeder you can use the appropriate selection on the Feed menu, or if you don't you can use the Sheet option and feed the envelopes by hand.❑

Josh Lobel

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MULTIPLAN TIP: Getting page breaks right

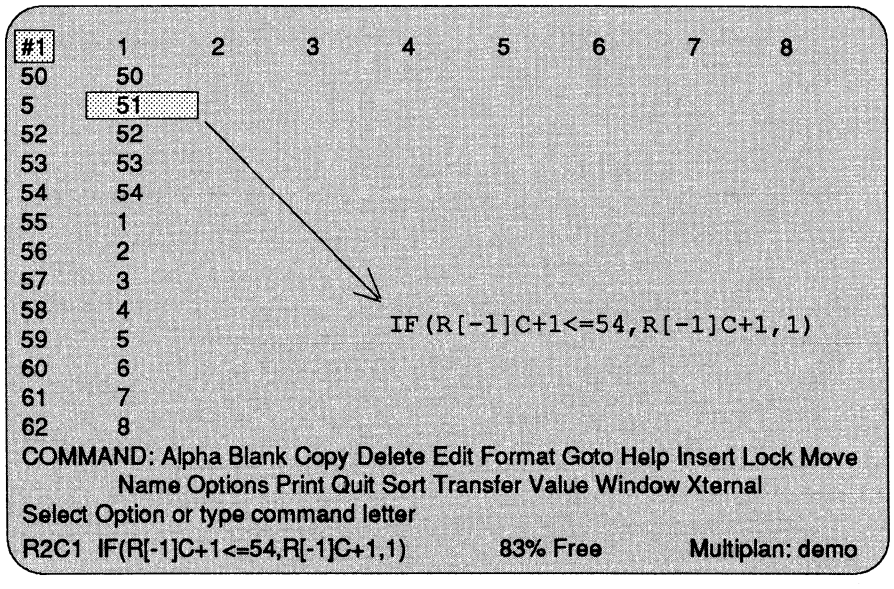
Pagination with Multiplan Spread Sheets

We often struggle with trying to get long **Multiplan** spreadsheets to paginate correctly, and probably many of you have the same problem. If you use **Multiplan**, you know that there isn't any way to actually insert a page break — instead it's necessary to put exactly the correct number of lines on each page and begin each page at the appropriate place. This can either be a result of trial and error, or for those with advanced math skills, multiplication by 54 or whatever other length your page may be. It's a nuisance in any case.

We have found a solution which helps to overcome this problem. What we do is put a narrow column down the left hand side of the screen that counts from 1 to 54 over and over again. Then we align the top of each page with the 1's in our page counter column. The formula to create a column like this uses the **IF** statement in **Multiplan** and is shown below:

```
IF(R[-1]C+1<=54,R[-1]C+1,1)
```

The **IF** statement works as follows. **IF(Test,If test is true do this,If test is false do this)**. In our example, the test is as follows: *if the number in the cell above plus 1 is less than or equal to ("<=") 54, the result of the cell above plus 1 is placed in the cell, if the number above plus 1 is more than 54, than the counter resets and a 1 is placed in the cell.* Basically, the test says "add 1 if we're under 54, and reset to 1 if we go over 54". If you have a different number of lines printed on your page, you may have to experiment to change the 54 in the formula. By the way, if you do have to change it, use the **EDIT** function with function keys **F1-F5** instead of retyping the whole thing.



Using the formula

To make this all work, you'll need to enter a 1 in the first row in the column you're using, e.g. Row 1 Column 1. Then enter the formula shown above into the second cell directly below the 1. Finally, copy the formula down for the entire spreadsheet—252 rows if you're using the whole thing. (You could save some recalculation speed by just copying it as far as the top of the last page, since it's really only the top that you're interested in.) If everything has gone correctly, you should see the numbers count up to 54 and then begin again. If you delete rows, the formula should readjust itself. If you insert rows, you'll need to copy the formula into the rows you've inserted. Another alternative is to only add or delete rows starting with column 2.

There's another way to use this technique also if you want to be very efficient. If you enter the formula into a special spreadsheet and name the entire column "page_numbers", you can then use the **eXternal Copy** command to copy the results into your actual spreadsheet. When asked if the numbers should be linked, just say no. This method will just transfer the numbers without the formulas, thereby saving recalculation time. If you add or delete rows, you can just redo the **eXternal Copy**.

Once you've entered the column, and aligned the top of each page with the 1's, you can print your spreadsheet. When you specify the range, start with column 2 instead of 1. ❑

Josh Lobel

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How to Install Compress on your Global Menu

This article was prompted by a call we recently received from one of our readers who had just purchased our **Compressor's Delight Diskette**. They installed the disk via the Global Menu, as should be done. However, after the installation, they did not see the **compress** program on their Global Menu. The question is, *why* doesn't compress appear on the Global Menu and *what* can we do to make it appear? In this article we will, first, explain how most of our software diskettes work and, second, we will show you how to add the compress program to your Global Menu.

Software Diskette Philosophy

Why doesn't **compress** appear on the Global Menu after I install the diskette? The answer to this question relates to our software diskettes. When we create a new software diskette, we package many, many programs on each one. (For more specific information, see the series we have been running on the diskettes which have appeared in Volume 5 and Numbers 3 through 7.) As an aid to the purchaser of the diskette, we provide an installation script that will automatically copy the programs onto your hard disk so that the programs can be used.

We do not, however, automatically install the programs onto your Global Menu. There are several reasons for this. First, each disk comes with many programs and, assuming that you would even want all of the programs on your Global Menu, you would quickly run out of room. So, it is impractical to put each individual program onto the Menu.

A second problem arises when we consider that most programs on our diskettes would require that a *special shellscript* be written so that they could be used on your Global Menu. The problem with this is that if we had to write a special shellscript for each program on a diskette, the price of the diskette would increase dramatically because we would have to spend many hours creating these shellscripts. Currently, each disk costs at most $10. If we had to write between 10 and 30 shellscripts for *each* disk, we would need to charge more like $50 to $75 per disk.

We decided, therefore, that the disks would be collections of useful programs that an individual could learn to use, if they were so inclined. Furthermore, most programs are most easily run from a **Unix** shell. It has been our experience that learning to use these programs is not difficult even for the individual who is only acquainted with the Global Menu. And besides, forcing yourself to learn a little bit about **Unix** and the **Unix** shell only helps to give you more power with regard to your Fortune computer.

How to Put Compress on the Global Menu

The program compress was designed to be used at one of the Unix shells in the following manner:

```
$ compress filename
```

where filename stands for the file or files you wish to compress. The important thing to remember here is that you must give **compress** a filename, or a list of filenames. Without this list, **compress** won't work properly.

In order to install **compress** on the Global Menu, we must write a shellscript that will allow the user to enter a file or a list of files. A very simple three-line shellscript that would work is the following:

```
prompt "File(s) to be compressed "
read FILES
/usr/ucb/compress $FILES
```

The first line "prompts" the user for the name of the file, or files, to be compressed. The second line "reads" this information into the shell variable we have called FILES. Finally, the third line starts the **compress** program running and it will compress the files which are named in the FILES variable. (By the way, this shellscript assumes that the **compress** program exists in the **/usr/ucb** directory, which is where it would be if you install it from our diskette.)

If you wanted, you could type these three lines into a file. Let's say you called this file **comp.m**. You would need to make this file executable (from a **Unix** shell, you could type `chmod +x comp.m`). Finally, you would need to use a program called **addglobal** to add this to your Global Menu. This **addglobal** program is normally included on most of our software diskettes.

Running addglobal

Running **addglobal** is very easy. Let's assume the following. First, you have our Compressor's Delight Diskette with the **addglobal** program on it. Second, you have that floppy in your floppy drive and it is mounted. Third, you have typed the above three-line shellscript into a file called **comp.m**

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which resides in the **/usr/local** directory. Fourth, that file, **comp.m**, is executable. And, fifth, you know that slot **P3** on your Global Menu is empty.

Now, you should be logged in as root so that you have a super-user prompt (#). We will start the **addglobal** program running by typing:

```
# /f/addglobal
```

The program will respond with some questions. Our answers to the questions are in bold type:

```
Would you like to (a)dd or (d)elete a product?
a
Please enter the selection you wish to change (e.g.,. E5)
P3
Thankyou...Now please enter the product name
Compress
Ok...Now please enter the programs full pathname
/usr/local/comp.m

/m/menu/control/:global:P3:': Compress:/usr/local/comp.m:

    Depress <RETURN> to continue or <CANCEL/DELETE> to exit
<CR>
successfully updated menu system '/m/menu/control/'
                  menu screen 'global'  selection 'P3'
```

We have just added compress to the Global Menu.

A More Comprehensive comp.m Program

The three-line shellscript presented above will do the basic job of compressing files. However, it will not **uncompress** files. If we wanted to **uncompress** files we would need to write another little shellscript and add it to the Global Menu, taking up another slot. We present another shellscript in **Figure 1** which is a bit more comprehensive than our first version of **comp.m**.

How comp.m works

Line 5 tells the user what directory they are currently in. Lines 7 through 12 allow the user to switch directories, if they wish. Line 7 prompts the user for a directory and if the user just types a **RETURN**, then the directory defaults to the current directory.

Lines 14 and 15 ask the user if they want to **compress** or **uncompress** files. If the user responds with a **C**, then lines 19 through 23 are executed. If the user responds with a **U**, then lines 26 through 30 are executed.

Compressing Files

Line 19 prompts the user for the file or files that they wish to compress. The user can type in one or more filenames at this point and all shell *wildcarding* is supported. For example, if the user wishes to compress three files called **letter.1**, **letter.2** and **letter.3**, then they could simply type `letter.*`.

After the files are read, they are compressed (line 23). The **-v** flag on the **compress** command tells **compress** to output the compression statistic that shows the percentage reduction in the file as a result of the compression.

After compression, the program exits back to the Global Menu.

Uncompressing Files

Uncompressing compressed files is handled in the same way as compressing the original files. First, we prompt the user for the files to be uncompressed (line 26), then we **uncompress** them (line 30). After the files are uncompressed, the program exits back to the Global Menu.

The shellscript shown in Figure 1 is a more useful program for compressing and uncompressing files than the little three-liner we began with. If you wish, you can type it into a file and add it to the Global Menu with the method we showed you in the first part of this article.

Alternatively, you can order the special disk we have developed that includes the shellscript in Figure 1 and an install script that installs the shellscript onto your Global Menu. The price of this disk is $10.❑

Mark Palmerino

Figure 1

```
 1  :
 2  #
 3  # shellscript to use compress on the global menu
 4  #
 5  echo "Current directory is `pwd`"
 6  echo
 7  prompt "Please enter directory name: "
 8  read DIRNAME
 9  case X$DIRNAME in
10     X) DIRNAME='pwd'
11  esac
12  cd $DIRNAME
13  echo
14  echo "Do you wish to Compress or Uncompress files?"
15  prompt "Please choose C or U: "
16  read CHOICE
17  case $CHOICE in
18     c|C)
19        prompt "Please enter name(s) of file(s) to compress: "
20        read FILES
21        echo
22        echo "Please wait - Files are being compressed..."
23        /usr/ucb/compress -v $FILES
24        ;;
25     u|U)
26        prompt "Please enter file(s) to uncompress (incl. .Z): "
27        read FILES
28        echo
29        echo "Please wait - Files are being uncompressed..."
30        /usr/ucb/uncompress -v $FILES
31        ;;
32  esac
33  sleep 5
```

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Software Diskette Library Highlights:

Ckermit and kermits for the IBM and the Macintosh

What Is Our Software Diskette Library?

Our Software Diskette Library is a collection of floppy diskettes. Each diskette contains programs that we have gathered together from various places. Almost without exception, these are programs that are freely distributable. They are donated to us by our subscribers or we find the programs in other arenas and compile them so that they will run on the Fortune computer.

The fact that the programs are freely distributable is the reason why they are *such* a good deal! We only charge you for our time in handling the orders. Thus, each disk costs at most **$10**. If you buy four or more disks, then the cost per disk drops even further.

In this fourth installment, we list the contents of three more of our disks and give some brief descriptions of some of the programs. You will find a treasure chest of useful utilities, exciting programs and fun games listed in this article. We hope you will take the time to evaluate whether or not any of these diskettes will help your computer work harder for you.

Pricing and Availability

We currently have 11 diskettes as follows:

1) Fortune:Word Tutorial
2) Fortune Utilities
3) D.C. Grab Bag
4) Compressor's Delight
5) Ckermit
6) Unix|Stat
7) Unix Tools
8) Editor's Choice
9) Zip Tease
10) Ispell
11) Chess, Yahtzee and More

Each disk costs **$10** separately. However, we do offer substantial quantity discounts according to the following table:

	Your Cost	
Any 4	$33.00	Save $ 7.00
Any 5	$42.00	Save $ 8.00
Any 6	$50.00	Save $10.00
Any 7	$56.00	Save $14.00
Any 8	$62.00	Save $18.00
Any 9	$67.50	Save $22.50
Any 10	$74.00	Save $26.00

C-Kermit

Kermit is a *terminal emulator* and *file transfer* program. It is available on our diskette called The D.C. Grab Bag. **C-Kermit** is a **new** version of kermit that is interactive and has many new features. One of the most useful features is the combination of **command completion** and **command-line help.** For example, command completion means that if I want to execute the command "Connect," I can simply type "co" and then a space character and **C-Kermit** will know I mean Connect. In fact, as soon as I hit the space, it will finish writing the word *connect* on the screen. Command-line help means that I can type a question mark (?) wherever I want on the **C-kermit** command line and **C-kermit** will respond by telling me what options I have at this point. Other features are listed below and briefly described:

Modem dialing

C-kermit recognizes certain modems and will output the appropriate commands when you use the dial command inside of **C-kermit.**

Automatic Log-on Procedures

Uucp like login scripts are supported so that *fully* automated logging-in is supported. This allows building **C-kermit** scripts that can be fully automated. For example, you could design a **C-kermit** script that would dial a remote computer, give this remote computer a proper user name and password, then send or receive files. With other UNIX programs (**at** and **cron**) this script could be scheduled to run in the wee hours of the morning so that you could take advantage of the cheaper phone rates.

File Server Mode

C-kermit can be put into a file server mode which allows you to connect to the remote computer in a way that makes it appear almost as if that computer is a part of your local computer. This is in essence a rudimentary network type system. Commands supported at this level include send and receiving files, changing your directory, deleting files from the remote system, typing a file to your screen, seeing who is logged into the remote system and executing commands on the remote system.

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C-Kermit's Interactive Mode

The real advantage that **C-kermit** has over kermit is its interactive mode as described in the opening paragraph. The following is a list of the commands supported in this mode and a brief description of them:

! - Execute a Unix shell command, or start a shell.
bye - Terminate and log out a remote Kermit server.
close - Close a log file.
connect - Establish a terminal connection to a remote system.
cwd - Change Working Directory.
dial - Dial a telephone number.
directory - Display a directory listing.
echo - Display arguments literally.
exit - Exit from the program, closing any open files.
finish - Instruct a remote Kermit server to exit, but not log out.
get - Get files from a remote Kermit server.
help - Display a help message for a given command.
log - Open a log file — debugging, packet, session, transaction.
quit - Same as 'exit'.
receive - Passively wait for files to arrive.
remote - Issue file management commands to a remote Kermit server.
script - Execute a login script with a remote system.
send - Send files.
server - Begin server operation.
set - Set various parameters.
show - Display values of 'set' parameters.
space - Display current disk space usage.
statistics - Display statistics about most recent transaction.
take - Execute commands from a file.

IBM and Macintosh Kermits

The **Ckermit** diskette provides you with the **kermit** program that allows you to exchange files with other computers. Thus, you can send files from your Fortune computer to IBM compatibles and Macintosh computers, if you wish. However, you will need a version of **kermit** that will run on your IBM or your Mac. For example, we write most of our articles on our Fortune and then transfer them over to our Mac before they are formatted in the /u/fortune news. To do this transfer, we have **ckermit** on our Fortune and Mackermit on our Mac.

Since IBM's and Macintosh's are prevalent in the business community, we also provide the IBM version of **kermit** as well as the Mac version (which is called **Mackermit**). The IBM version of kermit comes on a standard 360K IBM 5 1/4 inch disk. The Mac version comes on a standard 800K Mac 3 1/2 inch disk. If you would like to have these, you can order them from us at the standard price of $10 per disk. Our normal quantity discounts apply to these disks as well.❑

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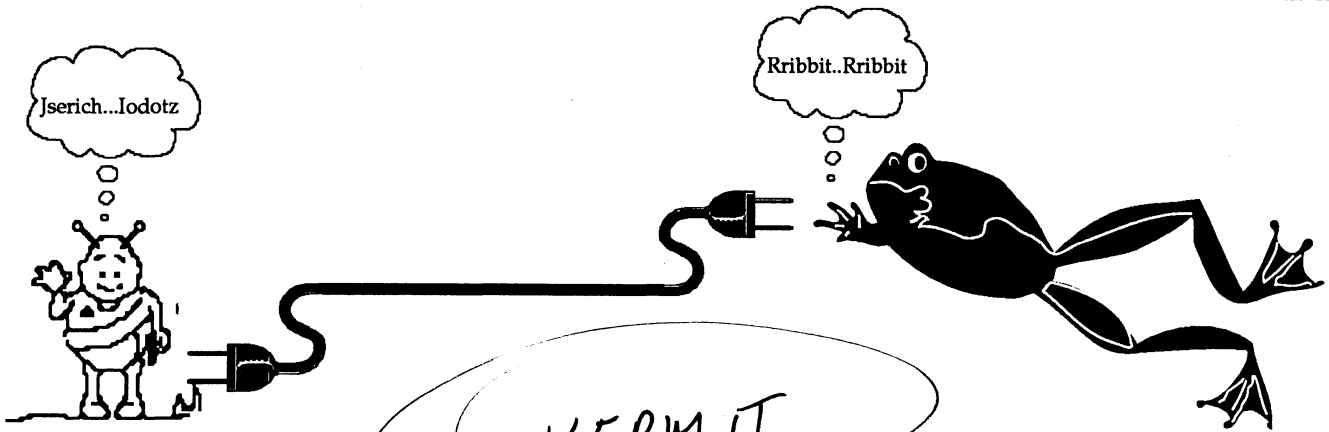
/u/fortune* news

The Newsletter for Users of SCI/Fortune Computers August 1988/Volume 5 Number 8



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Connectivity

Letting differering systems communicate -- Mac's, PC's, Fortunes

See Page 16.

PLUS MORE...

- **Printing questions and lots more in /u/help**
- **New Products from SCI/Fortune**
- **More on System Backup -- cp and tar**
- **The "100,000" limit in IDOL and the CGLMS file**

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/u/fortune *news* is published 12 times per year by The Cambridge Consortium, Inc. Neither **/u/fortune** *news* nor The Cambridge Consortium are affiliated with Fortune Systems/SCI Technology, Inc.

Subscriptions cost $48 for one year within the U.S.A. For foreign subscriptions, add $27 each year for added postage and handling costs.

Back issues are offered at:

Vol 1, Numbers 1 - 3	$1/each
Vol 1, Number 4	$.50/each
Vol 1, Numbers 5 - 8	$3/each
Vol 2, Numbers 1 - 7	$3/each
Vol 3, Numbers 1 - 12	$4/each
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We discuss two questions covering the LPRFLAGS shell variable and Software disks for the Formula computer. We also reprint some questions and answers from SCI/Fortune's Technical Hotline staff.

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See this section for some new product announcements as well as a list of training classes that are currently offered by SCI/Fortune.

Page 16 — **Connectivity**

In this article we discuss the details of how to make your Fortune talk with other computers , such as Macs and PC's, using the ***kermit*** *communications software.*

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From The Editors...

It's Hot -

But We're Not Just Talking About The Weather

It's August and it is hot! I suppose we can't talk for all of our readers, but here in Bean Town, the dog days are upon us with a vengeance. I am sure that most of our readers are aware of the severe drought that is even now raging in parts of the U.S. The wells are running dry all over...

However, there is one well that is renewing its supply and herein lies the good news. We have been in contact with SCI/Fortune and over the course of the next several months you will be seeing, in the pages of **/u/fortune** *news*, interesting articles that cover new software and hardware products.

We are quite excited about these developments and we can thank Mr. Robert Bozeman (General Manager) and Mr. Jim Smith (Marketing Manager) for working with us and seeing to it that we receive these new products for review. In the March issue, in this column, we had an editorial entitled "Way to Go SCI/Fortune" where we commended SCI/Fortune for the programs that they have instituted to help their dealers better sell and better service SCI/Fortune equipment. Since then, SCI/Fortune has increased its pace of help for their dealers. Of course, this information is not privy to most end-users but we have seen it and it is quite helpful.

At the end of that editorial we expressed the hope that this help, that was being extended to the dealers, was only "the first step in firming up the relationship between SCI/Fortune and you, the end-user." We want to point out in this editorial that we are seeing very substantial efforts on SCI/Fortune's part in accomplishing exactly this. So we can say again, "Way to Go SCI/Fortune!"

Now, what are we talking about, you may ask? Well, let's just give you a preview of what articles will be coming up in future issues.

HARDWARE RELATED: SCI/Fortune will be sending to us a **Formula** class computer for evaluation purposes. This computer is currently the next step up from the SX version and utilizes the Motorola 68020 chip - which is mighty speedy compared to even the SX. We will discuss its performance as compared to the 32:16 and the SX.

Secondly, SCI/Fortune will be sending their new "386" machine to us. This is the much awaited "Fortunized" computer based on the Intel 386 chip. We don't know too much about it as yet, so when we receive it we will try to give you as much information as we can.

SOFTWARE RELATED: We have already received upgraded versions of several products including the new FOR:PRO 2.1, Fortune:Word 3.1 and Fortune:Windows 1.2. We are installing them and will begin a series of articles on the enhancements that these products include.

Secondly, SCI/Fortune has promised us some new software that they will be introducing which includes a new spreadsheet and some programs that give your SCI/Fortune product graphics capability. These sound exciting and should be useful to the many businesses that base their computer needs upon SCI/Fortune computers.

We are excited about these developments because we want to bring to you as much information about SCI/Fortune products as we can. We believe that when we do this, we give you the kind of information that you need when making the important decisions regarding computer hardware and software. But we can't always bring you this information without help from SCI/Fortune and without the help of the people at SCI/Fortune like Robert Bozeman and Jim Smith. We want to thank them again, and we hope you will keep your eyes on **/u/fortune** *news* over the next several months and into next year - our well is beginning to run over.

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The BASIC Advisor

The BASIC Advisor is brought to us from Ray Wannall. Ray is President of BaSiC Software Corporation which is located in Baltimore, Maryland.

Question: *I am a long time Fortune 32:16 user and have just joined a company which uses four of the machines in its business accounting operations: one independent and three on a LAN (Local Area Network). Something very strange has happened with the IDOL on one of the machines. When I turn on the audit indicator in file 163, CGLMS (General Ledger Master Chart of Accounts), I cannot conduct file maintenance on field 2, Account Number. No matter what I try to enter, I get the message, "MUST BE BLANK, 1-6 OR A-F". When I disable the audit indicator, the error message goes away. What's going on here?*

Answer: You mean your company doesn't use general ledger account number F? Doesn't your accountant know anything?

Actually, I have a feeling you are going to run into a nightmare of problems on that machine. It seems you have the *original* IDOL and BAS applications without the 24,762 technical updates. Your best bet is to ask your dealer (or one of the fine support companies which advertise in **/u/fortune** *news*) for a copy of the IDOL/BAS product update diskette. But, just in case you are in a hurry, we'll fix your general ledger problem.

The message you are receiving is supposed to be displayed at field number 7, RATIO IND, for which the only valid entries are a single space (blank), a whole number in the range of one to six or a capital letter in the range A through F. (You may press the HELP key when you are at the RATIO IND field during file maintenance in order to display the definitions of these flags.) The message appears at the ACCOUNT NUMBER field because there are several lines of code missing from the program CGLSE0 in the original General Ledger software. You may eliminate the message in one of two ways, which we will discuss in a moment.

CGLSE0 is called the "General Ledger Account Number Special Edit" program. Its primary purpose is to check the *validity* of general ledger account numbers entered into control files for other business applications (AP Vendor Account Number, PR Earnings and Taxes Account Numbers, etc.) "Special edit" programs are custom written Business BASIC programs which may be used with IDOL File Maintenance. Each file defined under IDOL is allowed one special edit program to help insure the integrity of the data being entered into one or more fields of the file. The name of the special edit program is entered into field 19, EDIT PROGRAM, in the header record of the File/Element Dictionary (798 from any IDOL or BAS menu). In order to invoke the edit program for a field, the SE (Special Edit) indicator for that field (number 10 in the detail records) must be set to anything other than a single space. CGLSE0 is supposed to be the special edit program for files 48, 49, 50, 51, 52, 53, 54, 56, 66, 67, 68, 69, 135 and 163, but without all of the updates, some of these files are not included. The most common message generated by CGLSE0 during file maintenance is, "VALIDATING GL ACCOUNT AGAINST GL MASTER...", which I'm sure everyone has seen *ad nauseam*.

CGLSE0 is also used to validate entry in the ACCOUNT NUMBER and RATIO IND fields in CGLMS. Unfortunately, early releases of the BAS General Ledger did not have the coding in CGLSE0 necessary to handle ACCOUNT NUMBER. To remedy your situation you may either eliminate the special edit flag in the file definition or add the missing code to CGLSE0. The first solution, while certainly the easiest, should be considered temporary. Once CGLSE0 has been updated, the flag should be returned to its original status. Here's how you adjust that flag.

From any IDOL or BAS selector (menu) enter **798** and press '**CR**' (the RETURN key). This will bring up the IDOL FILE/ELEMENT DICTIONARY maintenance screen. At the Option line, enter **2** (for CHANGE) and '**CR**'. At FILE NUMBER enter **163** (for CGLMS, the General Ledger Master Chart of Accounts) and '**CR**'. The computer will ask you to "ENTER FIELD TO CHANGE OR END :", to which you should press the gray '**F4**' function key. At FILE NUMBER enter ***2** (asterisk and the number two) and '**CR**'. The detail maintenance screen will display in the lower screen and the ACCOUNT NUMBER field will be available for modifications. Under the number 10 are the stacked letters S and E for Special Edit. Under this should be the letter A. The computer will again ask you to "ENTER FIELD TO CHANGE OR END :". You enter **10** (the number ten) and '**CR**'. At the Special Edit Indicator field enter a *single space* and '**CR**' to

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eliminate the flag (or A 'CR' to put it back in). At the "ENTER FIELD TO CHANGE OR END :" prompt, press **'F4'**. This will take you to 1. ELEMENT NAME, where you should press **'CR'**. At the Option line, press **'F4'** to exit. From this point on, CGLSE0 will not be run during maintenance to the Account Number unless you go back into 798 and put the 'A' back into the Special Edit Indicator field.

The second solution is more desirable because it puts the proper operator checks into your software. You may, from any BAS or IDOL menu type in BASIC 'CR' to get the READY prompt (>). Then you must enter LOAD "CGLSE0" 'CR'. (Note the last character in the program is a *zero*, not the letter O.) If you receive an error, it is probably due to a typing error: type in the command again. Once you have successfully loaded the program, type in the following code exactly as it appears (**'CR'** means press the RETURN key):

```
0103 IF U0$(1,3)="061" THEN IF X7$="" THEN GOTO
9000 ELSE GOTO 0106   'CR'

0104      IF      X7$=""      THEN      IF
POS(U0$(1,3)="048049050051052053054056066067067069",3)<>0
AND J9>NUM(E$(3,2),ERR=0106)+3 THEN GOTO 9000 ELSE
LET B9$="YOU MUST ENTER AN ACCOUNT NUMBER IN THIS
FIELD ",C9=1; GOTO 9000   'CR'

0108 IF U0$(1,3)="135" AND X7$="0" THEN LET X7$="";
GOTO 9000 'CR'

6005 IF J9=2 THEN GOTO 6100   'CR'

6100 IF NUM(X7$,ERR=6400)=0 THEN GOTO 6400 ELSE IF
FPT(NUM(X7$)) <>0 THEN GOTO 6300   'CR'

6102 IF POS(" "=X7$)=0 THEN GOTO 9000   'CR'

6105 IF POS(" "=X7$) <POS(" "<>X7$) THEN GOTO 6200
'CR'

6110 GOTO 9000   'CR'

6200 LET B9$="ACCOUNT NUMBER MAY NOT CONTAIN
LEADING SPACES",C9=1; GOTO 9000   'CR'

6300 LET B9$="ACCOUNT NUMBER MAY NOT CONTAIN A
DECIMAL",C9=1; GOTO 9000   'CR'

6400   LET   B9$="ACCOUNT   NUMBER   MUST   BE
NUMERIC",C9=1; GOTO 9000 'CR'
```

If you find yourself encountering numerous errors when trying to type in the code, you may quit by entering RUN "DOL" 'CR'. There has been no harm done. Otherwise, if you have entered the code exactly as shown without error, type SAVE 'CR' and RUN "DOL" 'CR'. There will then be no need to change the special edit flag in the file/element dictionary.

By the way, I was unable to duplicate the problem by altering the Audit Indicator in the dictionary header record. That must be another problem which was corrected with a technical fix on one of the update diskettes.

Question: *Reference your BASIC file size questions (/u/**fortune** news, Volume 5, Number 6): it is not the BASIC which has problems with files containing more than 100,000 records, it is IDOL. IDOL creates cross reference files with five byte indicators, thus limiting the number of records to 100,000 (numbered zero through 99999). - Jim Jones, Jones Business Automation Center.*

Answer: Of course! How stupid of me! I keep forgetting that IDOL still thinks it is running on an old Basic IV. Thanks again, Jim, for your input. I hope to see you at the Thoroughbred Conference again this year.❑

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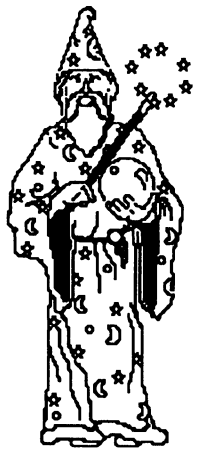
System Administration: Part 16

No Longer Requires a Degree in UNIX Wizardry



This series is a must for all owners and users of the Fortune computer. Dave is President of UNI-KOMP which is located in Houston, Texas. He provides UNIX seminars, software for the Fortune Computer, and is president of the Houston UNIX User's Group. He contributes independently to ***/u/fortune news.***

by Dave Kloes

In the last issue, we talked about the "c", "t", and "x" of the "ONE ONLY" options available with the "tar" command. We also discussed the "v", "f" and "b" of the "CHOOSE ANY" options. In this issue, we will discuss one remaining "ONE ONLY" option for "tar" and give you some examples using "tar" in conjunction with the "volume" command. We will also discuss how other **FOR:PRO** commands can be used to shorten our backup time.

If you remember, the "u" option can be used to add files to the end of a tar backup if they are either not already there or if they have been modified since the last backup. Let's say, for example that yesterday we backed up the **/u/davek** directory using the following command:

```
tar cv /u/davek
```

During the course of the day, we modified a file in that directory called "letter" and added a new file called "memo". Instead of doing a backup of the entire **/u/davek** directory again, we can use the "u" option as follows:

SYSTEM BACKUP

```
# tar uv /u/davek
a  /u/davek/letter  3 blocks
a  /u/davek/memo  1 blocks
#
```

Notice that the two files have been added to the backup. The existing files on the tar backup are not replaced, but rather the changed files are added to the *end* of the backup. Now, if the backup is restored, the original files are restored, but since the added files are at the end of the backup, they will *overwrite* them since they will be the last files put back onto the system. In reality, we would not normally recommend using this option for two reasons:

First, it takes just as long (or longer) to use this option as it would to do the complete backup. In order to determine the files that have been modified or added, the entire backup has to be read and then a comparison made.

Second, in general, it is not a good idea to base any backup on a comparison of dates. We have seen many times where someone has entered the wrong date when the system was started. If your backups are based on any kind of date logic, you take the chance that files will not be backed up correctly. We opt for backup methods that minimize the chance of an incorrect backup. Unfortunately, we find out about incorrect backups where the system is being restored for some reason. That is not the time to find out that there is some problem with your backup. In our eyes, *the extra time it takes to do a proper backup will payoff in the long run.*

Since the conclusions drawn in point #2 above are subjective, we will show you a couple of ways that a backup can be done in conjunction with other **FOR:PRO** commands that will be based on the modification date and time of files. Again, those who choose to use these methods should take extra care to insure the system date and time are correct when the system is powered up.

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Rather than appending changed or added files to the end of an existing backup, we can use the "find" command to locate and backup only those files that have been modified during a specified time period. The term "modified" in this case also includes new files. Let's say that on Monday, we do a complete system backup. When we go to do our backup on Tuesday, we decide that the only files we need to backup are the ones that *changed* since our last backup. This seems logical and would cut our backup time down since instead of backing of the whole system, we will only backup the files that have changed since our last backup. The "find" command can be used in this case to locate the files that have been modified in a specified number of days:

```
# x=`find / -mtime -1 -type f -print`
```

This command says to search starting at the root (/) directory and find all files (**-type f** selects files only and not directories) that have been modified (**-mtime**) in the last day (**-1**) and print the list to standard output (**-print** must be included to do this). You can use any number of days in place of the **-1** depending on how many days you want to go back. The files that are found by the "find" command are put into the variable **x**. Remember from the shell programming series that when we use the backquotes (`) around any **FOR:PRO** command, the results of that command are assigned to the variable (we use the "x" variable in this example, but you could use whatever variable you desired). If you want to see a list of the files that were found, you can enter the following command to display the list of files before executing the "tar" command:

```
# echo $x
```

Now we can back up the list of files in the variable by entering the following:

```
# tar cv $x
```

Let's put all of this together into a shell script. A shell script is easier to use since we have at least three commands to run here and we probably want to prompt for what directory to search (we may not want to search the entire system) and prompt for the number of days to go back (see Figure 1).

Once again, a copy of the "tar.sh" program has been made available to **The Cambridge Consortium** for those of you that have no inclination to enter it.

Notice that we have finally used the elusive "volume" command in the "tar" command line of this program. Remember that this program must be obtained from **The Cambridge Consortium** since it is not a normal **FOR:PRO** command. It is the command that will allow you to do multi-volume backups and restores using the "tar" command. When you get the program from The Cambridge Consortium, you will get the "C" source code, the compiled command and the documentation.

As you can see from the above shell script, the form of **tar** and **volume** when used in combination for backups is:

```
# tar cvf - names | volume 512
1580 -o /dev/fd02
```

In place of the word "names", you would enter the filenames or directories that you want to backup. 512 is the block size and 1580 is the maximum number of blocks that a Fortune formatted diskette will hold. This is how volume knows that it is at the end of a diskette. The "-o" flag to volume tells it to output the files to device "/dev/fd02" which is the floppy disk.

The form of tar and volume when used in combination to extract files from a backup is:

```
# volume 512 1580 -i /dev/fd02
| tar xvf - names
```

Once again, in place of "names", you would enter the name, pathname or directory name of files to be extracted. If this parameter is left off, the entire backup will be restored. Note that you may see a "broken pipe" message at the end of this command which can be ignored.

As a sidenote, please read the documentation that comes with "volume" before using it. We have summarized it here, but it does have a couple of things to watch out for. For example, when you begin the backup, the output from "tar" and "volume" may not be in the correct order when displayed on the screen. This does not mean there is a problem, it is a side effect of the **pipe** between tar and volume. In any case, it is a nice utility and since you have the "C" source code, it can be compiled for other Unix/Xenix systems.

For those of you that are interested, you can also do a backup using the "find" and "cp" commands to backup only those files that have been modified. In the above shell script, you would substitute the following command line for the tar/volume line in the script:

```
cp -routVB /dev/fd02 790 $files
```

A copy of the above shell script that has been modified for the "cp" command has been given to The Cambridge Consortium and is called "cp.sh".

We have emphasized how important it is to do daily backups of your data and programs. You will find that the cost of tapes or diskettes is minimal compared to the cost of having to re-input or reconstruct your data and programs. Here are some general guidelines that we use when doing backups to minimize the amount of work in restoring your system when something goes wrong.

We normally recommend that you have a set of diskettes for each day of the week. The Monday thru Thursday sets (referred to as the daily backup) should be used to backup the data that you input on a daily basis. For example, if you are using BAS Accounting, Fortune:Word and Multiplan, you would back the /u and /b directories on a daily basis. In the case of BAS backups, you might want to do just the END OF DAY BACKUP provided with that software on a daily basis. The Friday backup (referred to as the weekly backup) should be a full (/)

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backup. For those that really want some insurance, we recommend rotating two weekly sets of backups. Many times we have seen where a problem with a file occurs and is not noticed for several days. The two week backup routine insures that you can go back as far as two weeks to restore data. In addition, you can rotate four Friday or weekly disk sets so that you can go back one month if necessary. This arrangement would look something like this:

```
Week 1:  Monday - daily
         Tuesday - daily
         Wednesday - daily
         Thursday - daily
         Friday - weekly

Week 2:  Monday - daily
         Tuesday - daily
         Wednesday - daily
         Thursday - daily
         Friday - weekly

Week 3:  Friday - weekly

Week 4:  Friday - weekly
```

With this scheme, you can go back a day at a time for up to two weeks and then a week at a time for another two weeks. For those that really want to sleep at night, you can rotate 12 monthly sets that would be an accumulation of the last weekly backup done for each month. Each of you must decide to what extent you do backups based on your own requirements. It is also easier to follow this scheme if you have a tape streamer rather than floppy diskette backup.

This completes our discussion of diskette backup commands. In the next issue we will talk about some simple tape streamer commands and concepts.❑

Figure 1

```
# Script name: tar.sh
clear
# Get directory ————————————————
cont="y"
while test "$cont" = "y"
do echo -n "
Enter directory to search or 'exit': "
   read dir
   if test "$dir" = "exit"
     then exit
   elif test -d $dir
     then cont="n"
   else echo -n "
Invalid directory.
Depress <RETURN> to continue: "
        read bunk
   fi
done
# Get number of days ———————————————
cont="y"
while test "$cont" = "y"
do echo -n "
Enter number of days or 'exit': "
   read days
   if test "$days" = "exit"
     then exit
   elif test $days -gt 0
     then cont="n"
   else echo -n "
Invalid number entered.
Depress <RETURN> to continue: "
        read bunk
   fi
done
# Find the files ———————————————————
clear
echo "Searching the '$dir' directory for files
modified during the last '$days' days ..."
files='find $dir -mtime "-$days" -type f -print'
# Ask to list ——————————————————————
cont="y"
while test "$cont" = "y"
do echo -n "
Do you want to see a list of the files? (y/n): "
read ans
   case $ans in
      y) echo "$files" | more
                    echo -n "
Depress <RETURN> to continue: "
                    read bunk
                    cont="n";;
      n) cont="n";;
      *) echo -n "
You must answer 'y' or 'n'!
Depress <RETURN> to continue: "
                    read bunk;;
   esac
done
# Ask to backup ————————————————————
cont="y"
while test "$cont" = "y"
do echo -n "
Do you want to backup the files? (y/n): "
read ans
   case $ans in
      y) tar cvf - $files | volume 512 1580 -o /dev/fd02
                    echo -n "
Backup complete.
Depress <RETURN> to continue: "
                    read bunk
                    cont="n";;
      n) cont="n";;
      *) echo -n "
You must answer 'y' or 'n'!
Depress <RETURN> to continue: "
                    read bunk;;
   esac
done
```

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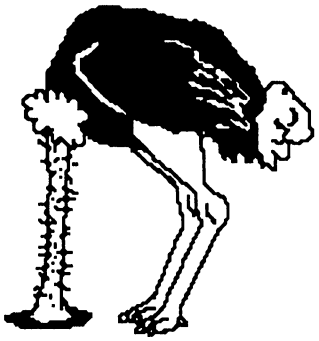
/u/help!



Are Computer Problems Causing You To Hide From The World? Don't Hide, We Have The Answers!

Dear Friends:

As I know you sometimes answer questions in your newsletter, I have one that may be of interest to other Fortune users.

I've been attempting to create a ***.profile*** *file that will make the EXTERNAL documents copied into my library from communications sources (telexes and/or files containing information through the Dow Jones Network) print using a different Paper Bin.*

The system-wide prototype appears to be set to "Standard" (even though all users are set to Bin 2, as well as the root (/) library in Fortune:Word.)

*Since I am always logged in as an ordinary user (/u/**susan**) when I copy these documents into my library, I figured all I needed was a* ***.profile*** *file. From one of my books on UNIX and the* ***For:Pro*** *Manual, I first tried copying the* ***.profile*** *file from /**etc** into /**u/susan**. Then, when that failed, I used the screen editor to change it to the following:* `LPRFLAGS= -h -S2`

(I also tried various combinations, with and without spaces, etc.). Nothing seems to work.

This might be of particular interest to Fortune users who have an HP Laserjet II printer.

Best Regards, Susan Davenport
MIS Manager

The Case of the Missing Flags...

We should perhaps begin with a brief description of the **LPRFLAGS** variable. This is a shell variable that can contain *flags* that modify the behavior of the **lpr** command (which is the command used to print file on your printer).

Second, we should note that if you want to add the **LPRFLAGS** variable to your **.profile** file, you need to be careful of syntax and you need to make sure that it is "*exported.*" For example, in Susan's case, add the following line to your **.profile** file:

```
LPRFLAGS="-h -S2"; export LPRFLAGS
```

When we tried to set the **LPRFLAGS** variable in our **.profile** file, we found, as Susan did, that the **lpr** command was not affected. We did some further research and found the following sentence in the **FOR:PRO** Manual, "*It* [LPRFLAGS] *can be used to set up defaults for banners, pitch, lines per inch, page size, and line width for all print jobs queued through the print option of the System Utilities menu.*"

Evidently there is shellscript called **toprint** that is invoked when you print something from the Systems Utilities menu. This shellscript utilizes **LPRFLAGS** while the standard **lpr** command does not. So, what can be done? There are at least three approaches to this problem.

The first solution does not use the **LPRFLAGS** at all but assumes that you do all your printing from Fortune:Word. You should be able to set up a special *prototype* document for these EXTERNAL files that specifies the Bin 2. When you open one of these files with Fortune:Word, you would then specify this special prototype file. Then, when you print, the document would come from Bin 2.

The second solution uses **LPRFLAGS** and assumes that you want to do your printing from the shell using **lpr**. You can utilize the shellscript that is called by the Global Menu. Let's say that you wanted to print a file called **dowjones** on your printer. You could type:

```
/m/sysutil/bin/toprint dowjones
```

If you wanted to simplify that long command line, you could link the **toprint** command to the bin directory by typing:

```
cp -l /m/sysutil/bin/toprint /bin
```

If this were done, all you would need to type would be `toprint dowjones`.

The third solution also uses **LPRFLAGS** and assumes that you want to do your printing from the shell using **lpr**. It is different from solution two in that the **toprint** command will print a little heading on your output that tells you the date when the job was printed. If you do not want this on your output, then you would need to create a little shellscript. We suggest that you call this shellscript **prnt**. Using an editor, put the following line into it:

```
lpr $LPRFLAGS $*
```

After you create this file, make it executable by typing:

```
chmod +x prnt
```

Finally, put this file in your /bin directory. If you want to print the **dowjones** file, you could type:

```
prnt dowjones
```

Dear /u/fortune,

Are any of the software disks offered by /u/fortune being "cut over" to the

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Formula? I realize that many of the shell scripts will run unmodified on the Formula (believe me, I've tried them all!) but binary, well that's another story.

I'm specifically interested in the ***EMAIL*** *programs that Fortune provided on the Marketing diskette. Is there any chance that 1) the stuff is available on the Formula or 2) source could be made available for recompiling? It's frustrating to not have the tools available on both systems.*

On to another topic: are there any Fortune users groups that meet somewhere close to either Toronto or Montreal? We're finally going to start taking advantage of the power inherent to our systems but don't want to have to reinvent the wheel. I'm sure that other Fortune users have wandered down many of the same paths that we will be (EMAIL, interconnection with other systems, and so forth), it would be beneficial and illuminating to speak with some of them. Any help that you could extend would be appreciated.

Thank you in advance for your help. Your magazine and software have "saved our bacon" more than once, keep up the good work!

Sincerely, Robert J. Dick
Microcomputer Coordinator
Cambridge Leaseholds Limited

Let's begin with the issue of software diskettes for the Formula. As Mr. Dick indicates, some of the programs on some of our disks will not work on the Formula. Specifically, shellscripts that work on the SCI/Fortune 32:16 should work on the Formula series. However, many of the programs that we distribute are "binary" programs. These programs can only work on the type of computer for which they were compiled. Thus, you can not run a 32:16 binary on any other type of computer including the Formula. What we must do to is to find the source program that was used to create the 32:16 binary and then recreate (recompile) this source so that it will work on the Formula.

The problem that we run into is that many of the "binary" programs were donated to us from various sources who would not, or could not, provide us with the sources to these programs. Thus, we can not recompile them so that they will work on the Formula.

We are in the process of producing disks that are compatible for the Formula and we can announce that we currently have two of our standard disks available for the Formula. These are the **CKERMIT** diskette (actually this is thanks to Mr. Robert Dick) and the **UNIX|STAT** disk (thanks to Mr. Carlton Haywood). If you own a Formula and would like either of these disks, please write to us.

We are also in touch with SCI/Fortune with regard to obtaining the **Marketing Utilities** disk for the Formula. We will keep you up-to-date on any developments as they occur.

Now, onto the issue of the user group. We are not aware of any Fortune Users groups in the Toronto or Montreal area. We naturally would be quite interested in knowing about the existence of any Fortune Users Groups regardless of where they are located. If any of our readers know of such groups, we would appreciate a call or letter telling us who to contact. In fact, if it would be helpful, we could possibly publish periodically meeting times, etc.

The following questions and answers were forwarded to us by SCI/Fortune's Technical Hotline staff. They represent often-asked questions and we felt that it would be worthwhile to print them in our /u/help column.

Question: *Are the terms "local and remote" the same as "guest and host"?*

Answer: No. These combinations of terms have different meanings, as explained below.

Local - remote: In a UNIX environment, local and remote usually indicates that there is a bit of physical distance between two or more systems communicating with each other. A local system is best described as the system you are currently working on. A remote system requires connection either by cable or modem.

Host - guest: In a UNIX network, each pair of connected systems consists of a guest and a host. The primary difference between guest and host is that only the guest can initiate communications.

Question: *What are the cabling requirements and limitations for modem communications? What about other RS-232 devices?*

Answer: Fortune supplies fully shielded cables in lengths up to 50 feet, which is the maximum supported length for proper operation of RS-232C cables.

If you are making your own cable or have purchased it elsewhere, be certain that it is shielded and of the proper pin configuration. Because RS-232C communication is designed for cable runs of up to 50 feet, running longer cables may cause data loss. To avoid data loss, reduce transmission baud rates, or use a line repeater. (**Ed. Note**: *For more information on cables, see the article beginning on page 16*).

Question: *What is the difference between "ITE" and "FFCP"?*

Answer: ITE, Interactive Terminal Emulator, has two main functions: terminal emulation and file copying. ITE allows a Fortune system to act as a terminal, providing the ability to log onto a second Fortune system as another user or Model 33 Teletype. ITE also allows copying of pure ASCII files between UNIX based machines.

FFCP, Fortune to Fortune Copy (also known as uucp), provides for spooled, batch transfer of ASCII, non-ASCII, and binary files. FFCP also allows remote command execution. In order for FFCP to function properly, it is necessary for both systems to have FFCP, or "uucp" if you're communicationg with a UNIX based, non-Fortune system.

Question: *Is it possible for a Fortune*

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system to communicate with an IBM system?

Answer: Yes. Fortune:Works is a communications software package that allows a PC to emulate a Fortune terminal. It also allows file transfer between systems.

BSC 3270, SNA 3270, RJE 3780, and X.25 software packages, when combined with the ICC (COMM-B) controller, allow a Fortune system to emulate various IBM terminal cluster controllers for communication and file sharing with IBM mainframe computers (**Ed. Note:** *For more information on connecting to an IBM, see the article beginning on page 16*).

Question: *I just purchased an H.P. Laserjet printer to work with my SCI/ Fortune system. Do I need anything else before I can use the printer?*

Answer: That depends on what versions of software you are using. If you are using the most recent versions of FOR:PRO and Fortune:Word, you need nothing else, but you must have the most recent versions of both FOR:PRO and Fortune:Word. These versions are: FOR:PRO version 2.1 for the 32:16, or FOR:PRO version 3.1 for the Formula, and Fortune:Word 3.1

There used to be a product called "The Extended Laser Interface" that could be installed for systems using older versions of FOR:PRO and Fortune:Word, but that package has been discontinued as of August. So if you are using older versions of For:pro or Fortune:Word, you will need to purchase the update packages for both FOR:PRO and Fortune:Word to use your laser printer.

Question: *Is there an easy way to update changes while editing a Fortune:Word document, without having to end the editing session?*

Answer: Yes. There are two ways a user may update a document while editing it. One way is to use the AUTOSAVE feature which automatically saves editing changes every time a preset number of keystrokes is reached. To invoke this feature, while editing a document, press the F8 (Stop) key. The prompt *Keystrokes before saving?* will appear along with a square block and the number 1024, which is the default number of keystrokes. Press RETURN or EXECUTE to set AUTOSAVE to 1024, or enter a number between 1 and 32,767 and press RETURN or EXECUTE. The number and the block will remain on the screen during the editing session to remind you AUTOSAVE is set. Another simple method of saving changes while in a document is to press COMMAND RETURN EXECUTE.

Question: *How can the Printer Control menu be accessed without ending an editing session?*

Answer: Press COMMAND q or Q and the Printer Control menu will appear. You can then stop or restart printing, rearrange the printing order of documents in the print queue, or delete documents to be printed. To return to the document that is being edited, press CANCEL.

Question: *Can a Fortune:Word document be edited directly from the shell without having to enter the global menu?*

Answer: Yes. From an operating system shell type `wp2 filename RETURN`, in which case filename is the document you wish to edit. If the document is not in the current library be sure to use the complete pathname. If a glossary is to be attached, type a space and then the name of the glossary. For example:

```
wp2 text.doc /u/windy/gloss.doc
```

In this example the Document Summary is bypassed and the cursor is placed at page 1, line 1, position 1 of the document text.doc, and the glossary **/u/windy/glossy.doc** is now attached. When ending the editing session, you will be returned to the shell. **Note:** The FORMAT selection from the End of Edit Options menu cannot be used for printing the document. The editing changes, however, will be saved.❑

Having Fortune or UNIX Problems?

The Cambridge Consortium, Inc, publishers of /u/fortune *news*, can help. As you know, we have been writing about the Fortune and Unix for five years and we have the experience to solve many of your Unix and/or Fortune problems. Our expertise applies equally well to software and hardware:

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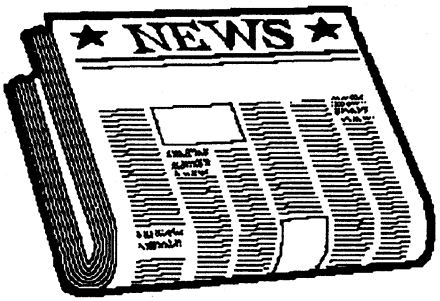

From SCI/Fortune

FORMULA 8000 CONFIGURATION 300 MB HARD DISK DRIVE

SCI/Fortune Systems announces the availability of a 300MB drive for the Formula 8000. The drive is available in the following configurations:

Formula 8000 with 300MB drive
300MB drive as a replacement
300MB drive as a second drive for the 8000

The embedded Small Computer System Interface (**SCSI**) controller used with this hard disk conforms with the ANSI SCSI Standard and Common Set, allowing any Formula with an embedded SCSI controller to upgrade to the 300MB drive.

The **Wren-IV** Winchester disk drive has 300 megabytes (MB) of formatted capacity. In addition to increased storage capacity, the Wren-IV drive provides improved performance and increased reliability, with a Mean Time Between Failure (MTBF) rate of 30,000 hours. Further, the Hard Disk Assembly (HDA) provides automatic sector reallocation and formatting, as well as automatic Error Correction Code and retries, and has a 32-kilobyte data buffer.

The 300MB hard disk has a rotation speed of 3600 rpm. The typical seek times shown below are significantly lower than previous releases by SCI/Fortune.

Single track: 4.0 milliseconds
Average: (1 ms for SCSI overhead) 16.5 milliseconds
Maximum: 43.0 milliseconds

This new configuration further solidifies SCI/Fortune Systems' position as a leading innovator in the multi-user, multi-tasking computer marketplace. Now there are configurations for a broad spectrum of users, from small business owners to developers. The new hard disk provides increased data storage capacity as well as better performance than any system ever released by SCI/Fortune Systems.

Language Development Tools and C Compiler Updates

An update package for customers currently using SCI/Fortune Systems' Language Development Tools (LDT) versions 1.8.1 or 1.8.2 is now available. Users with either of these earlier versions of LDT installed on their systems can now update to LDT version 2.0. This update offer is available for both the 32:16 and the Fortune Formula. The part number for the LDT 2.0 for the Formula is 1007679-01. The part number for the LDT 2.0 for the 32:16 is 1007680-01.

Note: Both of these update versions can only be installed on systems already running LDT versions 1.8.1 or 1.8.2.

There's an update package for customers currently using SCI/Fortune Systems' C Language Compiler version 1.7c coming your way! Users with this earlier version of the C Compiler installed on their systems can now upgrade to the Fortune C Language Compiler version 2.0, at a fraction of the cost of ordering the standard package. This upgrade offer is available for both the 32:16 and the Fortune Formula. Don't let this one slip away! The part number for the Fortune C Language 2.0 update for the Fortune Formula is 1007775-01. The part number for the Fortune C Language 2.0 update for the Fortune 32:16 is 1007776-01.

Note: These upgrades can only be installed on systems with the Fortune C Language Compiler version 1.7c and Language Development Tools version 2.0 already installed.

The following information regarding training classes was sent to us recently. We felt it would be a good idea to publish these descriptions of the classes currently available. There is an established schedule but any particular class will not be held until the minimum number of registrations are received. Please be aware that some of the classes are specifically designed for dealers. However,if you are interested in more information about the classes, please contact SCI/Fortune's Registrar at (415) 593-9000.

Introduction to FOR:PRO
4 days
This course is designed for the technically oriented person who has little or no UNIX experience, but does have some previous programming experience. The course covers pathnames, files, directories, various UNIX editors, introduction to the shell and Fortune's enhancements.

Fortune:Word Advanced Features
2 days
The more advanced productivity tools of Fortune:Word, including Records Processing, Spelling Aids, and Basic Glossary are covered in this class. You must have either attended Fortune:Word fundamentals or have working knowledge of Fortune:Word.

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Class includes FORTUNE:WORD 3.1 enhancements.

Fortune:Windows
1 day
This course is designed to make the user of Fortun:Windows comfortable with its features. Learn how to access and transfer data between applications and how to customize the Window Manager to your working environment.

Records Processing
1 day
This is a comprehensive study of the Records Processing feature of Fortune:Word. Records Processing is the merging of database information with standard documents to produce form letters, reports, mailing labels, or other documents.

Advanced Glossary
2 days
This course covers the sophisticated tools available through Advanced Glossary programming. You will write interactive glossary entries to automate data entry, do conditional testing, and use math functions to calculate within documents. Prerequisites: You must be an experienced Fortune:Word and Basic Glossary user.

Multiplan Operations
1 day
This course introduces the Multiplan spreadsheet. You will learn how to construct a worksheet for financial modeling, forecasting, or other statistical analysis applications.

Data Communications
3 days
This new course consists of (1) a module covering data communications protocols in general and as utilized by Fortune packages; (2) training on Fortune Systems data communications packages—how to construct a solution using appropriate Fortune Systems communications products; installation, set up and operation/troubleshooting of Fortune Systems communications packages.

System V - Administration
1 day
This new course is based on the procedures defined in the UNIX System V - System Administrator's Guide as they apply to the Formula System V Development System. The course is intended for those responsible for managing System V systems in the field.

Hardware (Field Service)
4 days
This course provides hands-on training for hardware maintenance of the Fortune 32:16 and Formula product lines. The training includes complete hardware training and enough software (FOR:PRO) to allow the technician to effectively install, maintain and service the entire system. Prerequisites: Hardware support background with a knowledge of computer concepts. Course satisfies the Authorized Service Dealer certification requirement for trained technicians.❑

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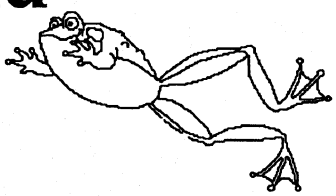
Talking to the Outside World



PC's and Mac's can exchange files with your Fortune using kermit

These days "connectivity" is the word that seems to be present at most cocktail parties — you may remember when "interfacing" was big some time back. As we've mentioned in the past, we're big on connectivity and have our Fortune talking to a **Mac Plus**, an **AT clone**, and assorted **VAX**'s. The Mac and PC are both in our office and we use a hardwire connection to link them to our Fortune.

We don't have what I would call a high tech setup. We don't have any high speed networks. Generally what we do is use various forms of **kermit** (a communication program that is available from our software library) to link up to the Fortune. When we need to send a file one place or another, we just give the instructions, and the file whizzes at 9600 baud to its destination.

Getting Ready

In the past we've explained a little about how we accomplish this. The wires used to connect the machines are identical to the ones you might use to attach a modem to either the Mac or the PC. On the Mac end, you'll probably need an adapter to go from the round DIN pin to a 9-pin DB-9. From there the wiring is as follows:

MAC DB-9 Male		Fortune DB-25 Male
3	→	7
5	→	2
9	→	3

On the IBM side, wiring varies some depending on your exact model. If you have a DB-25 (25-pin) connector on the IBM then there are some standards. Typically pins 2, 3, 1 and 7 go straight through. It may be necessary to jump pins 4, 5, 6, 8 and 20 all together on the IBM side.

Once you've got your wire in place, you'll need to configure a port on the Fortune to accept a new friend. Define the port you've selected as a terminal at 9600 baud. If you know what terminal your PC or Mac will be emulating, you can choose Other as the type and enter the termcap code, e.g. vt100 or h19. Otherwise, just say it's a Fortune. If you have an older version of For:Pro (pre 2.1), you may need to shut your system down so the changes can take effect.

Next, we suggest setting up a special login for the Mac or the PC. We use `mac` and `ibm` respectively. The logins should be established so they go directly into the **shell**, rather than the **Global Menu**. You can accomplish this through the **System Management** selection and option 11 which is **Modify Accounts**. Once you've gotten that far, choose the S option, **Assign a Shell Script**. Finally you will enter `/bin/sh` as the new shell.

Finally, we establish a **.profile** for our new accounts so that the backspace key works correctly. Here are our .profiles:

IBM
```
stty intr ^C
stty erase ^?
TERM=h19; export TERM
```

MAC
```
stty intr ^C
stty erase ^?
TERM=vt100; export TERM
```

The purpose of these profiles is three fold. First of all, since the PC/Mac keyboards don't have a **CANCEL/DEL** key, we need to change the *interrupt* character. This is the character that interrupts a program or command, usually killing it. The `stty intr ^C` changes this character to a **CTRL-C**. Note that this is what the `^C` stands for. To create this in an editor, you need to "escape" the control character first. In **sc** or **screen**, you do this by hitting a `CTRL-C` first (it is a coincidence that we also want to enter a `CTRL-C`) then hitting the CONTROL character you desire. In **ed** or **vi**, or the shell itself, you first enter a `CTRL-V`. Usually these escape characters will not appear on the screen. The second purpose is to change the function of the backspace key. You may notice if you don't make these changes that the backspace on the PC/Mac acts like the CANCEL/DEL key. That's because the character it puts out is actually the same as the CANCEL/DEL key. That's kind of annoying because every time you try to make a correction, you cancel your command. So we change the *erase* character to the DELETE code. The easiest way to enter the `^?` character on the `stty erase` line is just to enter the escape character (`CTRL-C` or `CTRL-V`, depending on your editor) and then press the CANCEL/DEL key. That should make the `^?` appear. Finally, we need to tell the Fortune what kind of terminal we are using. The exact type depends on the terminal emulation modes of the programs we are using on the PC/Mac. MacKermit emulates a DEC vt100. Kermit on the PC is a little more varied. Depending on your version it may emulate a Heath h19, a vt102 or vt52, etc.. You will want to put the same terminal type in the **.profile** and within PC kermit. (Note that your Fortune probably does not have a termcap entry for a vt102, so you may want to specify vt100 in your .profile.) If you happen to be using **Fortune:Works** on the PC, then it is not necessary to redefine the terminal type, because the default is a Fortune, and that is what **Fortune:Works** emulates.

Once you have created these **.profiles** and placed them in the **/u/ibm** or **/u/mac** directories, you are ready to go. This

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is probably a good time to explain kermit's philosophy and what you are trying to accomplish.

What kermit does

Kermit does three things: 1) it is a terminal emulator; 2) it sends files; and 3) it receives files. Terminal emulation means that the things you type on the keyboard and the things you see on your screen are all derived from information flowing through a communications port. This could be a port on the Fortune, COM1 or COM2 on a PC, or the Phone Icon connector on a Mac. Thus when you press the RETURN on your keyboard, a RETURN is sent out of your port. When the computer you will be connecting to sends back a login message, the text is coming from that computer rather than your local computer. Once the information you're typing is going through this port, you are emulating a terminal.

In order to exchange files between computers, kermit does some very special error checking. The kermit on one computer sends a "packet" of information which contains a key to verify its contents. The receiving computer's kermit takes the packet, and checks to be certain that the data that was received matches the key. If it doesn't, the receiving kermit tells the sender to resend the packet. In this way, error-free transfers are insured.

In order to actually send a file then, you will first use the emulation mode to connect up to the remote computer. Then you'll start up kermit on the remote computer and tell that kermit to send a file. Then you'll exit out of the terminal mode so that you can tell your own kermit to start receiving. That's all there is to it.

The important points to remember are that there must be a version of kermit running on both machines so that they can properly compare and decode the packets, and that typically, you'll be switching in and out of the terminal mode to issue commands to the remote kermit and to your local kermit.

We'll separate our discussion briefly to explain how to use kermit on the PC or MacKermit on the Mac.

Start up the kermit program on the PC by typing `kermit`. It will probably be necessary to configure kermit to your PC by specifying the port number (depending on whether you're using COM1 or COM2) and the baud rate (typically 9600 for a direct wire connection). You enter these changes by using the set command, e.g. `set port 1 <RETURN>`, `set baud 9600 <RETURN>`. If you have version 2.29 of kermit or later, you can set the terminal emulation by typing `set terminal vt102`. You can view your settings by issuing the status command (just type `sta <RETURN>`). If you'd like, there is a file called **mskermit.ini** which contains the startup options for PC-kermit. It can be used to configure kermit for your machine so that you won't have to use any of the set commands.

Finally you will connect by typing con. Note that once your connect, your communication parameters are displayed on the last line of the screen. Note also the "escape" character, which defaults to `^]c`. This is a CONTROL Right Bracket followed by a lowercase c (no shift, no CONTROL). This returns kermit from terminal mode to the prompt mode. If you are connecting to a Fortune, when you hit RETURN, "`Type in your name and press <RETURN>`" should appear. If it doesn't, check the port and baud rate at the bottom of the screen, check your cable connections, and make sure that the port on the Fortune is set up for a Terminal and is ready to go. If you want to be safe on that last point, you could try connecting an actual terminal set at 9600 baud to the port to confirm that it set correctly.

Sending a file

Once you have the login screen, login using your special account name (the one with the **.profile** that goes into the shell). Let's suppose you want to send a file called **report1** from the Fortune to the PC. The first thing you'll want to do is to tell kermit on the Fortune to send the file. If you have a version of just kermit, you do that by typing `kermit s report1 <RETURN>`. If you have C-kermit, you can either type `ckermit -s report1 <RETURN>`, or you can start up C-kermit by typing `ckermit` which will give you a C-kermit prompt. Then just type `send report1`. Once you've started the send, you want to quickly disconnect by entering the escape keys (CTRL-] c) which should bring you back to the `Kermit-MS>` prompt. Presuming you've made it this far,

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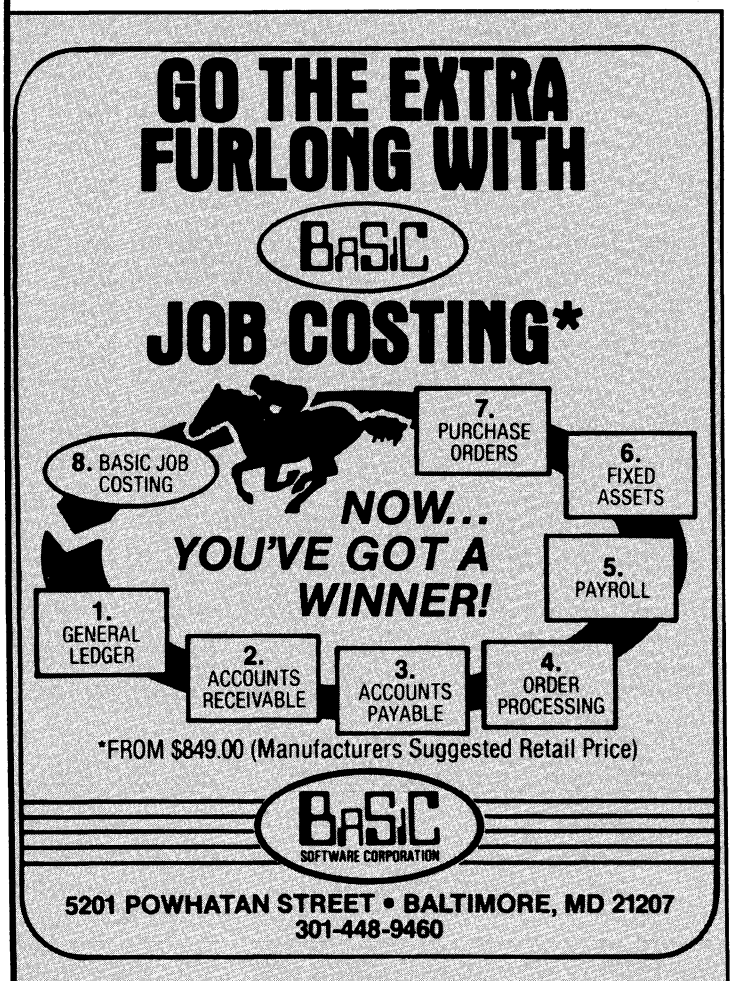
just type `rec` for receive, and the file should be on its way. When the transfer is complete, you'll probably want to connect up again as a terminal (con) and log off the Fortune as you normally would from a shell account — probably by entering a `CTRL-d`.

If you want to send a file from the PC to the Fortune, you connect up in the same way and give the instruction to receive. With kermit that's `kermit r`, with C-kermit it's `rec` from the C-kermit prompt. Then exit the terminal mode (`CTRL-] c`) and tell the PC to send the file by typing `send report1`.

Using the MAC

Using the Mac with **MacKermit** is basically the same procedure as outlined for the PC with only a few exceptions. To start MacKermit, just double-click on its icon. As soon as MacKermit comes up, it's always in the terminal emulation mode, so if your cables and port settings are correct, a quick tap of the RETURN key should produce the Fortune login screen. If it doesn't, check your connections and port settings on the Fortune to be sure it's configured for a terminal. Don't adjust the communications settings on the Mac.

Presuming everything is ok, you'll login with your new mac account, which should produce a `$` prompt. You'll send the file as described in the "Sending a File" paragraph above. The only difference is that on the Mac, it isn't necessary to exit the terminal mode. Instead, once you've told the Fortune kermit what to do, just pull down the File scroll bar and click on send or receive. When the transfer is complete, a click of the mouse will erase the dialog box and bring you back to the terminal mode. Again, you'll probably want to log off of the Fortune with a CTRL-d. On the Mac, the CTRL key is the Clover-leaf key and the ESC key is the key marked "Clear".



Binary vs. ASCII files

One of kermit's strengths is that it can transfer both ASCII and binary files error-free. ASCII files are straight text files without any special characters. Binary files are typically programs, **Multiplan** spreadsheets, etc. They could also include compressed files, **XyWrite** files, etc. Most binary files are not compatible between different kinds of machines. A program that works on the Fortune will not work on a PC and vice versa. A spreadsheet usually has to be transferred to the **SYLK** format before it can be used in a different kind of computer. However, our filter for converting **Fortune:Word** to **XyWrite** files does produce files that should be transferred in the binary mode. If you're sending binary files on the Mac or Fortune, you'll have to let kermit know. The instructions for doing this are included in the list of kermit basics below.

In Summary

That about wraps it up. We hope this has given you the necessary information you'll need to use kermit effectively to communicate between your machines. Here are some final pieces of advice:

Kermit Fundamentals

1. Always tell the remote computer what to do first — e.g. send or receive — and then go back to your local computer and tell it to send or receive.
2. Note that only the sender specifies the filename, never the receiver!!
3. Observe file name restrictions on the destination computer. PC's and Fortunes can't have any spaces, PC's are limited to 8 characters-period-3 characters, etc.
4. Kermit can send either ASCII or binary/program files. The default is ASCII. If you are sending binary files on the Mac or Fortune, you'll have to let kermit know. On the Mac, you'll pull down the scroll bar on **Settings** and select **File Type**. Click on the box marked **binary**. On the Fortune under kermit, simply insert an i next to the s or r, e.g. `kermit si report1` or `kermit ri`. For C-Kermit you'll have to issue the `set file type binary` command. On the PC, kermit should automatically know if it's dealing with binary or text.
5. On C-Kermit and PC kermit, you may be able to get help by hitting a `?` character. You can do this as you build your commands and the help will become more specific. For example, if you type `set file type ?`, kermit will tell you that you can enter binary or text.❑ **Josh Lobel**

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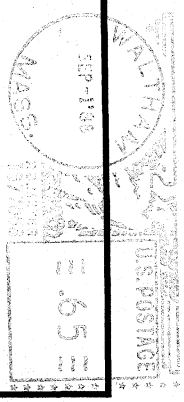

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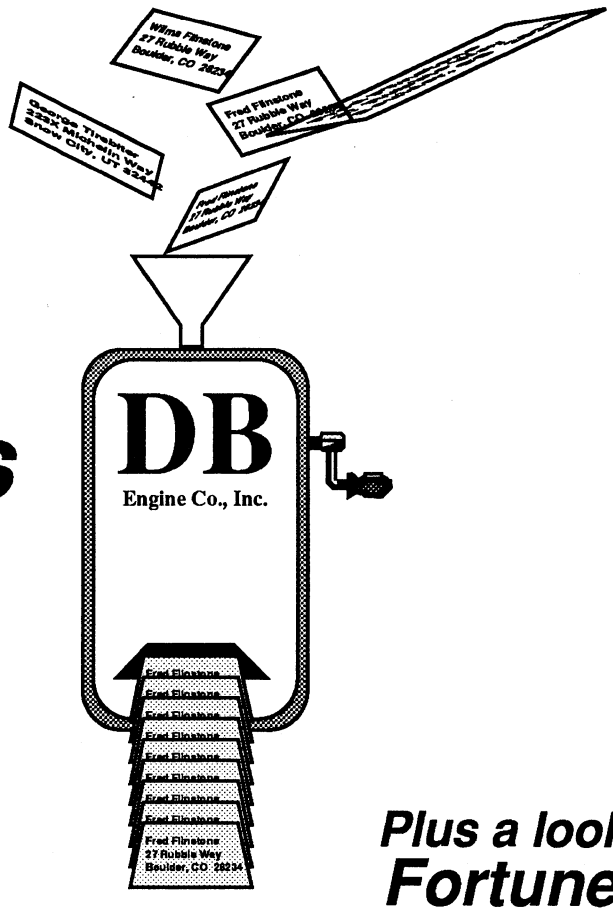
/u/fortune* news

The Newsletter for Users of SCI/Fortune Computers September 1988/Volume 5 Number 9



Database Programs

First of a new series of articles

Plus a look at
Fortune:Word 3.1

PLUS MORE...

- BASIC Advisor
- System Backup - Using a Tape Streamer
- Automate Draft Printing in /u/help
- News From SCI/Fortune

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Subscriptions cost $48 for one year within the U.S.A. For foreign subscriptions, add $27 each year for added postage and handling costs.

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9/88

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Ray discusses abbreviations in Basic and presents an index of his articles that deal with the BAS applications.

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Page 11 — **Fortune:Word 3.1 Update**
In this article we discuss some of the new features of the newest release of Fortune:Word. Among other new features, now you can draw lines with Fortune:Word.

Page 13 — **/u/help**
We answer a user's question regarding draft printing using the lpr command.

Page 14 — **News from SCI/Fortune**
SCI/Fortune announces the availability of Tactician - a spreadsheet and graphic package which integrates with Fortune:Word.

Page 15 — **DataBasics**
This new column explores the issue of managing data with database programs. This month we hear from Progress.

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From The Editors...

Using Your Fortune To Manage Information: The Role of Databases

First, there was the jet age, followed by the space age and now we are in the *information* age. Of course, the information age wouldn't be possible without computers. But the question is, *how* can we best handle all this information in the most efficient way possible?

One answer is by using databases! Now, the subject of databases is a large one and we could not do justice to this topic in one small editorial. However, what we can do is to draw your attention to a *new* column that we are introducing this month. This column will deal with Database programs that are available for the Fortune line of computers.

Periodically we speak with our subscribers in order to get some ideas of what we can discuss in **/u/fortune** *news* - ideas that would be helpful to you. Through this process it became apparent that many of our readers would like (a) to know more about databases in general and (b) how to use their particular database, if they have one, more effectively.

So, what we did was to contact the three major vendors of database products available on the Fortune and we invited them to contribute to a column dedicated to databases. These companies (**Informix**, **Progress**, and **Unify**) all thought that this was a good idea and will be contributing articles to **/u/fortune** *news*.

The way that we have structured the column is to have each vendor contribute an article on a quarterly basis. Thus, we expect to be hearing from each of them 4 times per year. Of course, each vendor will describe their Database product in general - but they have each promised to get down to the nuts and bolts of how to use a database to manage information.

In this issue, Progress kicks off the series with a two-part article. In the first part, they describe the PROGRESS relational database management system and their fourth generation language (4GL) in general terms. They also touch upon the general philosophy behind setting up a data base. Then, in the second part, some flesh is put on the general skeleton by starting the solution to a semi-real life problem.

We hope you will find some helpful hints in this series and we hope you will keep your eye on this column in the future. As always, we look forward to your feedback on this, and any other article. If you have any ideas of what you would like to see covered in the database column, please write or call.

AND Don't Forget Fortune:Word 3.1...

We also want to bring your attention to the article on the new features of the new Fortune:Word. **SCI/Fortune** continues their commitment to office automation software by adding some significant new features and we thank them for the opportunity of using the new Fortune:Word so that we can pass onto you, our readers, this information.

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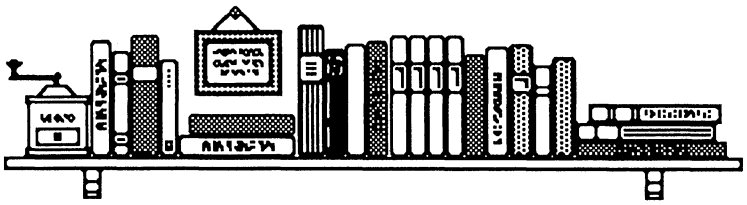
The BASIC Advisor



The BASIC Advisor is brought to us from Ray Wannall. Ray is President of BaSiC Software Corporation which is located in Baltimore, Maryland.

Question: *I agree with your personal note regarding the LSIT command (/u/fortune news, Volume 5, number 7). But I would find PIRNT a much more useful command than SVAE. Do you think that could be arranged with Concept Omega?*

Answer: For those who are new to this publication, let me explain that many years ago one of our readers discovered that if you misspell the command LIST as LSIT, the BASIC interpreter would recognize your request and perform as though you had actually typed in LIST correctly. This feature is present on all versions of Thoroughbred BASIC, regardless of the machine. We mentioned that on Fourth Generation releases of BASIC the LSIT command was still present. I have often wondered who was responsible, and this past week I accidently stumbled upon more information.

I was attending one of Concept Omega's local sales presentations in the Washington, DC, area in which IDOL IV and SCRIPT IV were being demonstrated by William T. Clark Jr., Product Manager. I must admit I was becoming somewhat sleepy as Bill explained how to enter and compile SCRIPT. But when he loaded the final program and typed in "LSIT 10" to demonstrate that a BASIC program had been generated, my internal reaction was, "LSIT 10? BOING!" I felt compelled to interrupt.

I asked Bill if he was the one responsible for the LSIT command, to which he replied that, yes, he was somewhat to blame. According to Bill, the story began back in about 1981 at Science Management Corporation, just before Fortune Systems acquired IDOL/BAS for the 32:16's. An unnamed technician, who has since left the Thoroughbred organization, used to enjoy spending idle moments watching Bill enter BASIC code. This fellow, like most writers of the BASIC interpreter, probably knew little about actual programming in the language, so it is not surprising that he would have enjoyed observing such activity. Now Bill, like many of us, is an extremely fast and notoriously lousy typist. The technician noticed that Bill frequently typed LSIT instead of LIST, which, at the time, resulted in the ERROR V message. He asked Bill if he would like the LSIT command included in BASIC, to which Bill asked if that was possible. The technician assured him that anything was possible, and LSIT was born.

As far as SVAE and other commands are concerned, they may, at one time or another, have been included in the language. Bill explained that LSIT was not peculiar to his typing style alone. The president of Concept Omega, John-L Johnson, and other higher-ups were also mispelling LIST at the time. This is probably the reason LSIT survived while other commands did not.

Bill told us a related story which I found amusing. About the time LSIT was born, the same technician noticed that Bill was often entering "RUIN IDOL" and receiving an error message. (On the Fortune we enter "RUN DOL" to exit the BASIC command mode, but on all other computers the correct command is "RUN IDOL".) Without revealing his intentions to Bill, the technician went to work on RUIN IDOL. Soon thereafter, when Bill told the computer to "RUIN IDOL", the screen cleared, and the message, "RUINING IDOL . . . STANDBY . . . ", appeared at the middle of the screen. Bill frantically pounded on the ESCAPE key for what seemed to be an eternity (actually only a few seconds), but to no avail. Soon the screen again cleared and the READY prompt appeared. I am surprised Bill is not gray, bald or both.

Now I have some sad news to report. Enjoy LSIT while you can; it will not be included in future versions of Thoroughbred BASIC. The next release will allow for extended variable names, and LSIT must die. Sometimes I have no patience with progress.

Question: *Recently you printed an index to BASIC Advisor articles dealing with the operation of IDOL which I have found very useful. I'm sure I am not the only one out here interested in a similar index for the BAS applications. Would you please publish one?*

Answer: Our IDOL index appeared in the May, 1988, issue of /u/fortune news (Volume 5, Number 5). Since you asked so nicely, here is our BAS index. I'm sure Josh and Mark will

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be happy to send you any back issues you may be missing.

GENERAL LEDGER

Volume 2, Number 7: Chart of Accounts Ratio Indicator Entry
Volume 5, Number 8: Chart of Accounts Acct. No. Entry Error

ACCOUNTS PAYABLE

Volume 4, Number 3: Partial Payments on Vendor Invoices

ACCOUNTS RECEIVABLE

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GENERAL

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Volume 4, Number 9: BAS vs. Thoroughbred Business Apps.
Volume 5, Number 3: Error zero with Release 6.5.12 BASIC

I am hoping that by publishing this index we will inspire more of you to submit your questions about the operation of the business applications. I don't want anyone to think that our only interest is in technical matters. The primary purpose of the BASIC Advisor is to help all end users get the most out of their Fortune computers. If you have a problem with any of the BAS applications or IDOL, I will be happy to lend a sympathetic ear. You may drop me a line in care of BaSiC Software Corporation, 5201 Powhatan Street, Baltimore, MD 21207. If you prefer to take a shot at finding me in the office, you may try calling me at (301) 448-9460. It is usually best to call after 5:00 PM during the week.❑

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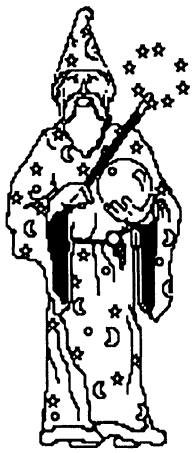
System Administration: Part 17

No Longer Requires a Degree in UNIX Wizardry



This series is a must for all owners and users of the Fortune computer. Dave is President of UNI-KOMP which is located in Houston, Texas. He provides UNIX seminars, software for the Fortune Computer, and is president of the Houston UNIX User's Group. He contributes independently to ***/u/fortune news.***

by Dave Kloes

In the past few issues, we have been discussing backup concepts, commands and strategies. We will complete our discussion of backups in this issue by talking about backups using the **Fortune tape streamer**.

First of all, for those of you that never seem to have time for backups, the tape streamer is *a time saver*!! We have been working with Fortune systems since 1983 and just recently got our first in-house tape streamer. The tape streamer will allow you to get more productive use of your system for the following reasons:

1. *Computer down time is minimized.* When you are doing backups, no one should be using the system. By minimizing the backup time, you increase the time your personnel can be using this valuable resource. As a sidenote to this issue, it is OK to backup and have people using the system as long as the area that is being backed up is not in use.

For example, if you are backing up your Business Accounting System files/programs, you can still do work in Fortune:Word. Conversely, you can use the accounting system if you are backing up Fortune:Word and Multiplan. If you are doing a full system backup or are backing up both the accounting system and Fortune:Word/Multiplan files (the **/u** directory), then others should not be using the system. The one thing you do give up when a backup is in progress and people are using other areas of the system is **speed**. Obviously, the backup will take longer when this happens.

SYSTEM BACKUP

2. Because of the time it takes to do backups, many people bypass the issue by doing backups less frequently or *not at all.* For those of you that have had hard disk or other component failures, you know what is involved when your most recent backup is not current. The tape streamer, because it takes less time for backup, thus increases the chances that you will do backups or at least do them more frequently.

3. Another advantage is the amount of media that you have to archive. In essence, it is easier to maintain one or more tapes than to maintain many volumes of diskettes.

4. There is less chance that you will run into bad media. If you are backing up to 10 diskettes, for example, and you do not use the "verify" option, the probability that one of the diskettes will be bad is greater than the chance of one bad tape. The other side of the argument is that if a tape is bad, you may have a greater chance of losing more data because you may not be able to recover data past the bad part of the tape. If the whole tape is unreadable, you will lose the entire backup. At least with one bad diskette, there are ways to recover data beyond the bad volume.

5. If you are doing a diskette backup that takes multiple volumes, an operator must be present to insert each diskette. If the same backup can be done on one tape, *an operator is not required.* This means that backups can be done while personnel are out to

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lunch. Again, you get more productive use of your people and your computer.

The whole point here is that the decision to purchase a tape streamer is the same as justifying the purchase of any other computer program or component. Is the cost the equipment less than the benefit over time. For those of you that are trying to justify the purchase of such an item, if you calculate the number of manhours saved each year, you will find in most cases the payback period is quite short.

The decision to purchase a tape streamer is a bit more difficult these days than it was a year ago. First of all, the less expensive 20MB tape steamer is not in the price list (dated July 1, 1988) for Fortune systems anymore. There are still a few around but they are hard to find. That leaves the following alternatives if you have a Fortune 32:16:

1. Buy the more expensive 60MB streamer which includes the expansion cabinet. If you are lucky enough to already have the expansion cabinet, you can get the 60MB Tape Streamer Upgrade Kit.

2. At least one other third party vendor (who advertises in **/u/fortune**) sells a 60MB tape streamer as an alternative to the one that Fortune sells.

3. Purchase a new Fortune Formula which includes an internal tape backup unit.

4. Contact your hardware vendor to see if they locate a new or used 20MB unit for you.

As we increase the size of our disk drives, the need for a tape streamer becomes more of an issue. We normally recommend that a tape streamer should be used on any system with a hard disk of 30MB or more. To backup a disk of this size would take almost 40 diskettes! It is bad enough that a full system backup for a 20MB disk normally takes 25 diskettes.

Now that we have those issues aside, let's discuss some of the commands that are available to us for the tape streamer. For those of you that are Unix buffs, these utilities and commands are unique to the Fortune system and are not standard Unix commands. The two commands we will be discussing are the "far" and the "st" commands.

There are two reasons why we are going to limit the discussion of these two commands:

1. For those of you that have had the opportunity to look at the Fortune documentation for these two commands, you will see that there are many options and combinations that are available. Certainly, it is beyond the scope of these articles to discuss this topic in detail.

2. Secondly, Fortune provides a menu system for the tape streamer utilities that is well done. Because of the importance of backups, we recommend that you use this menu as much as you can.

THE "st" COMMAND

The "st" command is the tape streamer control program. It can generally be used to reset, restart, and shutdown the tape unit. It can also be used to rewind, retension, read, write and verify tapes. Here are some examples using the "st" command:

- To rewind a tape:

```
st unlabeled read rewind
```

The "unlabeled" option is used so that "st" will read the tape as though it does not contain tape labels. This allows the command to rewind labeled and unlabeled tapes. The "read" option specifies that the tape is to be enabled for reading. Obviously, the "rewind" option rewinds the tape.

- To format a tape:

```
st unlabeled write erase rewind
```

The new options here are "write" and "erase". The "write" option enables the tape for writing. This is required since the "erase" option requires writes to the tape.

- To retension a tape:

```
st unlabeled read retension
```

The "unlabeled" and "read" options are included for the same reasons as "rewind" above. The new "retension" option is used to retension the tape.

- To restart the PIO daemon

```
st restart
```

The **PIO daemon** is the process that should always be running in the background to execute tape streamer commands. Occasionally, during a backup, we will want to restart the daemon because it is stuck in some unknown state. Normally, in this situation, you would shutdown the daemon and restart it using this command.

- To shutdown the PIO daemon

```
st shutdown
```

This command would be issued to stop the PIO daemon (deletes the PIO's lock file). You would then use the "restart" command to start the daemon again. If you are having problems getting your backup to work or if you get error messages, sometimes doing a shutdown and startup of the daemon clears the problem.

Notice that in the examples above, we used the "unlabeled", "read" and "write" options. There is also a "labeled" option. In most of the "st" commands, we must include either a "labeled" or "unlabeled" option and a "read" or "write" option. The "labeled" option is normally used when we either backup to or restore from a tape.

Except for the "restart" and "shutdown" command, all of these options are available to you in the Fortune tape menu system. Remember that FOR:PRO commands can be executed from the bottom of most Global Menus by putting an "!" in front of them. If you run into a problem with the tape streamer and want to shut it down and restart it again, then you can execute

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these commands from the bottom of the menu:

Enter Selection & Press <RETURN>:
```
!st shutdown
```

Enter Selection & Press <RETURN>:
```
!st restart
```

If you want "help" on the options that are available using the "st" command, you can use the following:

```
st help
```

THE "far" COMMAND

The "far" (file **ar**chiver) command converts a file system (or part of a file system) into a sequential format called a *keepset*. It converts a hierarchically structured file system into a sequential data stream (keepset) and writes it to the backup medium. This is the command that is actually used to do our backups and restores to tape.

Let's discuss some of the options available with the command by looking at the following example:

```
far -Backup -create -verbose
-keepset_name=unikomp /u
   -far_file=/dev/st00
```

First of all, notice that we have wrapped the line because it is too long to fit on one line; however it is a one line command.

-Backup

This option copies the specified files to the output far-file from the file system

-create

This option, when used with the streaming tape, will erase the entire tape, rewind the tape, and write the new information on the tape.

-verbose

This option will report all activity, including errors, in the backup and restore modes.

-keepset_name=unikomp

This option names the keepset to "unikomp". You can use whatever keepset name you desire.

/u

This specifies that the /u directory is to be backed up. You can include whatever directory name(s) or file name(s) you wish to have backed up.

-far_file=/dev/st00

This option specifies the device name for the tape streamer.

Other options that are available:

-Restore

This option is used to restore files or directories from a backup that was done using "far". The following, for example, would restore the backup done above using the "-Backup" option:

```
far -Restore
-keepset_name=unikomp /u
-far_file=/dev/st00
```

-Show

This option is used to show what files would be backed up but does not actually do the backup.

-Display

This option is used to list the files in a backup that was done using "far". The following command would display the contents of the tape a page at a time:

```
far -Display -page
-far_file=/dev/st00
```

-Help

This option is used to output a message showing the options available for "far". You will get the same message by entering "far" with no arguments.

-append

This option can be used instead of "-create". This would append the output to the end of the tape without altering existing backup information on the tape. Since a tape is restored sequentially, any files appended to the end of the tape would overwrite any files restored from the beginning of the tape unless the "preserve" option is used.

-destination=

This option is used to specify whether files restored from the tape are to overwrite existing files on the system. If "overwrite" is specified, existing files are overwritten. If "preserve" is used, existing files are not overwritten.

-page

If this option is specified, output pauses one screen at a time. This is normally used with the "-Display" or "-Show" options to give you time to read what is on the screen before the command proceeds.

what

This option is used to specify which version of "far" was used to write or is being used to read the tape.

We have not gone into alot of detail on these commands nor have we given many examples. We do hope; however, we have given you enough information to get you started on developing your own backup or restore scripts.

This "puts a wrap" on the discussion of backups on the Fortune System. In the next issue, we will continue on the course we initially set - by continuing our walk through the directories on the system that remain to be discussed.❑

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Fortune:Word Upgrade:

Fortune:Word 3.1 Upgrade Now Shipping

You may have heard recently that there is a new release of **Fortune:Word** that is now being shipped. We're happy to announce that **Version 3.1** is indeed available for all users of **32:16** or **Formula** computers. Although this is technically only an update, **Version 3.1** actually introduces several new features that may be of use to many of our readers. The most significant of these include line drawing, ASCII text conversion, laser printer support, automatic date insertion and an on-line thesaurus. We have had the good fortune to be able to experiment with this new program for several weeks, and we'll try to introduce you to the features and our impressions.

Line Drawing

What is line drawing, you may ask. Line drawing is the capacity to put horizontal lines, vertical lines, boxes, etc. into your document. Enhancements like this can be used to spice up a document, draw attention to specific text, create organizational charts, etc. Adding lines gives you the ability to do some basic "desktop publishing". When you add lines to a document you are actually adding the line draw characters into the document. Like other special characters — tabs, center symbols, etc., these characters are essentially like any other character in your document. They can be typed-over, deleted, moved, and manipulated like other text. This is an asset, but also requires that some care is exercised when text within boxes is edited. For instance, if you insert 5 letters into a paragraph that is surrounded by a box, the righthand vertical line in that row will be offset 5 spaces to the right. I tried using the **Block Move** command to move an entire box and usually came up with unexpected results that had to be modified.

As you might imagine, your printer may or may not be able to print lines easily. Most printers have dashes, underlines and vertical bars, but to achieve neat boxes you also need corners, intersections, etc. Fortune supplies instructions on how to modify your wheels file (a file on your Fortune that tells the computer about the printer — see Volume 2 Number 7 for more info) to send the best possible characters for line drawing. If you have a **NEC** or **Diablo** printer, you may have to settle for "+" symbols at the corners, and broken dashed lines for the horizontal lines. Some dot-matrix printers may incorporate the line drawing symbols. If you have the original **HP Laserjet**, then you may need to get a special cartridge to draw lines. The **Series II** should have the correct characters built in in internal fonts. One last caveat is that line drawing only works effectively with fixed space fonts — the lines will not align properly with proportionally spaced fonts. In any case, if line drawing is important to you, then make sure that your printer can produce satisfactory results and that you or your dealer can make the necessary adjustments to get your printer to work correctly.

ASCII Text Import/Export

In the past we have discussed ways in which you can import or export "ASCII" text with Fortune:Word. This has never been a really simple procedure. ASCII text is plain, unformatted text without any fancy control sequences. It is the vanilla format that is used to transfer files from different programs or computers. It is also the format used for For:Pro system files, such as `/etc/passwd`, `/etc/printcap`, etc., as well as all shell scripts. The 3.1 release introduces several new features which allow easy import and export of text. All functions are executed with **COMMAND** key sequences.

Importing text

The most important issue concerning importing text is word wrap. That may not be something that you lose sleep over, but it really is essential for optimum use of the word processor. Word wrap is the automatic "wrapping" of one line to another. Text is almost always formatted with word wrap so that when you insert or delete words, the document will automatically reformat itself to compensate. The opposite of word wrap is a document with all hard returns. This format is essential for tables or lists.

Line drawing is the capacity to put horizontal lines, vertical lines, boxes, etc. into your document. Enhancements like this can be used to spice up a document, draw attention to specific text, create organizational charts, etc.

When you import ASCII text, Fortune:Word gives you the option to choose either format — word wrapped or hard returns. This should give you the flexibility you need with most documents. However, there isn't any one method that will work 100% of the time. For instance, if you import a letter with word wrap, the body will be fine, but the address will all be reformatted into a single line. This isn't really a failing in Fortune:Word but rather the need for

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computers to be consistent and somewhat inflexible.

Readers who download text from on-line databases via modem may appreciate the import feature which will bring the downloaded text directly into Fortune:Word.

Exporting Text

When you want to export text from Fortune:Word, there is a simple **COMMAND F14** key sequence to save the text to a file. You can save the entire document, or only a block that you highlight. The one caution here is that your text is appended, or added, to a file if it already exists. For this reason, you may want to delete or move an existing file before saving to it.

System Files/Shell scripts

This feature will be particularly useful for editing system files. We would suggest that whenever you edit a system file, you first copy or rename it in case your editing creates an unexpected problem. In the past, you may have created shell scripts with **ed** or **screen**. Or you may have avoided creating them altogether because you didn't know how to use either of those editors. Well, with 3.1 your time has come to start experimenting with shell scripts. No more excuses.

Incorporated Laser Interface

Consider this a freebie. Yes, the very same laser interface that once you might have had to pay hundreds of dollars for is now included at no extra charge. It might be worth the cost of the upgrade all by itself. Laser printing is definitely the wave of the future—it's quiet, fast, and produces fancy results that makes you forget about the slightly higher cost per page. By bundling the software into Fortune:Word, Fortune has opened new horizons for the budget conscious. (Technical readers might also note that the new lpd program should enable 8-bit character transmission that is required for controlling certain dot-matrix printers such as the NEC line.) **/u/fortune *news*** will be publishing articles in the near future about how to take the most advantage of laser printers.

Date Stamp

Is this Belgium? If you have a hard time keeping track of the date, or would just like to save some keystrokes, you'll love the date stamp. Within you document, hit **COMMAND @** and the date will appear, perfectly formatted. `September 2, 1988`. Just like that. Put an `@` sign in a header or footer, and the date the document was printed on can be inserted. In addition, you can use the `<@>` label in **Records Precessing** to automatically insert the system date in an output document. Overall, a very handy addition.

Capitalization in Spelling Tools

In the old days when you wanted to replace a mispelled word using the REPLACE function, you'd have to go back and correct the capitalization. Now, the replaced word assumes the same capitalization as the misspelled word. This should usually yield a more desirable result.

On-Line Thesaurus

Sometimes you just get that itch (*desire, craving, passion, obsession*) for exactly (*precisely, purely*) the right word in a sentence. Rather than probing your thesaurus or toying with the tip of your tongue, you can hit **COMMAND GOTO**, and a list of meanings and synonyms appear on your screen. Actually, you can if you purchase the "add-on" thesaurus module to Fortune:Word 3.1, which is reasonably priced.

What you'll get is the **Proximity Linguistic Technology Thesaurus**, which is a little different from other computerized thesauri we've seen. With this program, you get a dictionary type entry which lists the part of speech, meaning, and synonyms for that particular use. The cursor keys scroll you through additional meanings. The result is that you get more meaning information, but fewer synonyms on the screen at one time.

We compared **Fortune:Word's** thesaurus with those of **Word Perfect** and **Xywrite** (both are DOS word processors) and found that their suggestion lists were comparable in size, although there were certain suggestions unique with each system. Although there isn't an automatic replacement feature with the thesaurus, it is much handier than a bulky book at your side, and you'll probably end up using it with more regularity.

Additional New Features

There are several other new features which we can't discuss in great detail, but are worth listing:

New cursor movement commands allow you to quickly go to the bottom or top of a specific page.

A new command for Footnote Processing allows you to go to the next footnote reference in a document.

A Change Library function allows you to move to the next highest level library as you do in the operating system (e.g. ..).

A Browse mode allows you to access a document with read-only permissions and move through it using all the Fortune:Word cursor movement functions.

Expanded lengths for words in an exception dictionary are available. The maximum length of a word in an exception dictioniary has been expanded to 62 characters. When a word contains special characters, nonstandard punctuation, or notstandard capitalization, the maximum length has been expaned to 30 characters.

The Table of Contents Generator now allows you to use `<!!c>` (lowercase c) or `<!!C>` uppercase C) interchangeably for chapter headings.

The Glossary function cursor can now be used for any screen location, including text with multiple-column format lines.

If you are heavy Fortune:Word user, we think many of these improvements will appeal to you. If you are interested in upgrading, contact your dealer. There may be introductory pricing in effect, so call soon.❑

Josh Lobel

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/u/help

Harry Tressel of Northbrook, IL wrote with the following printing problem:

*A few years ago, when we owned an **IDS Prism** printer, we were able to turn on draft printing from the Bourne shell by typing a "+D" parameter after the **lpr** command. (I forget how we turned on letter-quality mode—perhaps the dip switches were set that way initially. Software control over printing fonts helps save wear and tear on the printer dip switches. Now that we have the **Toshiba P-351** printer, how do we do the same thing? The parameter "+D" does not work. I know software controls work from **Fortune:Word** (by setting the print wheel correctly), but how do we implement them from the UNIX shell.*

Answer: There are two ways to accomplish your wish. Unfortunately, only **Fortune:Word** uses the wheels files, so any changes you make there won't have any impact when printing from the shell. The file you want to change is the / **etc/printcap** file. The "+D" command tells the computer to send out the control string which is contained in the "`dr=:\`" line. The `dr` line stands for draft; any control string that follows it will be sent when the "+D" parameter is used with the lpr command. For the Toshiba P-351, the line should read:

```
dr=\E*0:\
```

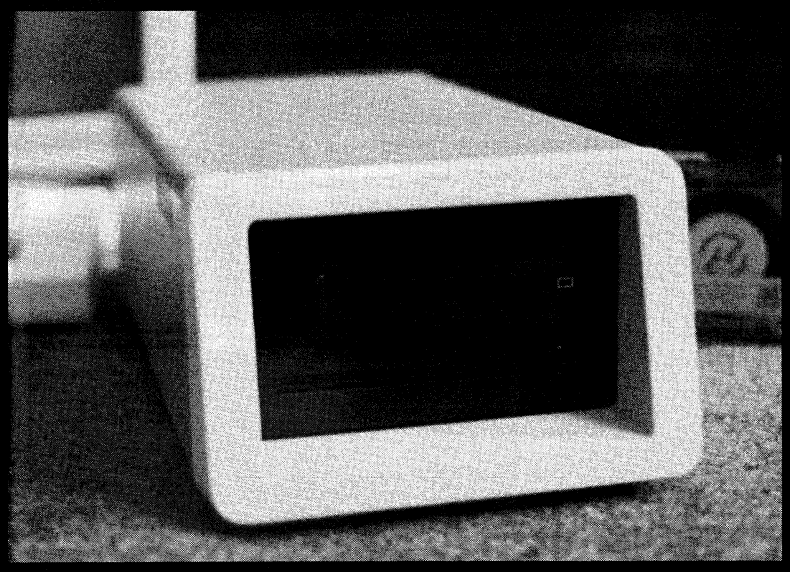
To make this change, you'll have to be logged in as root or manager, then edit the **/etc/printcap** file. We always suggest making a copy of any system file before editing it, so do that first. You can edit the file with **ed** or **sc** (or **Fortune:Word 3.1**, if you have it). Be sure to edit the entry for the **P-351**.

Another way to accomplish this is to use the "+W" argument. We stated that the **lpr** command does not utilize the wheels file, however it is possible to put control strings into the "`fc`" line in the printcap file. Here's and example of an `fc` line:

```
:fc=%V{1,1;2,2;3,3;4,4;5,5}m"\036","\034","\035","\034\E1","\034\EF09":\
```

This works fairly simply—let's say you use a "+W3" argument to lpr, the third control string gets passed to the printer. In our example that would be "\035". Numbers preceded by a "\" are "**octal**" or base eight numbers. Unfortunately, you'll have to check the control sequences in your printer manual, which are normally in decimal, and convert them to octal. If you don't have *Tom Lehrer's New Math* around, give us a call and maybe we can help. Just remember instead of 1's, 10's and 100's columns, base eight is 1's, 8's and 64's columns. You can add many different "initialization strings" that get sent with the "+W" command, so that besides just setting draft mode, you can set each of the different resident fonts on the P-351. We use this method to control fonts on our dot-matrix printers as well as our laser printer. We'll write more about this in the future.❑

Our Tape Backup Doesn't Cost You A Fortune



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NEWS FROM FORTUNE

Fortune Distributes the TACTICIAN Spreadsheet/Graphics Package

SCI/Fortune has recently announced that they will be distributing a new spreadsheet/graph package called **TACTICIAN**. If you are looking for more power than **Multiplan** provides, **TACTICIAN** is a new alternative. Also available on the Fortune are **Ultracalc** and **20/20** (distributed independently). In the near future, we hope to discuss these products in more detail. What follows are excerpts from SCI/Fortune's release.

SCI/Fortune has announced a distribution agreement with **SouthWind Software, Inc.** The agreement covers SCI/Fortune's distribution of **SouthWind's TACTICIAN, EZGRAF** and **GRAFSMAN** spreadsheet and graphing products. Distribution of SouthWind's products enhances SCI/Fortune's Office Automation product line, providing a more complete office automation solution for small to medium sized businesses.

TACTICIAN, a spreadsheet product, provides a complete set of built-in functions as well as a macro command language allowing users to customize spreadsheets. EZGRAF can quickly produce presentation quality graphs with little or no training. GRAFSMAN was designed for the more sophisticated users, taking data from TACTICIAN and/or other spreadsheet packages and making high quality presentation graphs and charts.

FEATURES

SouthWind's products are easily integrated with **Fortune:Word**, allowing users to place graphs, charts and spreadsheets within **Fortune:Word** documents. SouthWind products are bundled with current Fortune office automation products or sold separately. A brief list of features for each product is shown below.

TACTICIAN:

Windows
Application interface
Lotus 1-2-3 & **Multiplan** Translator
User Definable Function Key Mapping
1024 row by 1024 column capacity
Access to GRAFSMAN or EZGRAF without exiting TACTICIAN

EZGRAF:

Chart Types	**Text**
Bar	4 type sizes
Line	5 fonts
X-Y Plots	User defined positioning
Pie charts	
Flow charts and symbols	

GRAFSMAN:

Chart Types

same as EZGRAF plus:
Floating
High-low close
Combined bar/line
Data values displayed inside or outside bar

Text

No limit on amount of text
Multiple charts on one page

Interfaces

Informix
Progress
Unify
Word Processing
C Language
Spreadsheet

Other

Menu driven
Symbol library
Create custom symbols
EZDRAW option

Outstanding Problem Report

There are a couple of new problems that SCI/Fortune is reporting with **Fortune:Word** and the spelling checker:

1) When using spelling checker, you cannot add words that contain `CTRL/y` characters (laser printer font codes) to the exception dictionary. For example, if a word that has been highlighted as mispelled begins with a `CTRL/y` character, the message Can't add word is displayed when you press `COPY` to add the word to the exception dictionary. WILL BE FIXED IN NEXT RELEASE.

2) If editing an exception dictionary and adding words with `CTRL/y` characters (laser printer font codes), such words are never recognized as valid. THIS WILL BE FIXED IN NEXT RELEASE.❑

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Introducing...

DataBasics

In this issue, we introduce a new column for our readers who either already own a particular Database program or for those who are contemplating the purchase of a Database prgram. Keep your eyes on this column in the coming months to learn how to better manage information with your Fortune computer.

PROGRESS, developed and marketed by Progress Software Corporation of Bedford, MA, is a fourth-generation language (**4GL**) and relational database management system (**RDBMS**) used by programmers to develop transaction-oriented applications. The PROGRESS package runs on a wide variety of mini- and micro-computer, including the Fortune 32:16 and Formula line of computers.

PROGRESS was commercially released in August 1984, initially in the UNIX environment. Today, PROGRESS is transparently portable across UNIX, XENIX, ULTRIX, MS-DOS, VAX/VMS, and CTOS/BTOS operating systems, as well as networks.

The PROGRESS Application Development System consists of two major components: a tightly integrated, English-like language and relational database manager; and a menu-driven application builder called PROGRESS FAST TRACK.

The essentials of the **4GL RDBMS** include: a high-performance relational database manager that stores and retrieves the data; a dynamic data dictionary that describes the data; a high-level application language that writes procedure; an automatic screen and report formatter that determines how the data is to be displayed; and full screen procedure editor that edits and verifies syntax.

The **PROGRESS FAST TRACK** application builder allows users to quickly and easily create menus, paint screens, write reports, and make queries of the database by generating forms.

PROGRESS also features an automatic fault-tolerant, "crash-proof" database engine that ensures the integrity of the database in the event of power, hardware, and software failures, or operator errors.

Developing a PROGRESS-based Application

To begin developing an application using PROGRESS, you first identify the *files* that comprise the database, henceforth called the *schema*. The data dictionary allows for the design of an initial schema that may easily be revised throughout the life of the application.

The schema is comprised of *logical* files. Each file is comprised of *fields* that can be one of five data types. Indexes are defined for certain fields, tagging them as keys to support more efficient retrieval of data from the database.

Unlike the limitations of a hierarchical system, the PROGRESS relational database supports the access of any field in one file via field in another file. A "related" file is one that has a field defined identically like a field in another file.

When defining file layouts, you should consider the application being developed and the relation of the elements of the data will have to each other. In relational systems, these relations are usually defined as "one-to-one", "one-to-many", "many-to-one", and "many-to-many". In considering the file structure, you should familiarize yourself extensively with "normalization" techniques.

Normalization focuses on the issue of minimizing redundant field definitions across files. The only redundancy should be the fields used as keys to form relations between files. (Additional information on normalization can be found in a number of relational database textbooks that are available.)

In a relational database, files take on a table-like structure, one with rows and columns. Each column is a field and each row is a record of data. In contrast, a hierarchical structure is one the comprises a tree with a root, and branches and leaves or nodes. (The UNIX file system is a perfect example

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of a hierarchical structure.)

The PROGRESS 4GL is designed to provide easy coding schemes to access data and build relations on files that have been normalized. Coding schemes are possible but a little more challenging when there is a need to establish relations between non-normalized files. Files containing arrays are an example of this situation.

Once the schema is defined, there are various approaches that can be used to actually develop an application. If the application is to be used in a multiuser environment with high transaction volume where collisions at the logical record level are likely, strong consideration must be given to how a transaction should be *scoped*. The trade-off here is meeting the transactional needs of the application versus minimizing record contention during multiuser access to the database.

You can create programs (called *procedures* in PROGRESS terminology) either one of three ways: first, by using the PROGRESS editor itself, second, by going out to the operating system and using the editor of your choice via the PROGRESS editor, or third, by using Fortune:Windows and switching between a UNIX editor and the PROGRESS session. (**Editor's Note**: We have found this third way as the most productive.)

The advantage of using the PROGRESS editor is that as a procedure is developed, it can be compiled, from as early as the first statement, and rely on the PROGRESS syntax checking editor to point out coding errors. The context-sensitive help facility can provide handy assistance at any point to determine proper syntax. By simply pressing the "**F2**" function key, you are presented with the HELP menu, gaining access to further description or error messages, and on-line manual pages for statements and functions. At any point during use of HELP, "CTRL-C" will return you back to the line of code in the editor where you were when you initially pressed the "**F2**" key.

Once procedures are developed, they can be compiled and saved as "r-code." R-code is referred to as "dot-r" in the world of PROGRESS. This stems from the convention of naming the source as "some name" with a ".p" suffix (e.g., prtlabel.p), and the compiled module as "same name" with a ".r" suffix (e.g., prtlabel.r). The compiler is programmed to look for a ".p" and store its compiled output into a ".r". A ".r" is referred to as a *precompiled* module.

PROGRESS execution is comprised of a two stage process: a compile stage and an execution stage. The compile stage produces ".r" modules which are then executed by PROGRESS. Code can be precompiled and saved to be executed at a later date, or it can be compiled and executed without producing a permanent ".r" module.

PROGRESS also gives you the ability to build user interfaces that consist of context-sensitive help and pull-down windows. The real-time multiuser support allows for record locking at the logical record level with coding techniques to minimize record contention. This latter scheme focuses both on allowing for ways of reducing the number of records that can be locked at one time as well as allowing you to test for a locked record and skip it if the application warrants it.

The CHOOSE statement provides for a quick development of scrolling list oriented menus and strip menus. Combined with the SCROLL statement, CHOOSE can be used to quickly build full featured "insert, delete, find" menus often needed to support the file maintenance process.

As mentioned earlier, PROGRESS is portable across a variety of operating systems. This portability enables you to develop an application with a Fortune system, and support a customer base operating in a varied number of environments without changing a single line of code.❑

About the Author:

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Using PROGRESS

In order to help the readers of **/u/fortune** *news* to understand some of the concepts discussed in the accompanying Database article, we have decided to solve the following database problem with PROGRESS. Let's say that we want to keep a mailing list of names, addresses, etc. because periodically we mail advertising specials to the people on the list. Also, in order to make this a bit more interesting, let's say that we also wish to keep a record of *when* a piece was mailed to a person on the list and *what type* of piece was mailed. Finally, let's say that we know how much money has been spent by each individual on the list.

Identifying the Files that comprise the database

This is not a problem with a hard and fast solution, that is, we could determine several different ways to "cut up the pie," so to speak. However, here are the Files that we have identified:

1) Address File (Name, address, etc., also Total dollars spent)
2) Type of Mailer File (The when and what of the mailer)

These two "Files," then, comprise the *schema* of this database. As the article explained, each file is made up of one or more "fields." Let's look at the fields we would put in each of the above mentioned Files.

Address File

In this file (which we will call *address*) we need to keep certain bits of information for each person on the mailing list including:

1) Last Name (25 characters)
2) First Name (15 characters)
3) Company Name (60 characters)
4) Address Line 1 (60 characters)
5) Address Line 2 (60 characters)
6) City (25 characters)
7) State (2 characters)
8) Zip Code (15 characters)
9) Phone Number (20 characters)
10) Dollars Spent (decimal - 999,999.99)
11) Addressee Number (integer - 999,999)

Now, each piece of information is of a certain *data type*. The article mentions that PROGRESS allows for five different types. These are integer, decimal, character, logical, and date. Each field in a file must be of a certain type. For example, the types that we would associate with the above 10 fields are given in parentheses. Note also that with each data type we specify its length or format (e.g., State will be two characters long, Dollars Spent will be 999,999.99). Finally, it is standard to give each field a "name" that is a shortened version of its real name. In our example, the names of the fields in order are: lname, fname, company, addr1, addr2, city, state, zip, phone, dspent and adrnum. (Note, you may wonder why we included the Addressee Number field. This field will be a unique number for each individual that is represented in our database. And as you will see in the next section, it is the field that will allow us to "link" our address file with the type of mailer file.)

Type of Mailer File

The Type of Mailer File (which will be called mailtype) will contain just three bits of information as follows:

1) Addressee Number (integer 999,999)
2) Date Mailed (date)
3) Type of Piece Mailed (integer 99)

Again, the types and formats are specified in parentheses and we will call these fields adrnum, maildate and piecetype respectively. These fields are fairly self-explanatory. However, we will say that the piecetype field will be able to contain up to 99 codes (just numbers). For this example, we will start out with just three codes. A one (1) will indicate that the person received an introductory mailer, a two (2) will indicate that the person received a standard quarterly mailer, and a three (3) will indicate that the person received a special "good customer" mailer.

Setting Up A PROGRESS Database

Thus, we have specified, on paper, a basic schema. Now we must tell PROGRESS about this information. The first step is to set up an empty database which we will call *mailer* (each PROGRESS database must have its own name). From the standard UNIX prompt, you would do this by typing:

```
prodb mailer empty
```

The prodb command starts a process which will create a new database called mailer and will use the "empty" database template. When this is done, we have a database which we can work with. To start it up in single user mode, we type to the UNIX prompt:

```
pro mailer
```

Once inside of PROGRESS, our first task will be to create the schema which we have sketched out on paper. To do this we would use the dictionary functions. It is beyond the scope of this article to spell out in detail how to do this.

Inputting Information

Once the schema has been put into the dictionary, you are ready to start adding addresses to the database. Generally, you would write procedures that would allow you to add new names to the database. In future articles, we will show you some sophisticated ways of doing this, but at this time we wish to show you how easy it is to get started.

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For example, to input one address, all you need is the following command:

```
insert address
```

If you were to type this in the PROGRESS edit buffer, then hit the EXECUTE key, PROGRESS would draw a box with the all the fields in the Address file and allow you to fill in the information. In this example, however, you would need to be careful when filling in the adrnum since you must give it a unique number.

A slightly more useful set of commands that would allow you to insert any number of addresses follows (assuming that you have put in at least one other address and that the last address that you input has the highest adrnum):

```
def var lastadr like address.adrnum
repeat:
      find last address no-error.
      lastadr = address.adrnum.
      create address.
      address.adrnum = lastadr + 1.
      update address.
end.
```

This little procedure works as follows. First, we set up a "local" variable called lastadr and define it "like address.adrnum" which means that it will have the same type as that specified in the dictionary for the adrnum field in the address record. (Thus, we are introduced to the general form *file.fieldname* which is the standard way of accessing any individual field in a file). Next we set up a "repeating" loop. That is, all the commands between the "repeat" line and the "end" line are executed over and over again infinitely - or until we hit the **F4** key which tells PROGRESS to stop.

The particular lines between the **repeat** and the **end** are simple to understand. Our first task is to take care of providing a unique number for the new address that we will input. We do that by simply finding the last address that was input (`find last address no-error`) and then setting the local variable lastadr to that number (`lastadr = address.adrnum`). Then we use the PROGRESS **create** command to make a new empty record. Then we set its adrnum field to the old one plus one (`address.adrnum = lastadr + 1`). Finally, we allow the operator to fill in the rest of the fields by using the **update** command (`update address`).

Again, we want to point out this procedure is very simple and does not include any types of error checking or handling that would probably be required for a production program. However, we hope that these examples help elucidate how PROGRESS works and how you can perform some powerful functions with a handful of commands.

Using the Database to Work for Us

In this final section, we will touch on one possible way that we could use the information in the database to work for us. Let's suppose that we already have a mailing list of tens of thousands of names and that we have been using our database for some period of time to track (1) what and when an individual has received a mailing and (2) how much that individual has spent. Now let's suppose that we wish to offer a "special" deal to our "best" customers. Let's define our "best" customers as someone who has spent over $1000. So, our problem is to print out a set of labels for each name in the database who has spent more than $1000. PROGRESS does this simply:

```
for each address where dspent > 1000:
      run prtlabel.p
end.
```

(In this example, we are assuming that we have already written a PROGRESS program called **prtlabel.p** that takes an address and creates a label).

Yes, that's it! Three lines and we have our mailing labels. The real power is in the "for each" command which basically processes each address and then runs the prtlabel.p program on only the addresses whose address.dspent field is greater then 1000.

Actually, a more realistic program would be the following:

```
for each address where dspent > 1000:
  find mailtype of address where
    piecetype = 3 no-error.
  if not available mailtype then do:
    run prtlabel.p
    create mailtype.
    mailtype.adrnum = address.adrnum.
    mailtype.maildate = today.
    mailtype.piecetype = 3.
  end.
end.
```

In this program we do a little more fancy processing. First, you will recognize the "for each" line. It simply finds all the people who have spent more than $1000. However, we might not want to blindly send a "good customer" mailer to them because they might have been sent one before. So, we check this possibility by trying to find a mailtype record for that individual that has a piecetype equal to 3. The **find** command does this. If a record is *not* found, then we run the **prtlabel.p** program and then we create a mailtype record to note the fact that **NOW** this individual **HAS** received a "good customer" mailing. On the other hand, if a mailtype record IS found then nothing is done.

Conclusion

We have touched on some of the basics of how to set up a schema in PROGRESS and then we have shown you how easy it is to use the power of PROGRESS to get certain jobs done. We hope that we have intrigued you and we hope that you will keep your eyes on this column in future months as we continue to talk about databases for the Fortune computer.❑

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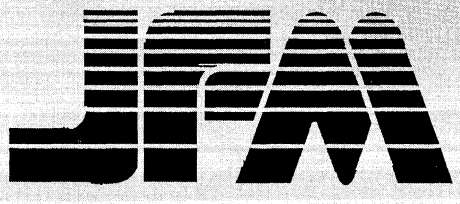

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/u/fortune* news

The Newsletter for Users of SCI/Fortune Computers October 1988/Volume 5 Number 10

EXTRA **EXTRA** **EXTRA**

Formula 5000 Unveiled

System Boasts 16MHz 386 UNIX and DOS

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See Page 4

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- ⇨ **System Backup - Review and /etc commands**
- ⇨ **A "Poor Man's Network" with kermit**
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Subscriptions cost $48 for one year within the U.S.A. For foreign subscriptions, add $27 each year for added postage and handling costs.

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From The Editors...

We just received some very interesting news about the newest SCI/Fortune computer. It is called the Fortune 5000 and it is based on the Intel 386 chip. We felt that the press release that we received was so important that we are using this editorial space to pass it on to you. Actually, we are quite excited about this product for various reasons but the two main ones are based on performance and price. The following information will detail the computers performance and features, so don't miss this opportunity to learn about the Fortune 5000. As for price, we can say that it is priced very competitively when compared against other 386 computers - you will need to contact your local Fortune dealer for more information. The last bit of news is that SCI/Fortune has promised to send us a Fortune 5000 for evaluation - this means that we will put this computer through its paces and then we will pass that information on to you. So, keep your eyes on /u/ ***fortune*** *news for the latest information from SCI/Fortune.*

SCI/Fortune today announced the Fortune 5000, an Intel 80386 based multi-user system running at 16MHz with 0 wait states. The Fortune 5000 features an advanced design that incorporates video circuitry, a hard disk controller, and a floppy disk controller on the motherboard. The Fortune 5000 tower design supports up to 16 MB of memory, and has five PC/AT compatible full size 16-bit expansion slots. The system has room for five half-height devices, and includes one console port, two serial ports and one parallel port.

SCI/Fortune is offering the 5000 with **INTERACTIVE 386/ix**, an AT&T certified version of UNIX System V.3. SCI/Fortune is also offering INTERACTIVE VP/ix software which allows MS-DOS applications to run concurrently with UNIX applications. Through VP/ix, the DOS file system is mounted as a UNIX file system. This is significant in that the mounted DOS file system is completely protected by UNIX file and record locking functions. The DOS file system is then concurrently readable and writable by multiple UNIX and DOS-under-VP/ix users. Previously limited single user DOS applications are then executable as any multi-user UNIX application.

Although SCI/Fortune is marketing the Fortune 5000 with INTERACTIVE 386/ix, **SCO XENIX** and **MS-DOS 3.3** are fully qualified to run on the Fortune 5000 as well. The choice of three fully qualified, industry standard operating systems enables the Fortune 5000 user to select from a vast number of software packages, and offers an upgrade path to higher performance system without requiring that the end user learn new software.

Hardware Features

Intel 80386 Microprocessor - The 80386 is an advanced 32-bit microprocessor optimized for multi-tasking operating systems and designed for applications needing very high performance. The 32-bit registers and data paths support 32-bit addresses and data types. The processor can address up to four gigabytes of physical memory and 64 terabytes (trillion) of virtual memory. The on-chip memory-management facilities include address translation registers, advanced multi-tasking hardware, a protection mechanism, and paged virtual memory. Special debugging registers provide data and code breakpoints even in ROM-based software.

The 80386 offers a unique feature in what is often referred to as "virtual 8086 mode." this operating mode, when supported by the appropriate system software, offers the ability to create a multi-user DOS under UNIX environment. SCI/Fortune has taken advantage of this advanced and unique feature by offering INTERACTIVE's VP/ix system software capable of creating this desired system.

Motherboard - The Fortune 5000 motherboard offers a unique combination of features not found on other systems. Incorporated into the motherboard are the floppy controller, hard disk controller (ST-506) interface, video circuitry, one console port, two serial ports, and one Centronics parallel port. Comparable 80386 systems require the purchase and installation of (on average) three additional boards to equal the same functionality. The motherboard currently incorporates a SCSI controller, although it is not supported in this release.

Five PC/AT compatible full size 16-bit I/O slots are available on the Fortune 5000. The extra features on the motherboard keep these expansion slots open for other devices, providing the user with greater expansion capabilities than with other comparable systems, at a significantly lower cost.

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The Fortune 5000 features the Phoenix ROM BIOS (for PC/AT compatibility), and shadow ROM. Shadow ROM, a unique feature, is a facility by which the system copies commonly executed instructions normally residing in ROM, into the system's dynamic memory (DRAM), thereby enabling faster execution of those instructions than systems without shadow ROM. 384 KB of system memory is reserved by the system to enable shadow ROM capabilities. The system also includes a socket for the addition of the optional Intel 80387 math coprocessor to increase the speed at which math functions are processed.

Another feature of the Fortune 5000 is the selectable processor speed through the SETUP utility. 8 MHz capability is sometimes required when running MS-DOS applications that access system hardware such as the system clock. These applications are rare. normally the system will be set to run at the HIGH speed, 16 MHz, in order to provide the throughput required of a high performance multi-user UNIX based system. Since the Fortune 5000 is designed around the IBM PC/AT bus, the bus hardware is capable of automatically inserting wait states while accessing the bus to insure compatibility with the many available add-on boards that have been designed to interact with the original 8MHz IBM PC/AT design.

Memory - The Fortune 5000 uses a banked interleaved memory architecture. This enables the system to access the full 16 MB memory arena with 0 wait states, allowing any single memory location to be accessed within a single cpu cycle. This ensures that the cpu does not have to wait for memory access, as is the case with other memory architectures. With memory configured this way, significantly better performance can be achieved.

The 32-bit memory board utilized can be configured with 2, 4, 8, or 16MB of memory in the form of single in-line memory modules (SIMMs). These modules are installed in the memory sockets on the memory board and therefore do not take up an expansion slot.

Other Features - Each Fortune 5000 has an impressive power supply that can accommodate a fully loaded system, allowing flexibility in the configuration of high performance systems. The power supply is user changeable from 115V to 230V via a switch on the back of the system. The system also features a long-life lithium battery-maintained time of day clock and calendar, and the enhanced 101-key keyboard. The on-board video circuitry supports monochrome and EGA/CGA graphics modes, eliminating the requirement that an additional video board be installed to connect a console.

Options

The HUB6 Card - The HUB6 Multi-Port Serial Card provides six additional serial ports which may be used with terminals, modems, printers, system to system connections, or any other RS-232 compatible serial devices. The Fortune 5000 will support four HUB6 cards allowing an additional 24 serial ports. If the user demand is expected to be heavy, it is recommended that the Intelligent Channel Controller (discussed below) be installed to maintain optimum performance.

Interactive's VP/ix Environment is an operating system extension that permits MS-DOS and UNIX systems to run simultaneously on the same computer.

The HUB6 card uses RJ45 modular (phone type) connectors; RS-232 25-pin adapters can be used for connection to 25-pin serial terminals, printers, modems, etc. The HUB6 card can be purchased directly from SCI/Fortune.

Intelligent Channel Controller - The Intelligent Channel Controller offers expanded functionality over the simpler HUB6 card. Some advantages of this intelligent card are the use of the 80186 along with one-half megabyte of RAM, creating a complete subsystem dedicated to managing the card's six serial ports. The ICC's efficient I/O map utilization, relocatable I/O base address, shared interrupts, relocatable interrupt vector, and the use of the IBM compatible 8531 communications and modem control chip can dramatically enhance system performance in many applications. The ICC can be directly purchased from SCI/Fortune.

Additional Hard Disk - The Fortune 5000 offers a 40 or 85 MB unformatted hard disk drive (approximately 35 and 70 MB formatted). A second hard disk drive can use the hard disk controller incorporated into the motherboard and therefore does not require that an additional controller board by installed in the system.

Additional Floppy Disk - A 1.2 MB 5 1/4 floppy disk drive that reads both UNIX and DOS formats is included in the Fortune 5000. A second floppy disk drive can use the floppy disk controller incorporated on the motherboard, and therefore, it is not necessary to install a floppy disk controller board.

MICOM-Interlan NP600A - This is an intelligent, high-performance communication processor that allows the Fortune 5000 to communicate with other devices over a standard Ethernet or Thin Ethernet network. This optional communications board relieves the Fortune 5000 of the workload associated with performing data transmission and reception over the network.

Streaming Tape Backup System - The optional tape backup system consists of a 150 MB tape drive, controller board, cables and software. The tape drive system is compatible with INTERACTIVE 386/ix, SCO XENIX, and MS-DOS. Tape drive upgrade kits are available in addition to system configurations that include a tape drive.

Operating System Features

The Fortune 5000 is capable of running three operating systems: INTERACTIVE Systems Corporation 386/ix, Santa Cruz Operation XENIX, and MicroSoft MS-DOS. INTERACTIVE products can be purchased directly from SCI/Fortune and are explained below:

386/ix - INTERACTIVE Systems Corporation has used its in-depth experience from originally porting System V to the 80386 for AT&T and Intel, to create an enhanced, high performance UNIX product family. This 386/ix product family provides a powerful multi-user, multi-tasking platform for a wide range of applications. It includes support for

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peripheral devices, access to DOS files through DOS File Facilities, and popular Berkeley enhancements. It is packaged as a set of modular components and is complemented by new tutorial style documentation designed specifically for end users. 386/ix supports program development, execution of runtime applications, connections to many industry-standard networks, and text processing capabilities. Extending the power of the 386/ix platform, the 386/ix UNIX modules are integrated with INTERACTIVE's optional package, VP/ix. 386/ix passes AT&T System V.3 certification. Significant new System V.3 features include: STREAMS, Remote File Sharing (RFS), Transport Level Interface (TLI), and Shared Libraries.

DOS File Facilities

INTERACTIVE has extended the basic UNIX System V.3 file system switch with DOS File System Support. With UNIX System V.3, AT&T implemented a standardized file system interface that provides the basic facilities for a UNIX kernel to access a variety of foreign (i.e., non-UNIX System V.3) file systems. DOS File System Support provides the connections/translations from the UNIX System V.3 standard file system interface to a DOS file system. A DOS file system on either a diskette or a fixed disk partition can be mounted as a UNIX file system. A mounted DOS file system is readable and writable concurrently by multiple UNIX and DOS-under-VP/ix users, and it is completely protected by UNIX file and record locking functions.

386/ix is packaged in three separate modules:

386/ix Runtime Operating System - is an application runtime environment. It provides basic operating system services, including services to control system resources and process execution; routines to support I/O, string and character handling; search, sort, and math functions; and interprocess communications, system administration, terminal handling facilities, and asynchronous communications facilities (uucp and cu). INTERACTIVE includes these enhancements with the operating system: new end user oriented tutorial documentation, device drivers, TCP/IP networking facilities, DOS file facilities, Berkeley facilities, performance improvements, and simplified system configuration.

Software Development System - provides program development facilities for software developers. It contains the UNIX V.3 facilities for compiling and maintaining C language software. A compiler, syntax checker, symbolic debugger, linkers, and many other popular UNIX development tools, such as SCCS, make, yacc, and lex are delivered with this extension.

Text Processing Workbench - provides a versatile and powerful set of UNIX commands for text formatting. It is based on AT&T's Documentor's Workbench Release 2.0 and can be used to create customized document formats, tables, line drawings, and mathematical equations. It supports a range of output devices, including phototypesetters, laser printers, and letter quality printers.

The VP/ix Environment

INTERACTIVE's VP/ix Environment is an operating system extension that permits MS-DOS and UNIX systems to run simultaneously and cooperatively on the same computer. This allows file sharing between DOS and UNIX applications and between multiple users of DOS applications. It provides an environment that allows users to run MS-DOS applications on 80386-based UNIX systems. For the DOS user, VP/ix complements the popular DOS operating system with a multi-user, multi-tasking environment. For the UNIX user, VP/ix delivers the DOS interface, supported by thousands of off-the-shelf applications.

The VP/ix Environment includes these major features:

Multi-user, Multi-tasking Environment - The VP/ix Environment allows multiple users to run DOS applications simultaneously on the same system. The UNIX kernel is extended to provide the same efficient interrupt-driven scheduling services to both DOS and UNIX applications. Multiple DOS applications run concurrently with conventional UNIX processes in a paged, virtual memory environment, each in its own secure space.

Support for DOS Applications - VP/ix supports popular PC applications and DOS facilities. It includes support for direct hardware accesses to standard devices required by ill-behaved programs. VP/ix also provides support for up to 2MB of virtual Expanded Memory Specification (EMS) for DOS programs, regardless of the system's actual physical memory configuration.

Access to the UNIX File System - Multiple VP/ix users can access files stored on the UNIX file system as if they were stored in a DOS partition without the requirement for creating and maintaining separate partitions for DOS and UNIX. Any program, regardless of whether it is a DOS or a UNIX program, can access and share DOS and UNIX files without modification. In addition, multiple VP/ix users can access a single DOS partition and share DOS files through the DOS File System Support. DOS-FSS, a feature of the 386/ix Operating System, allows UNIX users to mount a DOS partition under the UNIX file system.

A Convenient User Interface - Users can run DOS applications under VP/ix in one of two ways: by explicitly invoking MS-DOS under the VP/ix Environment or by running the application directly from the UNIX prompt. As a result, DOS applications can be run from the environment in which users are most comfortable, UNIX or DOS. VP/ix also provides an optional pop-up menu interface, complete with help screens.

Virtual Terminal Integration - The VP/ix Environment is fully integrated with the 386/ix Virtual Terminal Manager. This enables a user to run multiple full-screen UNIX and DOS applications concurrently on the system console.

Transparent Execution of Commands - The VP/ix Environment allows users to run DOS programs directly from the UNIX prompt and UNIX programs directly from the DOS prompt. VP/ix also allows users to combine UNIX and DOS commands with pipes and I/O redirection on the command line.

Customized Version of DOS - A licensed, customized version of MS-DOS is packaged with the VP/ix Environment to improve system performance.

Graphic Display Support - On the console, EGA and CGA DOS graphics are fully supported. Multiple, concurrent graphics applications are supported via the 386/ix Virtual Terminal Manager.❑

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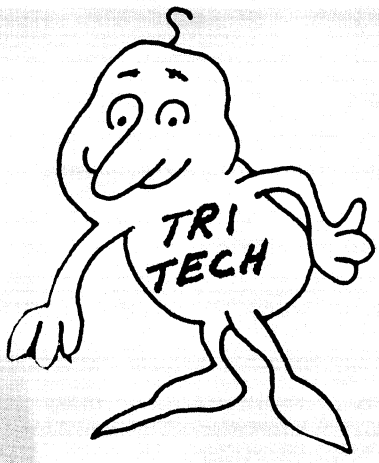

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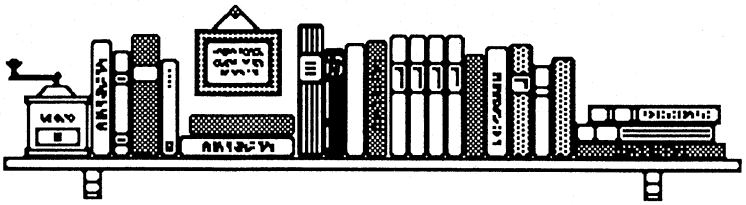
The BASIC Advisor



The BASIC Advisor is brought to us from Ray Wannall. Ray is President of BaSiC Software Corporation which is located in Baltimore, Maryland.

Question: *When we ran out of ports on our 32:16, we replaced it with a Formula. Since we use many of the BAS applications as well as custom BASIC programs, we bought 7.3.2 Thoroughbred BASIC for the new machine. It seems that Fortune, in its inimitable fashion, could not leave well enough alone. They have somehow altered the Thoroughbred product, and now we have problems with terminal assignments in BASIC. The first five users into BASIC are assigned T0 through T4, and the sixth gets T0 again. After that, users enter as T5, T6, etc. Any suggestions how we can fix this?*

Answer: The fact that your terminal assignments are going haywire could be anyone's fault. I have not had the opportunity to play with Thoroughbred BASIC on the Formula, but based upon my experience with BASIC on other machines, I can assure you that the Thoroughbred products are not always lily white. (I must add that Concept Omega always seems to put forth efforts to correct errors in products it releases.) We know from experience, though, that Concept Omega often refuses to support Fortune users because of Fortune's "inimitable" mannerisms.

Try this. When entering BASIC from the shell, you can sometimes force a terminal designation by adding a space and a terminal number after typing in "basic" at the prompt. You must, of course, be in the proper subdirectory (for example **/usr/lib** or **/usr/lib/basic**). The following command causes your terminal to enter the BASIC applications as "T1":

```
basic T1  <CR>
```

This worked for me in a level 6.6+ BASIC which I installed on an Altos system, and it may work for you. Please let me know.

One new feature provided with versions 7.2 and above may be of interest to those who write programs in BASIC. We now have the ability to **ENCRYPT** programs. The addition of the ENCRYPT and PSAVE commands as well as modification to the LOAD command allow software developers to protect source code. Extreme caution should be exercised when using these features: source code may be lost forever if you are not careful.

When you ENCRYPT a program, restrictions are applied to the commands EDIT, LIST, MERGE, PGM and SAVE. Any attempt to use these commands will cause an Error 18 ("Secure File Access"). However, you can still examine lines 1 through 99 with LIST before getting the error. The ENCRYPT command is used to both encrypt and decrypt a program:

```
ENCRYPT "prog-1", "prog-2" [,PWD="password"]
[,ERR=stmt]
```

In this example, "prog-1" is the name of the program (in quotations) which is to be encrypted or decrypted, and "prog-2" is the name of the newly encrypted or decrypted program. "Prog-2" may be an existing program which will be overwritten, a new, undefined program which will be created in the same directory as "prog-1", or "prog-1" itself, which will be overwritten. If "prog-1" is not encrypted when the command is entered, "prog-2" will be an encrypted version of "prog-1". Likewise, if "prog-1" was previously encrypted, "prog-2" will be a decrypted version.

The brackets around **PWD=** and **ERR=** indicate that these features are optional (ERR= works the same as it does with other BASIC directives). The "password" you assign may be from 4 to 8 characters in length, and encrypted programs cannot be accessed unless the "password" is known. When

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you do not use PWD= "password", or when you specify PWD="" (null), the system automatically assigns a random password. *This, according to Concept Omega, makes the encryption "practically irreversible", which means you will probably never see the code again in this lifetime.* Encrypted programs execute normally.

Another way to encrypt (but not decrypt) a program is with the **PSAVE** (Protected Save) directive:

```
PSAVE ["prog-1" [,prog-sz, disk-no, sec-no]]
[,ERR=stmt] [,PWD="password]
```

PSAVE operates the same as the SAVE command with the exception of the PWD= option. Again, if PWD= is not used or if you designate PWD="", the encrypted program becomes irreversible. In order to temporarily remove the restrictions of an encrypted program you must use the following command:

LOAD "prog-1", PWD="password"

This allows you to display and modify the program, but you must know the password! In order to decrypt, use the SAVE command instead of PSAVE.

When you encrypt a program, there is an increased disk storage requirement of 16 bytes. On some systems you must allow for this expansion by increasing the size (PSZ) of the new program:

```
LOAD "prog-1"
PROGRAM "prog-2", PSZ+16, disk-number, sec-
tor-number
ENCRYPT "prog-1", "prog-2", PWD="password"
```

Or, with the PSAVE directive:

```
LOAD "prog-1"
ERASE "prog-1"
PSAVE "prog-1", PSZ+16, disk-no, sec-no,
PWD="password"
```

It seems the only restriction on encrypted programs is they cannot be used as public programs. Apparently encrypted public programs will not execute properly when invoked with the CALL and RUN commands.

Question: *I have a big software development job and I wonder whether I should use IDOL and BASIC or IDOL-IV and SCRIPT-IV. Concept Omega people tell me the Fourth Generation products will cut weeks of time off the project. What are your thoughts?*

Answer: If you are on any of the Fortune machines, you have no choice. IDOL-IV and SCRIPT-IV have not yet been ported to Fortune equipment. But who knows? It could happen any day now.

I admit to being an old dog who is primarily opposed to even the thought of learning a new trick. But I have to concede that the Thoroughbred Fourth Generation (4GL) products have an air of excitement about them. My initial objection to 4GL was based upon some of the other products I had seen demonstrated. Screens and menus were plastic and unalterable: there was little or no room for creativity on the part of the designer and/or programmer. Also, source code was completely hidden, so you did things the way of the database manager or you changed your occupation. Such is not the case with IDOL-IV and SCRIPT-IV. You can design your own file maintenance screens, data entry screens, reports and menu screens using a variety of foreground, background, reverse video, underline, blink, windowing and security features. Once learned, the new language called SCRIPT-IV can save you days or even weeks of coding time. The Scripts you write must be compiled before they may be run. Once this has been done, the "compiled b" programs may be loaded, listed, attached to menus, run and edited as if they were third generation programs. You will see some unusual variables (for example]1$ and [9), and there is virtually no room between statement numbers for additional coding. Nevertheless, it is always comforting to see the source in front of your nose.

It really sounds and looks great. In reality, though, I have had little luck with Thoroughbred's 4GL products. I have found it relatively easy to generate "never before seen" system errors when trying to create the simplest of applications. Agreed, a younger dog would probably pick up on all of this much faster, but at least for the time being, I say stick with IDOL and BASIC when the stakes are high.

Don't get me wrong, I have not abandoned 4GL. I have merely put it on hold for a few months. By the time I get back to it, maybe 4GL will be running on some of the Fortune systems and we can go into some serious discussions of the new features.

Annual IDOL/BAS/BASIC Support Company Listing

Attention IDOL/BAS/BASIC support companies! Our fourth (that's right, *fourth*) annual support company listing is just a few short months away. If you would like to be included this time, please contact me at **(301) 448-9460** or write to me in care of BaSiC Software Corporation, 5201 Powhatan Street, Baltimore, MD. 21207. Our readers will need to know your company name, city and state, phone number, contact name and billing rate. Please call early to insure that you don't miss the **January 1, 1989** deadline. This year I will try to list the companies in the order in which I receive them.❑

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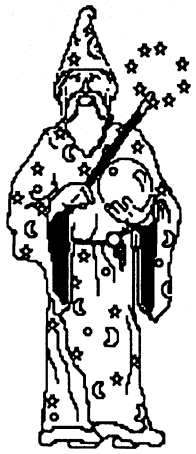
System Administration: Part 18

No Longer Requires a Degree in UNIX Wizardry



This series is a must for all owners and users of the Fortune computer. Dave is President of UNI-KOMP which is located in Houston, Texas. He provides UNIX seminars, software for the Fortune Computer, and is president of the Houston UNIX User's Group. He contributes independently to ***/u/fortune news.***

by Dave Kloes

This is our 18th installment of articles in the SYSTEM ADMINISTRATION series. If you have not figured it out by now, this series will probably never end! In the last few segments, we diverted from our tour of the system to talk about backing up your system using floppy disks and tapes. Therefore, we thought it might be a good idea to summarize the directories, commands and subjects we have discussed to this point.

When your system was first loaded using the three volume (FOR:PRO 2.1) diskettes, certain system directories were created. For those of you that have been following this series of articles, you know that we generally have been looking at each of these directories. Figure 1 is a graphic presentation of what directories are initially installed when you load the "cold boot" set:

Notice that the "root" directory is at the left and the directories and sub-directories under it are shown from left to right. So far, we have discussed the /b, /bin, and the /dev directories. We have also discussed many of the files and commands in the /etc directory (this is where we were when we diverted to our discussion of the backup commands).

Here also is a recap of what was discussed in each of the previous 17 articles:

Part 1: System administration duties and responsibilities.

Part 2: "what" command - to determine version of software
Ordering updates and upgrades
FOR:PRO directories
"root" and "manager" logins
".profile" file
"set" command - shows environmental variables

Part 3: /b directory - BASIC files and programs
/bin directory - system administrator commands
/dev directory - device special files
Partitions (filesystems) and memory
"chmod" command - to change permissions
Raw and character device entries
"mknod" command - to manually create device files
"mkdevs" command - automatically creates device files
"dd" command - used to check disk blocks

Part 4: /etc directory - administrative files and commands
"cold boot" diskettes
"devtype" file - stores device definitions
Comm A boards
"ttys" and "ttytype" files - define system devices
"termcap" file - terminal capability definitions

Part 5: "termcap" file (continued)
"grep" command - find patterns in files
TERM variable
"export" command - makes variable values available for subshell use
"printcap" file - printer capability definitions
"ed" line editor

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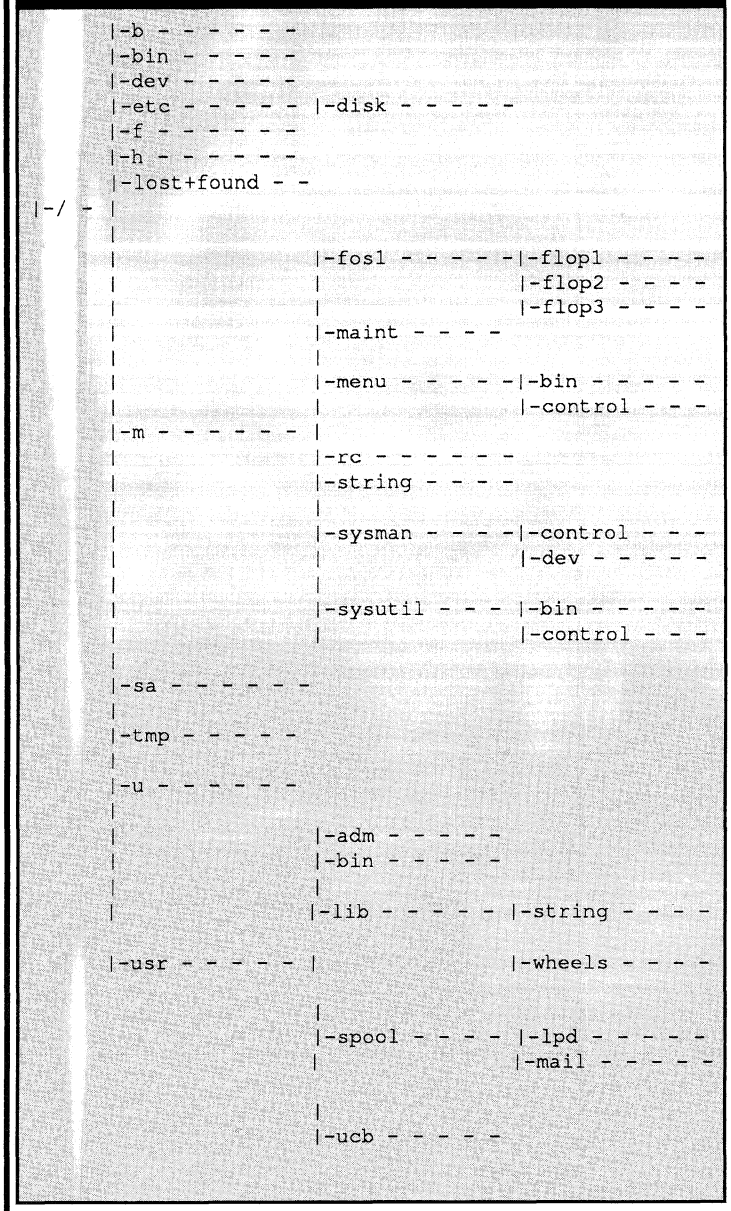
Figure 1.



Part 6: "vi" screen editor

Part 7: "group" file - shows defined groups
"passwd" file - shows valid login accounts
How to add new users to the system
"passwd" command - used to change a password
"newuser" command - user friendly way of adding users
"newgrp" command - to change to a new group

Part 8: Serial and parallel defined
"devtype" file - stores system device definitions
"devconn" command - user friendly way to define device connections
"disktab" file - definitions of disk drive types
"rdconf" command - to read configuration block
More about the "ttys" and "ttytype" files
"motd" file - stores "message of the day"
"echo" command - to echo something to the screen or to a file
"fstab" file - filesystem table for disk partitions

Part 9: Cautions about modifying system files
"mount" command - "attaches" floppy and hard disk partitions to a directory
"umount" command - "detaches" floppy and hard disk partitions from a directory
"format" command - prepares floppy and hard disk drives for use
"mkfs" command - used to make a filesystem on floppy and hard disk drives

Part 10: Partitioning floppy and hard disks
Adding additional hard disks to the system
Explanation of the "swap" partition

Part 11: Partitioning floppy and hard disks (continued)
"dskselect" command - to select disk type from "disktab" file
"mkconf" - to make configuration block
"lost+found" directory
"mklost+found" command - to make "lost+found" directory on a partition

Parts 12, 13, 14, 15:
Floppy disk backup using the "cp" command

Part 16: Floppy disk backup using the "tar" command

Part 17: Tape backup
Why the need for backing up to tape?
Tape streamer installation options
"st" command - tape streamer control program
"far" command - tape streamer backup command

As you can see, we have discussed quite a few topics to date. In this segment, we will complete our discussion of the **/etc** directory.

The "rc" file in the **/etc** directory is a shell script that is run when you startup or shutdown the system. On startup, it is the script that performs all of the necessary functions to bring the system up in "multi-user" mode. Although the script can be modified, you should exercise extreme caution because it is such an important file.

The "mid" command returns the unique internal serial number for your system. For those of you that have ordered third party software products, you will sometimes be asked to run this command and report the serial number that is returned. The software is then serialized to your unique number so that it cannot be installed on other systems.

We discussed the "profile" file in our "INTRODUCTION TO SHELL SCRIPT" series in some detail. Any commands in this file are executed for ALL users when they login. Remember that this is different from an individual's ".profile" file found in their home directory. If a ".profile" file is found in a

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user's home directory, that file is executed for that user ONLY when they login. So with the "/etc/profile" file and ".profile" files, we have the capability to execute commands for all users or individual users when they login.

The "pstat" command prints miscellaneous information about the system. While there are many options or flag arguments that can be used with this command, most of the information that is given is too technical for us to worry about as system administrators. Here are a few of useful options:

```
# pstat -C
Total Memory  = 1024K bytes
CPU: 68000
Momrom: Copyright (C) Fortune Systems, Rev.
1.1 Thu Aug 26 10:46:07 PDT 1982
Slot A contains Crt, Version 1.1
Slot B contains COMM-A, Version 1.7
Slot C contains COMM-A, Version 1.7
Slot D contains PIO, Version 0.5
Slot E contains Hard boot, Version 1.1
```

The "-C" option prints configuration information which includes the amount of memory we have and what boards are plugged into the option slots. This is the screen that is displayed after the system counts up to the number "9" when we start up our system and before the date and time screen appears. Here is what this information is telling us:

1. We have a total of 1024K (or 1 megabyte) of memory.

2. The motherboard has "momrom" version 1.1. There are two "momrom" chips on the motherboard. Any version 1.8 or above can support a consoleless system - which means we can use a normal terminal for the console. The advantage of this is that if we use a normal terminal for the console, we can remove the video controller from slot A and free it for use with another board. If you have used all of the available Comm ports, for example, this port could be used for another Comm A board to give us more terminal ports.

3. Slot A contains a crt or video controller board.

4. Slots B and C have Comm A boards.

5. Slot D has a PIO board which is the tape streamer controller board.

6. Slot E has Hard boot (disk controller board)

```
# pstat -M
693K user memory available out of  1024K
total, 512K maximum per process
```

The "-M" option shows the total amount of memory; the amount of memory that is available for users and the maximum amount of memory that can be used for one process. The difference between the total amount of memory and user memory (331K in this case) is the memory that is used by the operating system (or kernel). What is left over is available for users. Notice that even though we have 1 megabyte of memory available for this system, only 693,000 bytes is available to share among the users of the system.

```
# pstat -w
For:Pro Version 2.1
```

The "-w" option returns the version of operating system (FOR:PRO) that is loaded on the system.

The "setdt" command will produce the same date and time screen that you see when you startup your system. Obviously, this command can be used to change the system date and time.

The "shutdown" command is the shell script that is run when you shutdown the system. All of you should know by now that a Unix system should be shutdown using this command. We still occasionally run into users who just turn the system off without performing this procedure. *Not only will you lose data if people are still working on the system, but you run the risk of damaging the data on the hard disk if you do not shutdown properly.* As a sidenote, when this command is run, it creates a temporary file named ".powerdown" in the /tmp directory. When you startup the system, it looks for this file. If it is found, it is removed and the system comes up normally. If it is not found, it assumes that the system went down "ungracefully" and does the file system check. This would happen if you either had a power failure or if the system was turned off without running the "shutdown" command.

This (finally) concludes our discussion of the **/etc** directory. If you have followed the articles we have been presenting, you can see that this directory contains much of the information and many of the commands used by the system administer.

We have already discussed the **/f** directory in our discussion of the "mount" and "umount" commands. It is an empty directory that is used to "attach" (or mount) our floppy diskettes.

The **/h** directory is an empty directory that we can use to mount other hard disk or hard disk partitions to. We will see the significance of this directory when we talk about booting the system from diskettes instead of from the hard disk.

In the next issue, we will continue our discussion of other directories on the system starting with the **/m** directory.

By the way, for those that are interested, our book on shell programming (**The New Shell Game in Unix/Xenix**) has been published and will be released in the next few weeks. The book was roughly based on the articles written for The Cambridge Consortium with much more information and many more examples. For those that are interested in preordering, send $19.95 plus $5.00 ($24.95 total) for postage and handling to Uni-Komp, 9803 Rocktree, Houston, Texas 77040 and we will send you one of the advance copies that we will be receiving.❑

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Use Your Fortune to Create User Documentation!

*We recently received this letter from Mr. Jim Jones of **Jones Business Automation Center**. He describes some software that his company has developed that aids companies develop user documentation. We think this software merits exposure in /**u/fortune** news since it represents an interesting way of making the Fortune computer with Fortune:Word and Fortune:Windows a unique tool. Mr. Jones' letter follows:*

As you know, Jones Business Automation Center has been developing software for the Fortune Computer System for over five years. We would like to share with you information about some of the advanced tools we have developed to speed up the user documentation process. These tools make use of the advanced features of Fortune:Windows and Fortune:Word.

The tools consist of:

JBAS-SIP - CRT Screen Conversion and Print Facility

This is a program that will convert a Screen Image File that has been captured by Fortune:Windows to a Fortune:Word document. The Fortune:Word document when printed on an HP LaserJet II Printer will look exactly like the screen image with all the screen attributes, such as, reverse video, line drawing graphics, underline, etc.

Forms drawing glossary (works with or without the new 3.1 Draw Facility)

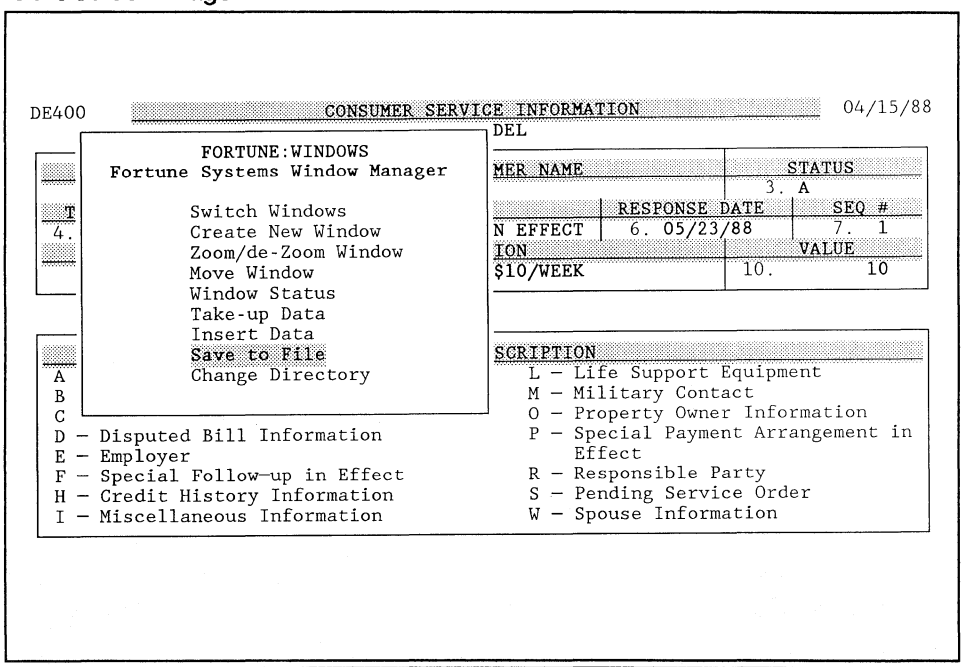
This glossary has the capability to draw boxes, lines and forms. Unlike the new 3.1 feature to "draw" forms, this glossary requires the operator to mark the starting and ending positions of the line or box to be drawn and will then proceed to draw with no further operator attention.

Special Wheel Database for HP LaserJet II or equivalent

The special wheel database includes entries for 10 pitch and 12 pitch documentation. The 10 pitch wheel database uses the internal fonts provided as standard in the HP LaserJet II. The 12 pitch wheel database (which is required by the JBAS-SIP package mentioned above) requires the HP Font Cartridge G - Legal Elite (this has a 12 pitch Line Draw Set included. If Helvetica Fonts are needed then one of the special HP Fonts such as "F" or "T" are supported in both the 10 and 12 pitch wheels (proportional spacing is not supported so care must be taken in the use of the Helvetica fonts).

These tools are provided at no additional cost to customers that purchase the Fortune:Word and Fortune:Windows products from us. Other users may acquire the tools at a very nominal fee of $295.00 for all.

The figure below is an example of the output that was captured from a Fortune terminal screen. For more information about these products you can contact Mr. Jim Jones at Jones Business Automation Center, 710 Farmhurst Drive, Charlotte, North Carolina 28217, (704) 525-0582.❑



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/u/help!

Question: *I implemented your autologout script which you described in issue* ***Volume 3 Number 10*** *of* ***/u/fortune*** *news. However, I seem to have a problem related to my BAS applications. It seems that the autologout script will knock a user off the system if the are using one of the BAS applications. Why does this happen, and is there anything I can do about it?*

Answer: The autologout script that we printed in the October, 1986 issue on page 10 was a simplified way of getting the Fortune computer to check login processes to see if the user has been idle for longer than a preset time. If the process was idle, then it was killed. The main way that we checked to see if the process was idle was to use the Unix command **finger** which gives this information.

We have learned, however, that the standard BAS applications do not update the same system files that standard Unix programs do. Thus, the system thinks the user has been idle even though they have been working up a storm. The autologout script that we developed will not work properly if a user is using a BAS application. Therefore, we suggest that you do not use it if you have users who use the BAS applications.

Question: *I have alot of files in my directory and there are times when I want to see how big they are. I know that I can type "`ls -sail`" and the output will tell me how large my files are. This is often useful. But I have found that there were times that I wished I could have that output sorted so that all the big files were on the bottom of the list. I also know that I can get my files listed in order of age by typing "`ls -tlr`." How can I get a list of the files in my directory sorted by size?*

Answer: You can get such a listing, but you must use two Unix commands. The very simple construction follows:

```
ls -sail | sort +5 -n
```

This construction tells Unix to produce a list of all the files in your directory (**ls -sail**) and then "pipe" (|) that output to the **sort** command. The **+5** and **-n** on the sort command instruct it to use the fifth column (which is the column in the ls output that contains the size of the file) for the sort and to sort that column numerically (**-n**). If all you want is a sorted listing of file sizes in blocks, this even simpler command is possible: `ls -s | sort -n.`❑

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News From SCI/Fortune

Basic Workstation Release 4.0

SCI/Fortune Systems announces the availability of the Basic Workstation, version 4.0. This new release level of the Basic Workstation has the ability to support multiple terminal emulator programs, as well as customized keyboard and character displays.

End user documentation has been completely revised with this release and consists of *The Basic Workstation User's Guide* and *Using Fortune Terminals*. *The Basic Workstation User's Guide* was written for the average end user and *Using Fortune Terminals* was written specifically for programmers.

The Basic Workstation 4.0 can be used in three different ways:

1. On-line mode as a terminal on a Fortune system, optionally driving a printer or plotter.

2. Monitor mode as a communications analysis tool to examine control characters and teletext strings as transmitted through the communications interface.

3. Local mode as a standalone workstation, for testing teletext sequences or manually operating a printer or plotter.

When communicating with the host system, the Basic Workstation 4.0 implements a subset of the Videotext/Teletext Presentation Level Protocol Syntax Standard, X3.110-1983, also known as **NAPLPS**. The Basic Workstation 4.0 uses NAPLPS commands and character sets, with ASCII codes included in the **NAPLPS** specifications.

Limitations - The Basic Workstation 4.0 **DOES NOT** function as a console monitor as did the 3.8 version. Some third party applications cannot be supported on 132-column screens unless the terminfo or termcap entry that the application uses to drive the terminal has been properly configured. The 38400 baud rate setting indicated on the soft set-up menu is currently not supported.

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November, 1988

Nov. 8 - 11: Field Service (Hardware) in Philadelphia, PA

Nov 15 - 16: Data Communications in San Carlos, CA

Nov. 22: System V - Administration in San Carlos, CA

December, 1988

Dec. 12 - 13: Data Communications in Atlanta, GA

Dec. 19 - 22: Field Service (Hardware) in San Carlos, CA❑

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The Poor Man's Network

Automating Communications Between a Fortune and a PC

In a recent issue we discussed some methods for connecting Fortunes to MAC's and PC's. What we discussed in that article was how to use the PC or MAC as a terminal on the Fortune, and how to exchange files between the various machines. This article takes communication one step further by looking into ways to automate communications into a "poor man's network".

The whole thing started because one of our clients owns a Fortune 32:16 and a Compaq 386. They have a NEC letter quality printer attached to the Fortune, and a high-speed NEC dot-matrix setup with the Compaq. Our problem was that we were running a program on the Fortune that generated huge reports which took forever to print on the slow letter quality printer. If we could only print them on the faster printer attached to the Compaq...

Of course, one method would be to get a parallel to serial converter for the dot-matrix, and maybe a switch box, and plug it right into the Fortune. That wouldn't be too costly and might provide the right solution for many offices. However, we wanted to try to accomplish our mission with software — specifically, using kermit. For the sake of our discussion, we'll assume that you already have a wire connecting the Compaq to Fortune. (If you don't, see our August issue to find out about what kind of wire you'll need.)

Kermit is the terminal emulator and file transfer program that we use extensively to let our Fortunes talk to the outside world. We can talk Fortune to Fortune, as I did in the middle of the night last month when I had to get a phone number from the Electronic Rolodex on our Fortune at work. I just used the Fortune I have at home to log in, and within seconds I had the information I needed. But kermit's real strength is to allow error-free file transfers between different kinds of computers. And with the advent of C-kermit, this can be done automatically.

This latest version of kermit has a server mode which allows remote computers to give commands which will be performed locally. Once a computer is in a server mode, the remote computer can simply issue get or send commands to send and receive files, and can even issue commands for the server computer to execute. What we wanted to do was to send a file to the Compaq, tell the Compaq to print the file, and finally to exit. It turns out that this is actually very easy to do. The one catch is that no one can use the Compaq while it is in the server mode.

Once a computer is in a server mode, the remote computer can simply issue get or send commands to send and receive files, and can even issue commands for the server computer to execute.

The first thing we did was turn the Compaq on and issue the **print** command. This is necessary, because the first time the print command is given, it asks which printer is being used, e.g. `lpt1:, lpt2:`, etc. After that is done once, the print command is loaded into memory and you're not required to enter the printer name again. That's important because we want to just issue a command like "`print filename`".

After giving the print command, we start up kermit by typing

`kermit <ENTER>`.

Next we set the comm port and baud rate using the set command, for example `set line com1:` and `set baud 9600`. Finally, we put kermit in the server mode by typing "`server`" at the **KERMIT-MS>** prompt. (Once you're in server mode, the only way we know to get out is by issuing a command from the Fortune — otherwise you'll have to reboot. Read on...)

Now back over at the Fortune we start the C-kermit program. Please note that these instructions will only work with C-kermit, not the original kermit program distributed on our D.C. Grab Bag Disk. We have to set the line and baud for this kermit also. This is much the same as was done on the PC, although to set the line on the Fortune, you'll be doing something like `set line /dev/tty07`. To check your connections, just type "`bye`" at the Fortune. If all is right in the world, you will have exited the server on the Compaq and its screen will now say **Kermit-MS>** instead of server. If that worked, type `server` again on the

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Compag. (Exiting the server was just a test.) Go back over to your Fortune. Now you should be able to use the send and get commands. Pick a file that you know will be on the Fortune and type `send filename`. If your connection is established correctly, you should see some information about the files being transferred. Note that PC filenames can't have more then 8 letters, with a 3 character extension.

If the **send** and **get** commands work, try out the **remote host** command. All you need to do is to type

```
remote host date <RETURN>
```

and in a moment, the date from the PC should appear on your Fortune. If that worked, you could try:

```
remote host print \autoexec.bat
```

In a moment the autoexec.bat file from theCompaq will print out on the dot-matrix printer attached to the Compaq.

If you're still with us, you're almost there. You should have seen that you can send and receive files, and give the Compaq commands right from the Fortune. To leave ckermit, just type "exit". Now it's time to put it all together into a shell script. Look at Figure 1.

Figure 1

```
set line /dev/tty08
set baud 9600
send filename
remote host print filename
exit
```

Figure 2

```
echo "set line /dev/tty08" > /tmp/kermtemp
echo "set baud 9600" > /tmp/kermtemp
echo "send $1" >> /tmp/kermtemp
echo "remote host print $1" >> /tmp/kermtemp
echo "exit" >> /tmp/kermtemp
ckermit < /tmp/kermtemp
rm /tmp/kermtemp
```

The basics of what we are attempting is to create a "batch" file which feeds kermit the commands just as if they were being typed in from the keyboard. We basically have included all the commands that we discussed above into a file. Note that we are using /dev/tty08 at 9600 baud, and that you would

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substitute the name of the file you want to print. The file you'll print resides on the Fortune to start with, and is sent to the Compaq. Let's suppose the commands in Figure 1 are put into a file called `kermtemp`. To run them with ckermit all we do is redirect the input by typing:

```
ckermit < kermtemp
```

That would send our file, print it, and exit ckermit. Now all that remains is to is to make the command general. We do that by creating a shell script containing the lines in Figure 2. We'll call it **rx** for remote execute. The most important thing here is the use of the `$1` variable, which stands for the first word after the command. So if we entered `rx letter1`, **`letter1`** is equal to **`$1`**. **`$1`** could include a complete pathname like /u/josh/sample also. Our **rx** command creates a batch file like Figure 1, substituting in the name of the desired file from the command line. The initial > symbol creates the file **kermtemp**. The >> symbols append each line to **kermtemp**. After typing Figure 2 into a file called **rx** (using screen), and made it executable by typing `chmod +x rx`, try running it by typing `rx /etc/devtype`. The devtype file should print on the DOS printer in a moment. Be sure that you have run the PRINT command on the DOS machine at least once before you attempt all of this. If this all works, you should be able to print any ASCII file on the PC from the Fortune.

Bells and Whistles

You should be able to speed the whole thing up by setting the baud rate at 19200 instead of 9600. Make sure to change it on the PC and the Fortune. You might also add a remote host command to remove your file from the PC. Since the entire pathname of your file does not get transferred you might want to use the basename command, as in

```
echo "remote host delete" `basename
$1` >> /tmp/kermtemp
```

This line will reduce **/etc/devtype** to just **devtype**, which is all the DOS machine wants to know. After the printing is complete, the file will automatically be deleted.

In a practical sense, our remote printing example would probably not be very sensible, because it requires an expensive machine (the Compaq) to sit around waiting for print requests. However, there are many other likely applications. Suppose a branch office compiles information with Lotus 123 and prints the data to a file. The Fortune in the main office could automatically call in each night to gather the data. (This would also work between Fortunes.) You probably could even call the remote PC, instruct it to run the programs which compile the results, and then transfer the data file. There are many possibilities.

We hope this has stimulated some applications that would be suitable in your setting. If you have questions about how this might work, please give us a call.❑

Josh Lobel

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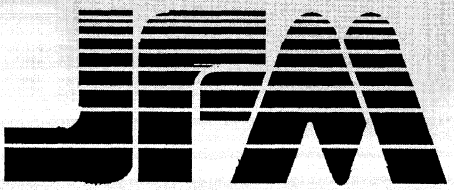

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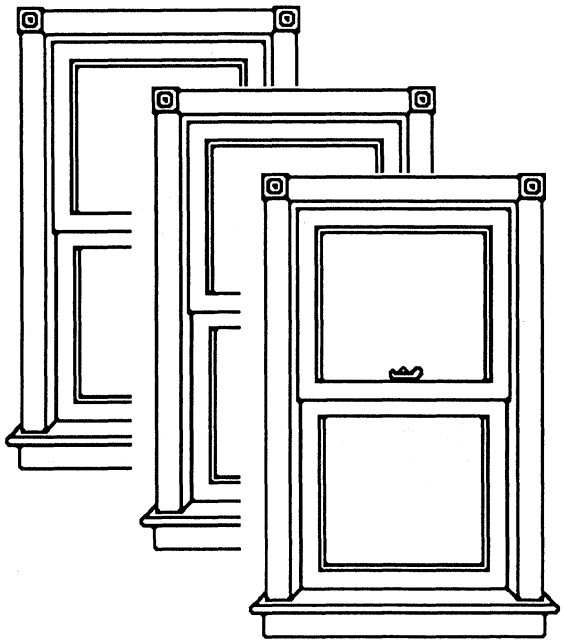
The Newsletter for Users of SCI/Fortune Computers November 1988/Volume 5 Number 11



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Vol 1, Numbers 5 - 8	$3/each
Vol 2, Numbers 1 - 7	$3/each
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From The Editors...

On The Road Again!

We had the distinct pleasure of being invited to a recent demonstration of **SCI/Fortune** hardware and software. The event took place on November 17, 1988 at the offices of Vantine Business Systems . Approximately 20 current and prospective SCI/Fortune owners were treated to an informal demonstration of the new **SCI/Fortune 5000** as well as the **Formula 4000**. In addition to the hardware, two new software products from **Southwind Software, Inc.** were shown. These software products were a new spreadsheet called **Tactician** and a "lower-end" graphics package called **Ezgraf**.

The meetings were attended by three representatives from SCI/Fortune: **Jim Smith**, Marketing Manager from SCI/Fortune corporate headquarters in California; **Sam Bizzarro**, Eastern Regional Sales Manager; and **Scott Chapman**, Eastern Regional Systems Engineer. The meetings were begun by an introduction by Dave Vantine who turned the event over to Sam Bizzarro who promised that his contribution to the meeting would be short and sweet. He took about ten minutes to give some background to SCI/Fortune as a division of SCI Systems, Inc. (Please see the News From SCI/Fortune article in this issue for more information). He explained that the parent company is a $775 million computer corporation and the new ownership has enabled SCI/Fortune to introduce several new hardware and software products that will benefit all current customers, as well as attract new customers to SCI/Fortune products.

Sam then introduced Jim Smith who first directed the group's attention to the new **SCI/Fortune 5000**. He described this new hardware as fast, easy to service and standard. By standard he meant 1) that the machine is based on the **Intel 80386** chip and 2) that it runs a choice of three standard operating systems (**Interactive's Unix**, a System V.3 port; **Xenix**; and **MS-DOS**). It is also standard in the sense that it uses an AT bus which allows one to access a wide range of AT-bus compatible peripherals.

Jim then demonstrated some of the new software including **Tactician** and **Ezgraf**. A canned demonstration showed how Tactician can pull data from an external database, perform some calculations on that data, and then access Ezgraf to graph the results - all while inside Tactician! Jim also fired up **VP/ix**, the DOS under Unix option, and performed some DOS functions which shows how easily Unix can be integrated with DOS.

Jim then asked the group to view the **Formula 4000**. He started up Fortune:Windows and showed the group Fortune:Word, Tactician, and TimeMaker. Jim then opened the meeting up to questions from any of the participants. There were many questions and all three SCI/Fortune representatives were quickly engaged in answering individual questions over the keyboards of the two computers.

Of course, we had some questions ourselves. One concerned how robust the **"DOS under Unix"** really was on the 5000. To test this we suggested that we try to load and run **Ventura** - a page-layout program that is designed to run on DOS systems. We are happy to say that the loading and running of the program was a success. It was thrilling to see Ventura running on the console graphics terminal under DOS and to walk to another terminal connected to the SCI/Fortune 5000 and see Fortune:Word running!

A New Sense of Excitement

All in all, the day was a resounding success and left us all with a renewed sense of excitement about SCI/Fortune and their new products. It is clear that SCI/Fortune has turned an important corner and is now on the road to delivering quality products and service that will meet the needs of the computer user.

This excitement is not only based on the new products SCI/Fortune is delivering, but it is also based on the way that they have been treating their dealers, their end-users, and us. SCI/Fortune promised us several months ago that they would provide us with the new software and hardware so that we could use it and write about it. We are extremely pleased to announce that when the meeting was over and the three SCI/Fortune representatives left for their respective offices, they left behind in our offices the Formula 4000, the 5000 and the new software packages from Southwind.

In the coming months you will see articles that describe how these products work. We wish to thank SCI/Fortune for allowing us the use of these products. This is just another example of how committed SCI/Fortune is to giving you, the end-user, the kind of information that you need to make your business grow - and we applaud this new approach and attitude from SCI/Fortune.

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The BASIC Advisor

The BASIC Advisor is brought to us from Ray Wannall. Ray is President of BaSiC Software Corporation which is located in Baltimore, Maryland.

LAST CALL!! IDOL/BAS/BASIC Support Companies: Do you wish to be included in our 1989 Support Companies Listing? If so, I need to hear from you right away. Call me at (301) 448-9460 or write to me, Ray Wannall, at BaSiC Software Corporation, 5201 Powhatan Street, Baltimore MD. 21207. I need the name of your company, name of the person to contact for support, your location (city and state), phone number and billing rate. Each year we have increased the number of companies listed, and this year my goal is go over the 20 company mark.

This month we have received no new questions which we feel would be of interest to our readers. Therefore, I will use this space to present a few pages from my book, "Return to Continue" (copyright 1987, Ray Wannall). The purpose of the book is best described in the following excerpt from the introduction:

"This book has been written for the non-technician. It is not designed to make you a programmer, but rather to assist in making you more self-sufficient. In preparing the book I have kept in mind the fact that a little programming knowledge in the hands of the inexperienced can be a very dangerous thing. I therefore address only those problems which can be safely handled with Business BASIC commands (so please don't reassign your technician to the mail room). Sometimes the beginner will not be sufficiently equipped by this text to correct some specific error: whereas the problem can often be solved with a simple fix, it may prove to be more than we wish to digest here. I have tried to provide elementary examples to demonstrate the problem solving technique with the hope that the more adventuresome readers will learn to expand their knowledge by studying documentation provided with Business BASIC. In cases where errors are best handled by professionals, you will be advised to seek such assistance."

So, without further ado, here is a selection which explains more than you probably wanted to know about Error Zero.

ERROR 0: FILE, RECORD OR DEVICE BUSY

Now one would normally assume that when the computer tells you ERROR = 0 there is no error, right? Of course not. The number zero is more significant to the computer than most other numbers it encounters; in fact, it is one of only two numbers the computer really "understands" (the other being number one). Computers are incredibly simple-minded when you get right down to basics. We humans, in our relentless efforts to complicate elementary fundamentals, have created an illusion of omniscient automatons. And when you run into an Error 0 it can frequently make you feel pretty lethargic by comparison.

CHECK THE PRINTER: You may get an Error 0 when you try to print a report and the printer is either off-line or off completely. The Error 0 condition will be relieved once you properly set the printer switches.

CHECK OTHER OPERATORS: On multi-user systems, an Error 0 may stop your terminal, if someone else on the computer is interfering with what you are trying to do. (We know you are not interfering with anyone else!) The other operator may be trying to change inventory item quantities through sales or receivings entry, conduct month-end processing, or simply getting a cup of coffee while his terminal

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stupidly asks, "REPORT CORRECT (Y/N)". Coordination of efforts will solve the error problem.

PAY MORE ATTENTION: Bad code writers (programmers) require very attentive operators if the software is to operate smoothly. Business BASIC sometimes allows these code writers to omit error handling code from the programs, thereby resulting in profoundly mindless products. You, the operator, must go to extra effort to keep the programs running. If, when you get the Error 0, you see on the screen a line of code which contains this wording:

```
INPUT (0,TIM=nn)
```

(where "nn" represents some number of seconds), it means that the programmer wanted you to respond to a question in a timely manner. The programmer had no idea what to do if you did not respond in time, but we won't try to make an analysis of his irrationalities. You solve the problem by typing the following command and responding to the initial question more quickly:

```
RUN  <CR>
```

MISCELLANEOUS: Sometimes the Error 0 crops up when the program is trying to read data from or write data to a disk which is not in the "ready" state. Under some of the newer operating systems, the "permissions" to a directory or subdirectory may have been accidently altered so that operators cannot read from or write to that area of the disk. Normally permissions need to be redefined by a technician who is familiar with the language of the operating system. Since this is beyond the realm of Business BASIC, we will not cover these fixes here. (On older systems, the disk may not be in the "ready" state because the switch is not turned on. I'm sure if this is the case you can solve the problem.)

In any event, if you are unable to correct the ERROR = 0 with one of the above solutions, and you have no safe way to reset the system, it is best to call for expert assistance.❑

Editor's Note: *Ray Wannall has been contributing to* ***/u/fortune*** *news for several years. We are pleased to present him and his column to our readers as a valuable resource. However, you must avail yourself of his expertise in order to get the most from his column. We heartily recommend that you send him any questions or comments that you have regarding Business BASIC, IDOL or any of the BAS products. He is ready and willing to help you solve your problems!*

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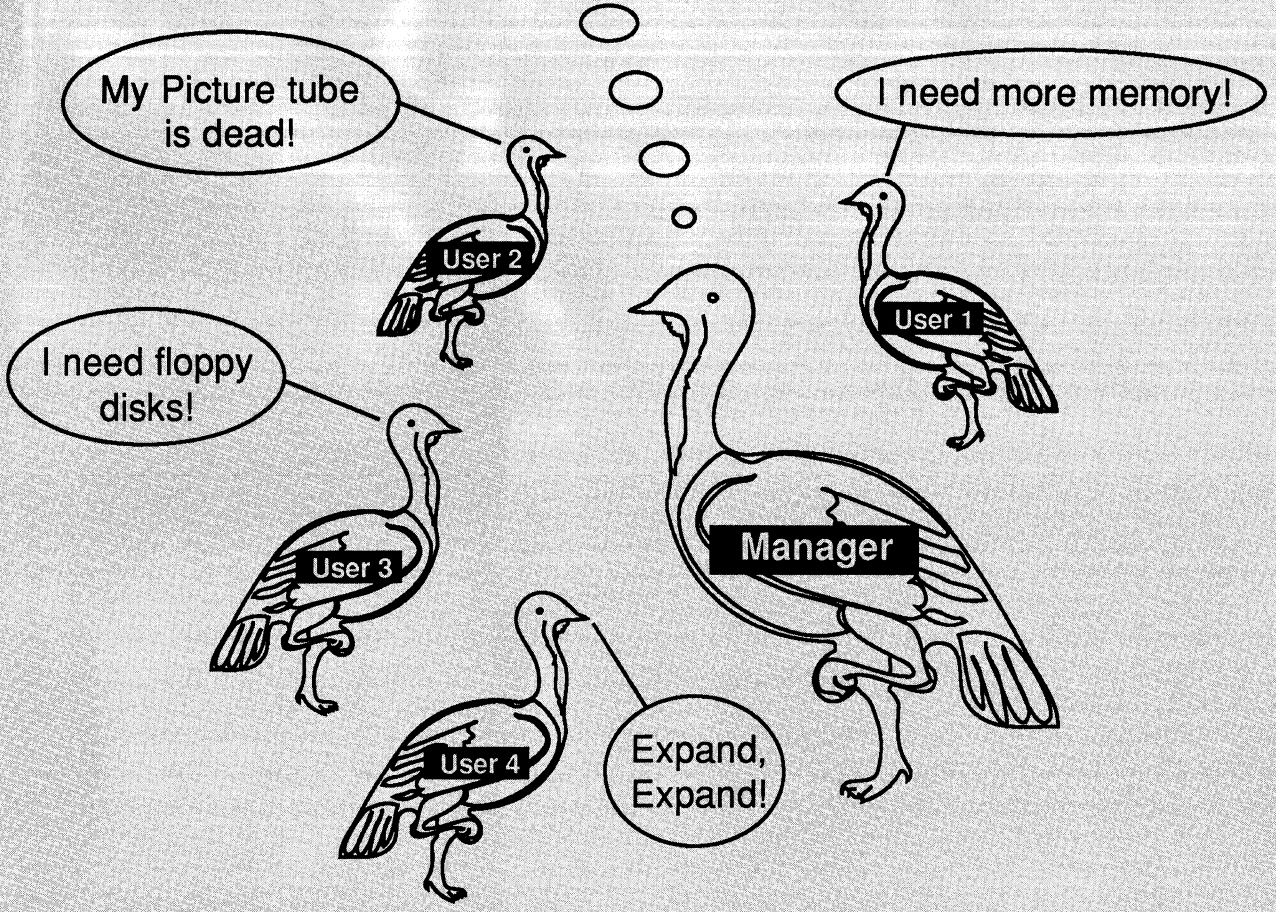
Gobble, Gobble - Call Tri-Tech



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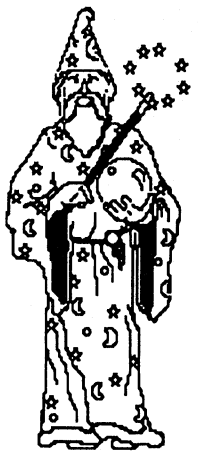
System Administration: Part 19

No Longer Requires a Degree in UNIX Wizardry



This series is a must for all owners and users of the Fortune computer. Dave is President of UNI-KOMP which is located in Houston, Texas. He provides UNIX seminars, software for the Fortune Computer, and is past president of the Houston UNIX User's Group. He contributes independently to ***/u/fortune news.***

by Dave Kloes

Here we are again and it's almost the end of the year .... or has it gone by already! In any event, unlike the holidays which come and go, we are inevitably here to present another subject for your digestion (or indigestion). The subject of the month in our continuing series on System Administration is the "**/m**" directory.

For the most part, the "m" can stand for "menu" since this directory contains many of the files and commands which tell the system what to do when you select something from the global menu. This directory and its files and programs are unique to the Fortune System. In other words, they are not originally part of the Unix operating system.

Figure 1 is a graphic picture of some of the sub-directories you might see in this directory:

By the way, for those that are interested, these graphic representations of the layout of directories that are on the system is obtained with a command called "**dtree**". Many utility commands such as this one that are not a normal part of For:Pro are provided by The Cambridge Consortium as part of a utility package that can be purchased. (**Editor's Note: dtree** is found on our Compressor's Delight diskette).

First of all, we must mention that not all of you will have all of the directories depicted here. This is a list of the "/m" directory on our system and many of the directories that you will find here depend on the particular Fortune software packages you have loaded on your system. Regardless of the software you have loaded, the following directories are on all For:Pro 2.1 systems when first installed:

/m/maint
/m/menu
/m/rc
/m/string
/m/sysman
/m/sysutil

Since these are common directories found on all For:Pro 2.1 systems, we will be discussing them first. We must also caution that while we will be discussing the commands and files found in these directories, you should not modify them. You take the chance of permanently damaging your menu system if you don't know what you are doing.

/m/maint

The "/m/maint" directory contains files that are shell scripts that were used to install different software packages on your system. Notice that almost all of the files in this directory end with "**.maint**". Have you ever wondered how the system knows what to do when you use "S5" (Product Maintenance) to install, delete, or backup Fortune software? Each set of Fortune diskettes that you install through "S5" have a shell script on the first diskette of the set that performs the installation and updates the Global Menu system. After the installation, this shell script is stored in the "/m/maint" directory and also contains the instructions on what to do if you select "backup" or "delete" in "S5".

For example, if you have a file called "mp.maint", this is the script that was used to install Multiplan. The file "idol.maint"

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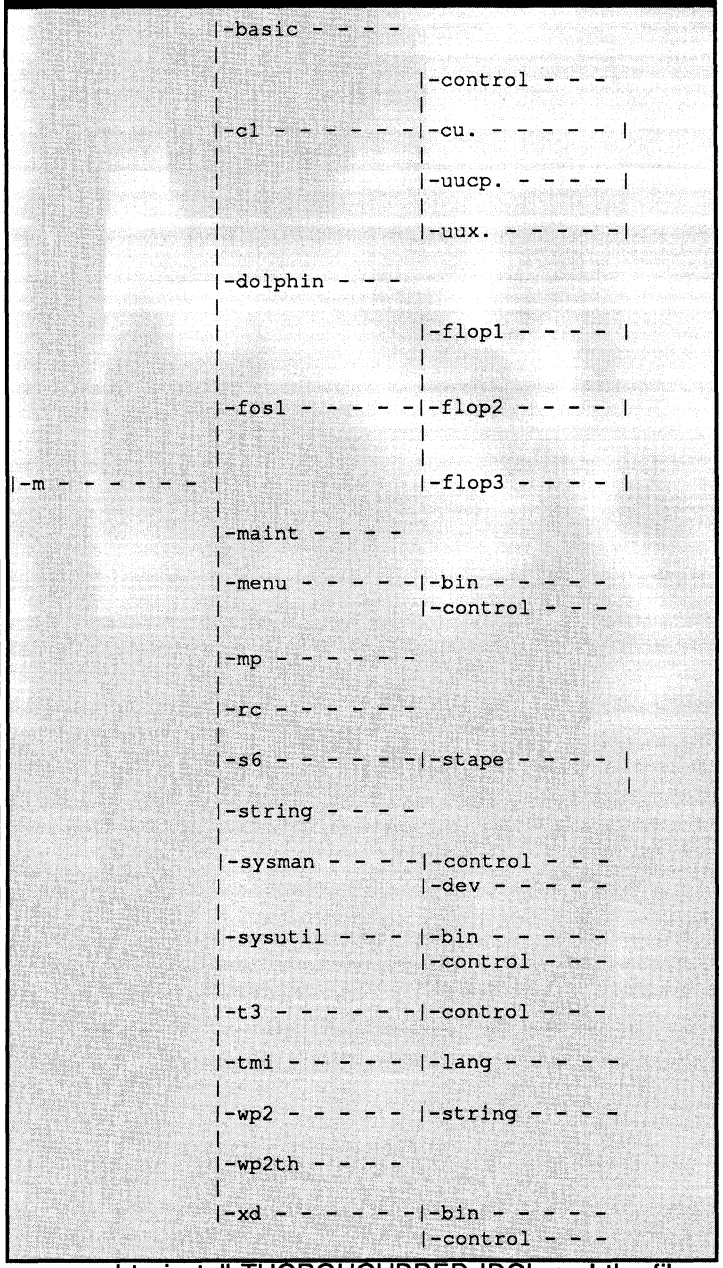
Figure 1.



was used to install THOROUGHBRED IDOL and the file "wp2.maint" was used to install Fortune:Word. For those of you that are software developers, you can use these scripts as examples of how to install your custom software using "S5".

/m/menu

The "/m/menu" directory has files and commands that generally control and maintain the Global Menu system. There are two sub-directories here - "bin" and "control". In general, the "bin" directory has commands that are used in conjunction with actions that need to be taken for updating the Global Menu. The "control" directory contains files which have the actual "images" of the different menu screens.

Take our word for it, the process of maintaining the menu system using these files and commands is quite complex. Luckily, as the administrator, the system maintains itself whenever you use the proper menu selections for installing, deleting, and backing up product diskettes.

We could spend several articles talking about how to use some of the commands in this directory to customize your Global Menu. Much of this has been covered in previous articles and in particular, The Cambridge Consortium has a utility that makes this task very easy. In addition, we have entered commands that have corrupted the menu system beyond repair and have had to rebuild it from scratch. You have not lived until you go through that experience (a word to the wise!).

/m/rc

The "/m/rc" directory is one of the more interesting directories in "/m" and can be used by the System Administrator to do some functions for your particular system. Generally, this directory contains commands that are executed when the system starts up. Remember that we said the "/etc/rc" shell script is run whenever the system starts up and contains commands that prepare the system for use. When this "rc" program is run, one of the things it does is to check the "/m/rc" directory for files that end in ".rc". It executes these files and performs the actions in them. For example, if you install a tape streamer on your system, the tape streamer installation process puts a file called "st.rc" here that initializes the tape streamer whenever the system starts up.

In addition to the system installed ".rc" files that are put here, you can add your own. This would be one way of having actions performed at system startup time without having to edit your "/etc/rc" script.

Let us pass on some information to you and then we will show you an example of how this directory can be used. Let's say that we have two printers on our system with two different baud (speed) rates:

```
/dev/tty01    9600 baud printer
/dev/tty04    1200 baud printer
```

We have not talked about it yet, but if you run the "/etc/uconf" command, you will see that one of system setup parameters is:

```
TTY01 port speed = ????
```

The question marks would show the baud rate for the printer port "tty01" on your particular system (i.e. 1200, 9600, etc.). One of the quirks about the Fortune System is that without making any other changes to the system, all printers must be set at this baud rate in order for them to work in all of the application packages. In other words, because the "tty01" baud rate is set at 9600 baud, the system expects all of the printers to be set at this baud rate. That does not help us with the problem we defined above - we have two different printers with two different baud rates. We could always set the 9600 baud printer down to 1200 baud but this does not

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take full advantage of the higher processing speed of the printer.

One way around this problem is to use a ".rc" file to send a command to the "tty04" printer port to set its baud rate and save the setting each time the system is started. If we run the following command at the For:Pro prompt, it will allow the printer on port "tty04" to be run at 1200 baud even though the "tty01" port speed is set at 9600 baud:

```
stty 1200 savemodes > /dev/tty04
```

This command will be in effect until the system is shutdown and restarted. So we are going to create a ".rc" file with this command in it so that it will be run each time the system is started and then we no longer have to worry about it (unless we change the printer to another port or use the port for something else). Here is a sequence of commands where we use the "ed" editor to create a file called "tty.rc" to run this command:

```
# cd /m/rc
# ed tty.rc
?tty.rc
a
stty 1200 savemodes > /dev/tty04
.
w
33
q
# chmod 775 tty.rc
#
```

Once we have created the file and made it executable with the "chmod" command, the next time the system starts up, it will automatically run the "stty" command and presto - we are running two different printers at two different speeds.

System Administration work doesn't have to be all drudgery either. We wrote one ".rc" script for a client that compares a file with a list of user names and their birth month and day. Whenever the system starts up the ".rc" script compares the system month and day with this file and sends a message to the "/etc/motd" file with a birthday wish to those with a match. Everyone on the system knows who has birthday on that particular day when they login!

/m/string

This directory contains files with messages that are used when you select various options from the menu system.

/m/sysman

This directory contains the menus and help files associated with selecting "S2" (System Management) from the Global Menu which are in the "control" sub-directory. It also contains a couple of commands that can be executed from the For:Pro prompt to perform functions that are normally done in the menu system. For example, the "devconn" command is the command that is used when you select "S39" (Define Device Connections) to define devices on the system. The "newuser" command is the command that is run when you enter "newuser" at the login prompt to establish new user accounts on the system. We find that performing these two functions is sometimes easier if we are already logged into the system as "root" rather than going through the menu system to do them.

/m/sysutil

This directory contains the menus and help files associated with selecting "S1" (System Utilities) from the Global Menu. They can be found in the "control" sub-directory. It also contains commands in the "/m/sysutil/bin" directory that can be executed from the For:Pro prompt to perform functions that are normally done in the menu system. For example, the "fmtflop" command is the command that is used when you select "S32" (Format Flexible Disk) to format a floppy disk. What we do on our system is to "link" this command and give it another name in "/usr/bin". Here is the command that you can use to do this:

```
cp -l /m/sysutil/bin/fmtflop /usr/bin/flop
```

Once the link is made, we can format a floppy disk directly from the For:Pro prompt by entering the "flop" command. *One caution if you do this - you will not be prompted to insert the diskette so be sure your floppy is in before you start.*

Here is a list of the other directories that we showed at the beginning and a brief description of what is in them:

basic - commands and files associated with the Business Basic interpreter.

c1 - commands and files associated with Interactive Terminal Emulator (ITE).

dolphin - command and files associated with Fortune:Windows.

fos1 - files and commands that are "linked" to the originals. These are used to make backup copies of the "Cold Boot Set" using "S5".

mp - files and commands that are associated with Multiplan.

s6 - files and commands that are associated with the Tape Streamer Utilities

t3 - commands and files associated with the Business Accounting System (BAS), Fortune:Word, and Multiplan training.

tmi - commands and files associated with Timemaker.

wp2 - commands and files associated with Fortune:Word.

xd - commands and files associated with the Expansion Disk software.

That about wraps it up for this issue and our discussion of the "/m" directory. Next time we will talk about the "/sa", "/tmp" and "/u" directories.❑

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How I Use Fortune:Windows

We've discussed **Fortune:Windows** before in the pages of **/u/fortune** *news* (see Volume 2 Number 6). We felt, however, that this product warranted revisiting for two reasons. First, it has been 3 years since we have discussed it. Second, SCI/Fortune has recently released an updated version.

In this particular article, I want to try and give you an idea of how I use **Fortune:Windows**. Before I do that, however, I will give you a brief explanation of what **Fortune:Windows** is.

Fortune:Windows is a software product that allows one user on one terminal to access up to eight "logical" terminals. That's right, it is like having up to eight SCI/Fortune terminals sitting on your desk! And not only that, but you can switch from any one "terminal" to any other terminal with as little as *two* keystrokes. This allows you to be much more productive with your time because you don't have to waste time getting out of one application in order to get into another.

For example, have you ever been in the middle of using Fortune:Word when you received a phone call and someone needed some information from a Multiplan spreadsheet (or a data base, or the BAS applications, or...)? What do you have to do? Well, you have to slowly and laboriously close out your word processing session and then you have to fire up Multiplan (or your data base, or the BAS application, or...)! This all takes time - and when you're done answering the phone, what do you do? Well, you slowly and laboriously close out the Multiplan and then reopen the Fortune:Word document. Of course, you could have been a little smarter and tried to open your Multiplan document through the COMMAND key in Fortune:Word. This method would be faster - but still laborious when compared to **Fortune:Windows**.

Another really useful feature of **Fortune:Windows** is the ability to take data that is on one of your "terminal" screens and put it into one of your other "terminal" screens. A quick example of this feature that I use is when I write a letter to someone. I am able to take the address of some individual right from our subscriber data base (which is open in one of my windows) and put it right into my document (on which I am working in another one of my windows).

Fortune:Windows is like the sculpter's clay - it can be molded into any shape that is useful to the user. No two individuals will use this program exactly alike - each of us can learn from the experiences of others. What I want to do in the remainder of this article is to explain briefly how I use **Fortune:Windows** to increase my productive use of our SCI/Fortune computer.

As I write this article I have eight windows open. This is the maximum available and each of my windows are "full" windows. This means that they take up my entire screen - thus, when I look at my terminal, I see only one window at a time. You can make your windows take up less than your entire screen allowing you to see the effects of more than one window on your terminal at the same time. There may be occasions when this is useful, but for my purposes I use full screen windows.

Window 1 - Subscriber Data Base

In my window number 1 I have my subscriber data base running. All day, every day, I am updating information in this data base including the recording of orders, the changes of addresses, recording payments, etc. No matter where I am or what I'm doing, I can switch into my data base to take care of business. And the switching is easy because I have set up some "hot" keys. To switch to my data base window, I hit the **RETURN** key on the Number Pad followed by the **1** key on the Number Pad and immediately I am in window 1.

Window 2 - A Unix Shell for my Data Base Programs

In window 2 I am usually sitting in a Unix shell in the directory where most of the data base programs for the subscriber data base are. This is because I often create quick little data base query programs "on the fly" and I find I do this most efficiently in the shell using the **vi** editor. I also use this window for other more general shell requests - like using our electronic rolodex, or copying files, or checking on disk usage, or...

Window 3 - Another General Purpose Unix Shell

In window 3 I have another Unix shell for general purpose work. Perhaps I will use this window to issue a rolodex request if window 2 is being used, or I might use this window to create a shellscript, or edit a file, use **kermit** to dial out to another computer, or...

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Window 4 - Multiplan Spreadsheet with a Mini-Business Plan

Right now, window 4 is being occupied by a Multiplan spreadsheet in which I have modeled some expense and income projections on a little project. I have kept this open for several days as I refine the sheet and change parameters to learn how these parameters will affect the bottom line.

Window 5 - A To-Do List

I keep a To-Do list in this particular window. I am able to quickly switch back and forth to this window to record when I complete a task and to know when I should start one.

Window 6 - Editing This Article

I am currently in this window as I type this article. I am using the **vi** editor to type in this text. When I am done, I will exit **vi** and be in our Volume 5 Number 11 directory where all the text for this issue of the magazine is kept. Thus, as I work on this particular issue, I can switch back and forth to this window as I see fit.

Window 7 - Our Accounting Data Base

We have a separate data base from the subscriber data base to keep track of our corporate checking account and related activities. I have been using this window recently to get some ideas of where we stand financially as the end of the year approaches. A quick **RETURN** followed by a **7** (on the Numeric Keypad) and I am in the accounting data base.

Window 8 - Multiplan Spreadsheet for Volume 5 Number 11

Finally, window 8 is occupied by a Multiplan spreadsheet that contains the information on what articles will appear in Volume 5 Number 11 and how long they will be. This information helps us to plan what articles should be in the issue, where they should appear and how to place advertisements.

I think you will see that I use **Fortune:Windows** constantly - in fact, I often feel like a person with only one arm when I use a system without windows because I have become so used to the freedom and productivity of my system with **Fortune:Windows**. **Fortune:Windows** is a product that no SCI/Fortune system should be without. If you would like more information about **Fortune:Windows**, feel free to call us or contact your dealer. If you would like to purchase this product, you should contact your dealer.

We mentioned at the beginning of this article that we received an updated version of **Fortune:Windows**. The updated version has some enhancements that we should discuss.

First, we note that the old version would buffer output to each window. The effect of this was that once the buffer was filled, all processing in that window would cease if it wasn't the current window. This meant that if you started a command in a window which sent information to the screen and then you switched to another window, the program in the original window would continue to execute until a rather small buffer was filled. If you wanted to have the program finish its execution, then you would have to switch back to that window. The updated version does not work this way! You can start a program in any window and that program will complete even if that window is not active. *This is a very useful improvement.*

A second improvement to **Fortune:Windows** is the expanded use of "hot" keys. One can always access all the capabilities of Fortune:Windows by typing SHIFT-HELP. Once this is done you would see a menu that allows you to create windows, change windows, take-up data, zoom the window, change directories as well as other things. But there is a faster way to do these things. I already explained that changing a window can be as simple as using two keystrokes. With the expanded use of "hot" keys, any of the functions on the Fortune:Windows menu can be accomplished with two keystrokes.❑

Mark Palmerino

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Is my computer safe from computer viruses?

Over the course of several days, beginning on November 2, 1988, a virus swept through over 6000 computers that were linked together by a network known as **ARPAnet**. This particular virus, although relatively benign, sent a shock wave that is still reverberating through the business and defense community.

What is a virus, anyway? Can they infect my SCI/Fortune product? If so, how, and what can I do, if anything, to protect my equipment from infection? We will attempt to answer some of these questions in the following article.

What Is A Virus?

Perhaps the simplest explanation of what a virus is, is that it is a computer program which 1) has the ability to reproduce itself and 2) tries to copy itself from one computer system to another. As such, virus programs can range from being benign to very destructive. The recent virus attack that made the news in early November, was a relatively benign virus in that it did not delete or corrupt data files on the computer system it infected. The main damage it caused was to "hog" the computer memory. This, in effect, brought an infected computer to a standstill so that other users on the system could not get any work done.

Computer viruses can be programmed to be very destructive. Mainly, the destruction is wrought through the deletion of critical system and/or user data files. Worse, the destruction can be subtle. For example, a virus could be programmed to modify data in a data base - not simply delete it. Thus, this modification may not be discovered for a long period of time.

How a Virus Spreads

The virus that attacked **ARPAnet** used three main strategies for spreading itself from one computer to another. The virus would look through the computer files for a list of computers that the computer it was on was connected to. Once the virus found this list, it tried to mail itself to the computers on this list. Actually, what it mailed was a shellscript which, if it got through, would execute itself. Part of its execution was creating a little C-program (under 100 lines) which was compiled and executed. If this C-program was successfully executed, the first thing it did was to delete itself from the computer disk, so that detection of the virus would be hindered. This method was possible through an unclosed "back door" to a program called sendmail. This program takes care of sending mail messages from one computer to another on the **ARPAnet** network. One offshoot of this virus attack was the closing of this "back door" on most computers.

Another method that the virus used to spread itself was to take advantage of a known bug that exists in a program called **fingerd**. The virus would take a look at the processes that were running on another computer and if it found the fingerd program it utilized this bug to start a Unix shell on the remote computer. Once this shell was executing, the virus sent the mail message that would compile itself, thus starting the process all over again on the newly infected computer.

The final method of infection was a password cracking program. This particular part of the virus used an optimized list of some 200 common passwords to try and directly log into the attacked computer system. If the virus successfully logged into a computer, the whole process was started again.

The virus that we've been describing used the **ARPAnet** network to spread from one system to another but not all viruses use networks. The other main way that a virus can spread from one computer to another is through floppy disks or computer tapes.

Can My Machine Be Infected?

If your machine is connected to the outside world via a network or a phone modem or if you ever put a floppy disk into your computer, then the answer is yes. I suppose that is the bad news. The good news is that we have not heard from any of our subscribers about virus attacks on their computer.

How To Avoid Infection

There are no foolproof ways of escaping infection from a persistent virus. However, there are some things that you can do to reduce the probability of infection and damage.

Perhaps the number one strategy for virus-proofing your system is to make sure that all the accounts on the system have a password. This is especially important for the root, manager and any other super-user accounts on the system. If someone or something is able to access your computer system through a super-user account, they can wreak unrestricted havoc with your system.

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An associated suggestion is for the System Manager to educate the users of the computer on the importance of their password. Users should come up with passwords that are not common words or names. A good password might contain punctuation and other less used keyboard symbols such as !, @, &, etc. Finally, it is not uncommon to change passwords several times per year.

Secondarily, and as important as the previous strategy, you should keep current and complete backups of your system. That way, if a virus does infect your machine and do damage, you will be able to restore the damaged files. The System Administration Series has just completed a comprehensive look at the subject of System Backups. A review of this material would be a good way of beefing up your backup capabilities.

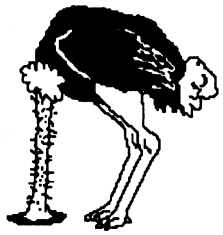
Thirdly, you might want to review your current connections to the outside world. Certainly one drastic way of reducing the possibility of infection is to cut off all contact with the outside world. We are currently hooked to several computers via Fortune-To-Fortune Copy (uucp) and we do not feel that negative effects of a virus infection outweigh the positive effects of free and easy transfer of information. However, you may come to a different conclusion.

Conclusion

Computer viruses are an interesting phenomenon of the information age. They can be benign or destructive. They can come from the outside or from the inside but there are no foolproof ways of avoiding them. However, some simple and standard system administrative procedures can help reduce the probability of infection. If any of our readers have been hit with a virus, we would like to know about it. Also, if you have any further ways of virus-proofing your system, please let us know and we will pass that information on to other SCI/Fortune owners.❑

Mark Palmerino

/u/help



John Goergen of PACC called with the following question:

Have you, or any of your readers, had any experience with communicating with an IBM AS400? We have been able to use a Comm B board in our Fortune to communicate with other IBM computers, but the AS400 is so new that we don't know if the protocol in our Comm B board will work. Currently, the protocol is BSC 3270. I would appreciate anyone with information regarding this to contact me at this telephone number: 517 334-6060 or the following address:

John Goergen
PACC
Department of Attorney General
306 Townsend Street
Suite 400
Lansing, MI 48913

Editor's Note: We have not had any experience communicating with IBM computers with SCI/Fortune's Comm B board. We print this question from John Goergen in the hopes that one of our readers has had experience with a Comm B board with BSC 3270 protocol communicating with an IBM AS400. If you have any information about this, we would appreciate you contacting us or John at the address above.

The following question and answer appeared in SCI/Fortune's Front Line:

Question: *What are "priorities" as they pertain to the Motorola CPU?*

Answer: Part of the process of making the operation of the microprocessor less complex is the assignment of a priority to each device. Since the microprocessor is capable of executing only one instruction at a time, each function must be prioritized so that it can be serviced in a logical sequence. Generally, priorities are assigned to devices in relation to their data transfer speed and relative importance in the system. Slower devices usually are assigned a lower priority.

The fastest devices, such as the hard disk controller and CommB controller, are capable of transferring data directly to and from memory directly with their own on-board processors, and are called direct memory access or DMA devices. Bus arbitration circuitry on the motherboard determines which DMA device controls the bus, and therefore which one has access to memory. The microprocessor is assumed always to want the bus. Whenever the microprocessor and a DMA device contend for the memory, the arbitration circuitry allows both devices to share the bus, each transferring one byte at a time.

Dear Sir,

Many thanks for issue Vol. 5, No. 9 of /u/fortune news. As you will see when you flip through it, I appear to have been supplied with an identical "double issue." Much as I enjoy reading the articles, one copy of each will be quite sufficient in the future!

Many Thanks, Mr. T. Bingham (England)

P.S. Is this a new form of data backup?

Editor's Response: We must extend our apologies to Mr. Bingham and anyone else who received defective copies of the September issue of **/u/fortune** *news*. Due to a printing mishap, some of the pages were duplicated and some were missing. If you have received such a copy, please drop us a note and we will send you a complete copy.❑

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News From SCI/Fortune

As most of our readers know, SCI/Fortune is a division of SCI Systems, Inc. SCI Systems is a strong manufacturing company and has brought many assets to the production of SCI/Fortune products. The fact that SCI Systems is such a strong and established company has been recognized by many industry analysts. What follows is an excerpt from ***Alex. Brown & Sons*** *in a Purchase Recommendation of SCI stock. Established in 1800, Alex. Brown & Sons is one of America's oldest investment banking firms involved in the trading of common stock and the managing of public stock offerings. In support of their Purchase recommendation, the investment banking firm noted SCI's proven track record and predicted a profitable future for SCI's high-technology products and manufacturing services.*

The following is from the Purchase Recommendation:

We continue to recommend purchase of shares of SCI Systems, a rapidly growing supplier of high-technology products and manufacturing services, Headquartered in Huntsville, Alabama, the Firm has three main lines of business: contracting for the U.S. government, supplying microcomputers and peripherals to original equipment manufacturer (OEMs), and providing manufacturing services to the computer, telecommunications, defense, and medical equipment industries. The recent expansion of the size and scope of SCI's manufacturing has firmly established SCI as the *largest domestic supplier of electronic assembly services and one of the top five internationally.*

Founded nearly three decades ago as an engineering firm for early NASA projects, the Company grew at a measured pace before exploding in size and stature with the winning of substantial subcontracting business from IBM for the PC in 1982. The Company went through a growth spurt until fiscal 1986, when sales to IBM fell off during an industry-wide retrenching in the PC market. Since then, business with IBM has stabilized at a level substantially below its historic peak. *More than compensating for the drop-off at IBM has been the phenomenal growth in sales to a broad base of other firms.* During the past two years, non-IBM contract manufacturing has grown at a 110-percent compound rate and fueled 28-percent compound growth in sales.

After a flat comparison between fiscal 1985 and 1986, earnings per share have begun to to grow at an accelerating pace, registering increases of 15 percent in 1987 and 18 percent in 1988. Driven by the electronic industry's trend to subcontract manufacturing, SCI's sales continue to expand; aided by recent stability in DRAM pricing and the reduction of start-up costs from new plant, operating margins have begun to rise. With these favorable trends, earnings per share could advance more than 20 percent in 1989, to $1.14 on sales of $937 million, and return on equity could reach a four-year high. The stock currently trades at only 11.5 times our fiscal 1989 earnings estimate and at only 9.0 times our fiscal 1990 earnings estimate of $1.50...

Summary

SCI's management strength, rapidly growing sales, and improving profitability prompt us to reiterate our purchase recommendation for the stock. The strength of the secular trend toward contract manufacturing and SCI's preeminent position in that market create an extraordinary opportunity for investment.

We, at ***/u/fortune*** *news, enjoy hearing positive information about SCI/Fortune. If you have been following our comments over the past few months, then you know we have had some good news regarding new product offerings. Keep your eyes on* ***/u/fortune*** *news as we begin discussing the the Formula 4000 and the SCI/Fortune 5000.*❑

Selected Financial Data for SCI Systems, Inc.
(Years Ended June 30)

	1984	1985	1986	1987	1988E	1989E
Net sales (mils.)	$437.00	$538.00	$470.00	$553.00	$774.00	$937.00
Income before taxes (mils.)	20.3	23.0	22.3	20.0	26.7	33.6
Net income (mils.)	11.5	13.7	13.8	16.0	19.0	23.9
Earnings per share	$0.61	$0.67	$0.67	$0.77	$0.91	$1.14
Book value per share	3.97	4.78	5.53	6.39	7.27	8.41
Return on sales	2.6%	2.6%	2.9%	2.9%	2.4%	2.6%
Return on avg. com. equity	19.0%	15.6%	12.9%	12.9%	13.2%	14.6%
Number of employees	4,260	4,290	5,185	6,666	8,970	10,530
Facility sq. footage (thous.)	800	865	987	1,100	2,437	2,443
Sales per employee (thous.)	$103.00	$125.00	$91.00	$83.00	$86.00	$89.00
Working Capital (mils.)	$126.00	$140.00	$140.00	$234.00	$252.00	$266.00
Total assets (mils.)	$243.00	$262.00	$272.00	$436.00	$485.00	$566.00

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DataBasics - Our continuing series on Data Bases

How to Use Accell

by Richard Bilancia

I've been using the professional data processing products, the **Unify Relational Database Management System** (RDBMS) and the **Accell Integrated Development System** (IDS), from Unify Corporation for nearly seven years. During that time, I've had the opportunity to teach hundreds of other professional software developers how to use these same products. One fact that has become very clear is that the most difficult aspect of learning to use any of the database or fourth generation languages, including Accell, is just that—the learning curve. However, once the initial effort is made the productivity gains are so significant that there's no turning back!

In order to help you gain a better understanding of exactly how to use the Accell IDS, I've put together what can best be called a "quick start guide." This guide is not another tutorial, as tutorials must include far more features of a product than can be addressed in a short article, but rather a quick summary of the steps needed to create an Accell application.

The application that I'll build below is based upon a real world need to track sales history and invoices and contains two simple tables: a 'customer' table with name, address and cumulative sales to date; and an 'invoice' table with invoice number, date, customer, and amount. By no means is the application meant to be as complete as would be required in a real situation, but the application will show you the few steps required to build an application with the Accell IDS.

So let's get started. Assuming that the the Accell IDS has already been installed on your system, you can start using the Unify/Accell product by simply typing "**unify**" at any shell prompt.

When you create the application (the first time that you run one) you will first be queried with, "`Do you wish to create a new data dictionary?`" If you respond with a "no" then you'll be returned to a shell prompt. Otherwise you'll see the message "`Creating new data dictionary...`" quickly followed by a menu that looks somewhat like the following:

```
        ACCELL Main Menu

1. ACCELL/Environment
2. ACCELL/DBMS
3. User's Tutorial
4. Developer's Tutorial
5. Completed Tutorial Application
6. Operating System
```

The first step to take is to create an Accell Environment. This is done by simply typing a '1' followed by a **<Return>** at the "SELECTION:" prompt. Immediately you'll see the message, "`ACCELL Environment does not exist, do you want to create one? (y/n).`" If you type a "no" you will be returned to the menu, and if you type a "yes" you'll; then see the message: "`Creating ACCELL Environment...`" At this point several files and directories are automatically created so that the application development can proceed normally.

We must now name and describe the application. This is accomplished by first pressing the **<ZOOM>** key, entering the name on the application (which we'll call "**sanalysis**" for sales analysis), press the **<Return>** key to move to the application's description field, and then enter "`Sales Analysis Application`" as the description of the application also followed by the **<Return>** key.

Next the **<F9>**, or "Add/Update," key will save the entry we've just made, and you'll see "`Registering Application with ACCELL/DBMS ...`" Since we're now completed registering the application the **<F1>**, or "Previous Form," key should be pressed two times to return to the Unify menu and the "SELECTION:" prompt. At this point you should type the number '2' so that we can begin entering the database design. As soon as you do, you'll see the menu as shown here:

```
1. Design and Create a New Data Base
2. Create or Modify Screen Forms
3. SQL - Query/DML Language
4. Edit SQL or RPT Command Files
5. Add, Modify or Delete Menus
6. Data Base Design Utilities
7. System Administration
```

At this "SELECTION:" prompt type "1" followed by a **<Return>** to begin entering the database design. The design that I've used for the application is shown in the "DATA DICTIONARY REPORT" in figure 1. Rather than describe every key stroke used to enter this information, I'll leave that as an exercise to the reader.

As you now prepare to exit the "Design and Create a New Data Base" selection using a **Cntl-U**, you'll see the following message:

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Figure 1

```
DATE : 11/29/88  TIME : 04:27:42                          PAGE :   1
                    DATA DICTIONARY REPORT
                        Schema Listing

TABLE/FIELD          REF        TYPE     LENGTH  LONG NAME

customer         10                               customer
    *cukey                      NUMERIC      8    customer_number
     cuname                     STRING      35    customer_name
     cuaddr                     STRING      35    address
     cucity                     STRING      25    city
     custate                    STRING       2    state
     cuzip                      STRING       5    zip_code
     cusales                    AMOUNT      11    sales_to_date

invoice          100                              invoice
    *inkey                      NUMERIC      8    invoice_number
     indate                     DATE              invoice_date
     incust          cukey      NUMERIC      8    customer_number
     inamount                   AMOUNT       9    invoice_amount
```

While there are many optional ways to build an Accell IDS application, ranging from a completely menu driven approach to a completely shell level approach, I'll now demonstrate some of the utilities available at the shell level.

In order to do this, two environment variables, **UNIFY** and **PATH**, need to be set in accordance with the Accell Reference Manual suggestions. Also, assuming that you're using the Bourne shell set the **DBPATH** environment using the following commands:

```
DBPATH='pwd' ; export DBPATH
```

and the change your working directory with the following:

```
cd ../aclenv/sanalysis
```

```
You have now finished entering your data base design. If
you would like to automatically print the design, create
the data base, data entry screens and a menu, type 'y'.
Type 'n' to return to the menu. Proceed?
```

Unless you are changing the design of an existing database you will usually want to type a 'y' in response to the message. If you do, you'll next see the following four choice menu allowing you to specify exactly how much to do:

```
Print Data Base Design ?     [ ] Create Data Base ? [ ]
Create Data Entry Screens ? [ ] Create Menu ?       [ ]
Type 'y' to select an option, 'n' to ignore one.
```

At this point, I'd suggest an affirmative response to all four options.

After you fill in the last option, you'll see a query, "`Are these choices ok?`" giving you a last chance to verify your choices. When you type 'y' you'll next see,

```
A new, empty data base is about to be created. If you have
information in an existing data base, it will be lost. No one
else should be using the data base at this time.

PROCEED?
```

Assume that you type a 'y' to the query, you will shortly see the message, "`The data base file has been created. Hit RETURN to continue ->->,`" whereupon you should the the **<Return>** key and see the following two messages appear on the screen indicating the creation of the data entry forms.

```
Writing file ... customer.fq
 Writing file ... invoice.fq
```

Once the message "`The menu has been created. Hit RETURN to continue ->->`" appears, type the **<Return>** key followed by a **Cntl-U** to return to a menu, and then a **Cntl-D** to return to a shell prompt.

Next we need to add the choice of the two data entry forms, "customer" and "invoice," to the master application form. Doing this will automatically create a menu that will be presented to the operator during execution. We accomplish this by typing the command "`AGEN -a sanalysis`"; then pressing the **<F2>**, or "Next Form," key two times; then typing the two form names, "customer" and "invoice" each followed by the **<F9>**, or "Add/Update," key; followed by an **<F1>**, or the "Previous Form," key; then an **<F9>**, or the "Add/Update," key; then an **<F1>**, or the "Previous Form," key; then an **<F9>**, or the "Add/Update," key; and finally the **<F1>**, or the "Previous Form," key to exit the application.

Next, since we'll shortly be adding some Accell language to the "invoice" form to automatically maintain the proper "sales_to_date" balance, we need to make sure that the "sales_to_date" field can not have its value changed through data entry directly in the "customer" form. To accomplish this, we simply type the command, "`AGEN customer`," then position cursor on the "sales_to_date" field the press **<F11>**, or the "Add Field," key, change the field labeled "Stop for Input" to NO, and then press the following function keys to

Figure 2

```
/*****************************************
**       sanalysis.as
*
*       APPLICATION:    sanalysis
*       DESCRIPTION:
*       AUTHOR:
*       DATE:
*       REVIEWER:
*       MODIFICATION HISTORY:
*       Date    Author  Description
*
*****************************************/

application sanalysis

required forms
        customer        in      'sanalysis.fa',
        invoice         in      'sanalysis.fa'
```

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save the changes and return to a shell prompt: **<F9>**, **<F1>**, **<F9>**, and **<F1>**.

When we created our Accell Environment the system automatically created a master application language script, called "**sanalysis.as**." That master application script now needs to be modified to include the two forms for our database. To accomplish that change, I've already added the last two lines to the "sanalysis.as" file shown in figure 2 on the previous page.

Other than these last two lines, the file is exactly as created by the system. I strongly suggest that when you begin using the system for actual application development that the heading comment and documentation fields be regularly maintained.

Approaching the completion of the application, we must create the "**customer.fs**" and "**invoice.fs**" language files. The "customer.fs" one line file simply identifies the form name and corresponding database table name.

The "customer.fs" file:

```
FORM customer TARGET_TABLE customer
```

The "invoice.fs" file, shown in figure 3, contains two code segments that warrant some discussion.

As you can probably see, Accell code is non-procedural and event driven. The first code section, starting with "FIELD customer_number" "INIT FIELD" is all that is required to implement Accell's famous "**ZoomView**" feature. "ZoomView" is typically used to look up master code (key) information from a related table when the master code (key) is not readily known. In this case, the language will allow the operator to call up the "customer" form from within the "invoice" form to do a query by forms look up on the the records in the "customer' table.

The second code sections "FIELD invoice_amount" "BEFORE FIELD" and "AFTER FIELD" are used to illustrate Accell's ability to retrieve and update information in related tables using SQL-like language. In this particular example, I've used BEFORE and AFTER FIELD logic to properly maintain the appropriate "sales_to_date" balance in the "customer" table whenever the corresponding record in the "invoice" table is modified.

At this point, after making and saving the above changes in the script files, you need to type '`makeamake`' which is an Accell utility to make the necessary 'makefile.' As soon as the 'makefile' is created, type '`make`' to compile, link and load the application.

As soon as the application compiles without and errors, run the application by typing "`AMGR sanalysis`."

To test the application, you probably want to enter some 'customer' records, and then some 'invoice' records. You can exit the application with a **Cntl-C**.❑

Rich Bilancia is Vice President and co-founder of Colorado-based Foothills Software, Inc., a software house that remarkets a wide variety of vertical applications written with the Unify RDBMS and Accell IDS. He can be reached at:
P. O. Box 620127
Littleton, Colorado 80162
(303) 933-1790

Figure 3

The "invoice.fs" file

```
FORM invoice TARGET_TABLE invoice

FIELD customer_number
  INIT FIELD
    ENABLE ZOOM TO customer RETURN KEY

FIELD invoice_amount

  BEFORE FIELD
    SET tmpval TO SELECT #sales_to_date FROM customer
      WHERE #customer_number = customer_number

    UPDATE customer SET #sales_to_date TO tmpval - invoice_amount
      WHERE #customer_number = customer_number

  AFTER FIELD
    SET tmpval TO SELECT #sales_to_date FROM customer
      WHERE #customer_number = customer_number

    UPDATE customer SET #sales_to_date TO tmpval + invoice_amount
      WHERE #customer_number = customer_number
```

The following information about Accell was provided by Unify. Accell will currently run on the Formula class of SCI/Fortune computers.

Accell/Generator

Accell/Sql's powerful generator produces up to 80% of most business applications with interactive, visual tools that allow you to complete repetitive programming tasks as fast as possible. The Accell/Generator offers a fill-in-the-blanks approach to field and form definition to give you complete control over the screen appearance including the size, shape and location of windows as well as field type and length.

The Accell/Generator removes the limitations of conventional tools so you can create the most colorful, user friendly applications imaginable. And unlike other application generators, the Accell/Generator is completely integrated with a full-featured 4GL, providing the highest level of productivity and power for solving any programming challenge.

Accell/4GL

Accell/4GL, the powerful, full-featured 4GL that integrates and complements the Accell/Generator, is especially well suited to screen intensive applications. Characterized by a straightforward, natural language selection of keywords (or commands), the Accell/4GL's intuitive style and event-driven structure reduces development time by a factor of 10 over traditional 3GL's.

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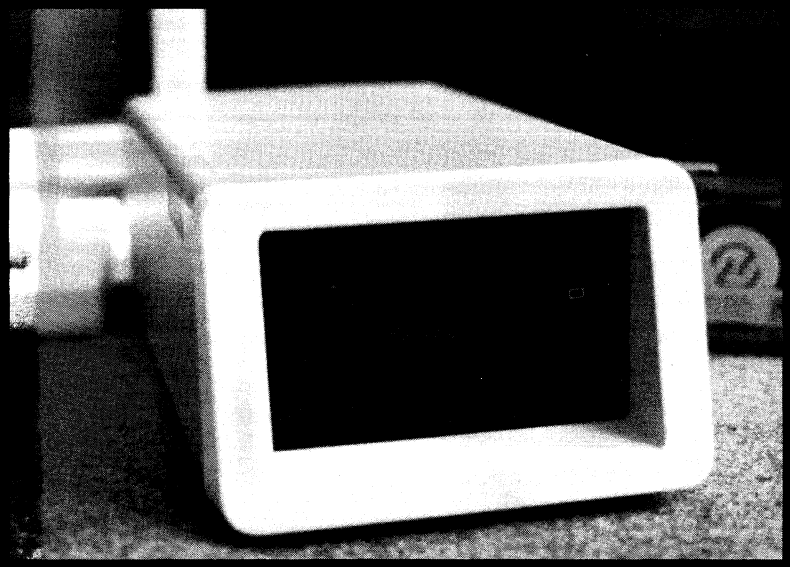

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/u/fortune* news

The Newsletter for Users of SCI/Fortune Computers December 1988/Volume 5 Number 12

Tactician & Ezgraf

```
ENTER:  data,    / (worksheet commands)     . (external commands)     = (go-to)
                 ; (alternate window)       ! (recalculate)           ? (help)
D3(NMBR)=10
    : - A - -: - B - -: - C - -: - D - -: - E - -: - F - -: - G - -: - H - -
   1 Plums     Bananas  Oranges  Apples
   2       10       30      -10       20
   3       30       15       20[      10]
   4
   5
   6
   7
   8
   9
  10
  11
  12
```

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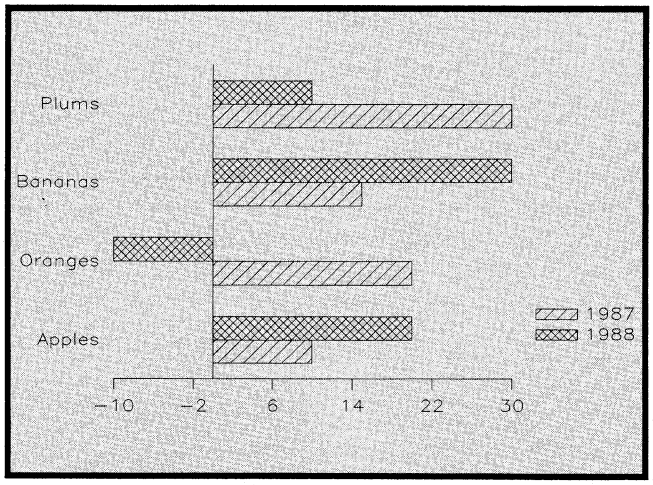

PLUS MORE...

- Year End Index of /u/fortune news
- System Administration - the /sa directory
- BASIC Advisor - Good news about 6.5.12
- DataBasics - Informix SQL

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/u/fortune *news* is published 12 times per year by The Cambridge Consortium, Inc. Neither **/u/fortune** *news* nor The Cambridge Consortium are affiliated with Fortune Systems/SCI Technology, Inc.

Subscriptions cost $60 for one year within the U.S.A. For foreign subscriptions, add $27 each year for added postage and handling costs.

Back issues are offered at:

Vol 1, Numbers 1 - 3	$1/each
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Page 11 — **Tactician and Ezgraf**
We review these two new offerings from the folks at Southwind. Tactician is a spreadsheet and Ezgraf is a graphics program. These programs were found to work well and their particular strenght was how well they work together.

Page 14 — **DataBasics: Informix SQL**
This article presents an overview of Informix SQL and presents some simple programs.

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A call for printcaps and some pithy and helpful pointers from one of our subscribers.

Page 17 — **Index**
We present an index of all the topics that have appeared in /u/fortune news this year.

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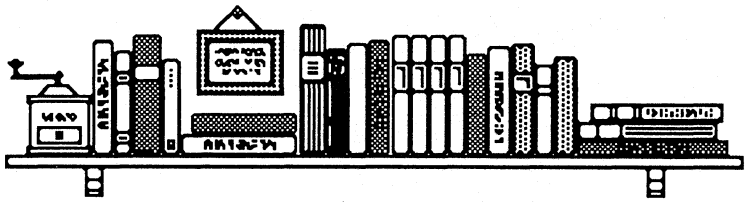
The BASIC Advisor



The BASIC Advisor is brought to us from Ray Wannall. Ray is President of BaSiC Software Corporation which is located in Baltimore, Maryland.

Question: *In the past your readers have submitted several complaints about this 6.5.12 BASIC from the Thoroughbred people?. I'm sure there are good points as well. How about it?*

Answer: We do seem to follow real life trends here. We never hear about things going right, just problems. So I agree. Let's break the pattern, if for just one month, and have an "up" article for a change.

The primary advantage for programmers with 6.5.12 is the addition of five more channels for I/O operations (numbers ten through fourteen). This is especially handy when you must plug in access to a new file in an existing program written under an earlier version of BASIC. There is no need to search the program for an unused channel, or, worse, find a variable to use for the "FID" of an existing channel which must be closed and reopened after the new file access. I will add, however, that you should thoroughly test these new channels before you sit back and count the three hours worth of fee you collected for fifteen minutes work. Scuttlebutt around Concept Omega suggests that some of these channels, such as channel ten, may be flaky. I have always confined my I/O's to nine channels or less, so I have no first hand experience. But I know that some of my readers would use fifty channels if they were available. So just be cautious.

The new BASIC also provides three new predefined mnemonics which can conserve programming strokes. 'RC' yields the keyboard message ", RETURN TO CONTINUE" and 'RM' gives you "RETURN TO CONTINUE" (sans comma). 'YN' may be used to display "? (Y/N)". In addition, you can define your own mnemonics. We'll discuss more on this shortly.

The most obvious new feature is the addition of the "*NPSD" utility called the "TERMINAL CONFIGURATOR". This one's a peach. With the purchase of 6.5.12 BASIC you received a direct file called "TCONFIG" which is used by the *NPSD utility to keep track of terminal types and assignments. This file originally contained forty terminal definition records and one assignment record (with a key of eight spaces). Each terminal definition tells BASIC things such as hex codes to be transmitted, number of function keys available, how and which mnemonics are interpreted, etc. The one assignment record contains the terminal codes for each port. When shipped, T1 through TF are defined as "FORTUNE" terminals, and TV through TZ are "COMM", or communications ports.

With all of this in mind, let's play around with *NPSD and see if we can mess things up. Go into the Thoroughbred BASIC Utilities menu by entering UTL <CR> (Carriage Return) at any Business Accounting menu or by running "**" or "*PSD" from the BASIC prompt. First, just to be safe, go into the *TPSD, FILE TRANSFER AND EXPAND, utility and make a copy of TCONFIG. You can <CR> through all new parameter questions and enter the new file name XCONFIG when asked. This will provide us with a backup of the original TCONFIG in case we manage to totally destroy it. (If it becomes necessary later, you can restore TCONFIG by running *EPSD, ERASE PROGRAMS/FILES, and erasing TCONFIG, then running *DPSD, RENAME PROGRAMS/FILES, and renaming XCONFIG to TCONFIG.)

Now for the fun part. Way back in the early days of Fortune Systems we found Technical Tip number 9.1 which told us how to implement various screen control/attribute settings on our Fortune Terminals through BASIC. Included were Begin Blink ('ES',$4E$), End Blink ('ES',$5E$), Begin Underline ('ES',59), End Underline ('ES',$5A$), Begin Reverse Video ('ES',48) and End Reverse Video ('ES',49). In our debut column of October, 1985 (Volume 2, Number 5), we showed how to incorporate these features into Business BASIC coding. Today we will create new mnemonic codes to replace the cumbersome 'ES' plus hex code which no one remembers. To make coding easier, we will use 'BB' and 'EB' for Begin Blink and End Blink, 'BU' and 'EU' for Begin Underline and End Underline, and 'BR' and 'ER' for Begin Reverse and End Reverse Video. We will accomplish all of this with *NPSD.

From the Thoroughbred BASIC Utilities menu select the number for *NPSD, TERMINAL CONFIGURATOR and

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<CR>. For some reason the system will ask you to enter a carriage return, so press <CR> again. (I assume this was done just to aggravate us.) You will see a menu with three selections: 1. Modify Terminal Tables, 2. Modify Terminal/ Model Code Configuration, and 3. Load Table into Terminal. From this point on, your function keys are disabled. The only way to respond to a Y/N question is by entering either Y <CR> or N <CR>. And to end at any point, you must specifically type in END <CR>. Function key four will not work.

Select number one, Modify Terminal Tables, and press <CR>. The list of forty tables is displayed and you are asked to, "3. C-CREATE, M-MODIFY, D-DELETE, L-LIST TABLE". (Notice that all questions are numbered.) We want to modify the table for FORTUNE, so enter M <CR>. At the next question, "4. ENTER TERMINAL TABLE:", you may type in FORTUNE <CR>.

Question five is applicable for creating new tables only, so next we see, "6. ENTER TERMINAL NAME (20 CHARACTERS MAX)". From here on we can press <CR> to apply the previously entered value in response to each question. The default value will be displayed as each question is asked, and for questions 6 through 18 you may press <CR>. (Default values also may be used in response to any "subquestions" such as 14.1, 14.2, 16.1, etc.)

After you have acknowledged question 18 (Number of Nulls for Screen Roll), a list of all defined mnemonics for your terminal will be displayed. Examine this list carefully! The mnemonics we are about to define should not appear. If you see BB, EB, BU, EU, BR or ER in the list, do not redefine the mnemonic! Otherwise, at the prompt, "19. ENTER MNEMONIC CODE MM", you should enter BB <CR>. You will then need to respond to the following five "subquestions":

19.1 ENTER CODE TO BE TRANSMITTED TO TERMINAL. We know from Technical Tip 9.1 that you Begin Blink on the screen by entering 'ES',$4E$. The 'ES' mnemonic on a Fortune terminal represents hex character 1B, and hex 4E begins the blink. Therefore, the code to be transmitted will be $1B4E$. We should enter $1B4E and <CR>. The trailing dollar sign is not used in this utility.

19.2 ENTER NUMBER OF NULLS TO TRANSMIT AFTER CODE. Fortune terminals do not require a delay after commands, so enter 0 (zero) and <CR>.

19.3 ENTER CURSOR UPDATE CODE. The position of the cursor on the screen should not be affected by the Begin Blink command. Enter a 0 (zero) and <CR>.

19.4 ENTER SPECIAL EDIT CODE. No special edit is required, so, again, enter 0 <CR>.

19.5 ENTER FOREGROUND/BACKGROUND CODE. The status of the foreground/background is not altered by beginning a blink area, so the code to enter is 0 <CR>.

The program now takes us back to "19. ENTER MNEMONIC CODE MM". If you wish, you may enter TABLE <CR> to redisplay the list of defined mnemonics. BB should be included. Next we must define the rest of the new mnemonics for End Blink, Begin Underline, End Underline, Begin Reverse and End Reverse:

```
19   MNEMONIC CODE:              EB      <CR>
19.1 CODE TO BE TRANSMITTED:     $1B5E   <CR>
19.2 NUMBER OF NULLS:            0       <CR>
19.3 CURSOR UPDATE:              0       <CR>
19.4 SPECIAL EDIT:               0       <CR>
19.5 FOREGROUND/BACKGROUND:      0       <CR>

19   MNEMONIC CODE:              BU      <CR>
19.1 CODE TO BE TRANSMITTED:     $1B59   <CR>
19.2 NUMBER OF NULLS:            0       <CR>
19.3 CURSOR UPDATE:              0       <CR>
19.4 SPECIAL EDIT:               0       <CR>
19.5 FOREGROUND/BACKGROUND:      0       <CR>

19   MNEMONIC CODE:              EU      <CR>
19.1 CODE TO BE TRANSMITTED:     $1B5A   <CR>
19.2 NUMBER OF NULLS:            0       <CR>
19.3 CURSOR UPDATE:              0       <CR>
19.4 SPECIAL EDIT:               0       <CR>
19.5 FOREGROUND/BACKGROUND:      0       <CR>

19   MNEMONIC CODE:              BR      <CR>
19.1 CODE TO BE TRANSMITTED:     $1B48   <CR>
19.2 NUMBER OF NULLS:            0       <CR>
19.3 CURSOR UPDATE:              0       <CR>
19.4 SPECIAL EDIT:               0       <CR>
19.5 FOREGROUND/BACKGROUND:      0       <CR>

19   MNEMONIC CODE:              ER      <CR>
19.1 CODE TO BE TRANSMITTED:     $1B49   <CR>
19.2 NUMBER OF NULLS:            0       <CR>
19.3 CURSOR UPDATE:              0       <CR>
19.4 SPECIAL EDIT:               0       <CR>
19.5 FOREGROUND/BACKGROUND:      0       <CR>

19   MNEMONIC CODE:              END     <CR>
```

Remember that to exit you must type END <CR> rather than <F4>. This brings us to question 20, "SAVE NEW TERMINAL TABLE (Y/N)". Enter Y <CR> to exit the utility and save the new mnemonic definitions. You will go back to the Thoroughbred BASIC Utilities selector.

Before we can try our new mnemonic commands it will be necessary to load the new table into our terminal. If you are the only user in any of the BASIC selections on the Global Menu, you are using terminal T0. If others are in Business Applications, IDOL, Business Training, Business Surveys or the BASIC Language selection, you need to determine your terminal identification. To do this, go to the BASIC Console mode (usually number 20 from the utilities selector). At the BASIC prompt enter PRINT FID(0) <CR>, and the system will respond with your terminal number (T0, T1, T2, etc.)

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Then enter RUN "*NPSD" <CR> to go back into the Terminal Configurator. At that menu, select number 2, "MODIFY TERMINAL/MODEL CODE CONFIGURATION" and <CR>. Look over the display of terminal identifications and model codes from the terminal table to verify that your terminal (T0, e.g.) is defined as FORTUNE. If it is, type in END <CR> to move along to the next selection. Otherwise, if you are not using a Fortune Terminal, you should not have followed these instructions. (Shame on you! Go back and erase TCONFIG and rename XCONFIG!)

Now at the Terminal Configurator Menu, enter 3 for "LOAD TABLE INTO TERMINAL" and press <CR>. The system will ask the next numbered question, "25. ENTER MODEL CODE TO LOAD (CR=FORTUNE)". Hit <CR> to load the table. Back at the Terminal Configurator Menu you may exit to the Thoroughbred BASIC Utilities selector with END <CR>, and it is time to try out the new mnemonics.

Get yourself back into the BASIC console mode, and at the prompt enter the following command and <CR>:

```
PRINT "UPDATING FILES ",'BB',". . . ",'EB',
```

The computer will print the message UPDATING FILES . . . with the three periods flashing. Now try these:

```
PRINT "THE WORD ",'BU',"UNDERLINE",'EU'," IS
UNDERLINED"

PRINT "THE WORD ",'BR',"REVERSE",'ER'," IS IN
REVERSE VIDEO"

PRINT 'BR','BB',"THIS IS A BLINKING REVERSE
VIDEO LINE",'EB','ER'

PRINT 'SB','BR',"THIS IS A REVERSE VIDEO LINE
IN BACKGROUND MODE",'ER','SF'
```

You may combine the new mnemonics with each other and/or with previously defined mnemonics ad nauseam. To exit the console mode, type in RUN "DOL" <CR> or RUN "**" <CR>.

In preparing this article I noticed one glaring mistake in the documentation. I quote from the technical bulletin provided with the new Business BASIC book:

"The Thoroughbred BASIC utilities do not automatically return to the calling selector when accessed from Fortune / SCI's Business Applications, they return to the Thoroughbred BASIC Utilities menu. Users of the Business Applications should be instructed to enter IDOL at the ENTER SELECTION OR CR TO END prompt."

If you enter IDOL at this prompt, you will get the message "INVALID SELECTION". Unlike every other computer system in the universe, on the Fortune you must enter DOL rather than IDOL. Doesn't that figure?❑

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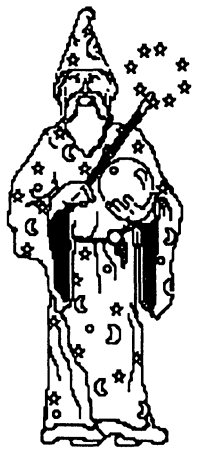
System Administration: Part 20

No Longer Requires a Degree in UNIX Wizardry



This series is a must for all owners and users of the Fortune computer. Dave is President of UNI-KOMP which is located in Houston, Texas. He provides UNIX seminars, software for the Fortune Computer, and is past president of the Houston UNIX User's Group. He contributes independently to ***/u/fortune news.***

by Dave Kloes

We hope you all had a safe holiday and brought in the New Year in style. On the subject of the passing of time, it reminds me of a teacher I had in high school (a long, long time ago?). She had a circle cut out and put it over the the clock in her room. Whenever you looked up at the clock, instead of seeing the time, you saw a message that said "Time will pass, will you??". Well, time does pass quickly and we are nearing the end of our discussion of the various directories found in For:Pro. In this issue, we will be discussing the "**/sa**" (short for "standalone") directory.

There are only two files in the "/sa" directory - "**boot**" and "**reconf**". The "boot" file is a standalone program that starts up the system when the power is turned on. The "reconf" program is also a standalone program that allows you to save system parameters in volatile memory (temporary) or non-volatile memory (permanent). Volatile memory goes away when the system goes off.

In order to fully understand how these two programs work, we need to discuss the procedures for accessing these parameters at system startup time. The parameters can also be changed using the "/etc/uconf" command while the system is running.

To access the configuration menus, you must start up your machine while holding down the **CANCEL/DEL** key. You will see one of two things depending on the version of the motherboard MOMROM chips you have in your system. Figure 1 shows one of the possible menus you might see.

This menu is referred to as the "Maintenance Menu". We normally access this menu to change a configuration parameter or because we want to "cold boot" the system from diskette to diagnose a problem. By depressing the appropriate function key F1 through F9, we can change a parameter and read or save EAROM settings. We would not advise that you play around with the settings in this menu unless you understand what you are doing. Here is a brief explanation of what each of these items are used for:

F1 - baud rate for the keyboard port - do not change.
F2 - baud rate for the SIO (middle port). Can be changed. If you have a printer or terminal connected to this port, for example, you would set the baud rate here.
F3 - defines power up action. Not normally changed.
F4 - defines boot device. Hard or floppy disk to boot from.The default is WD Boot, Drive 0. Can be toggled to Floppy, Drive 0 to boot the system from Cold Boot #1.
F5 - Defines boot program. Usually 0. Not normally changed.
F6 - Type of floppy drive - Tandon - Shugart.
F7 - Defines boot file name. Can be changed. Default is hd02/unix. For example, fd02/unix would be used to boot from Cold Boot #1.
F8 - reads current settings stored in EAROM.
F9 - saves settings on screen into EAROM.

The message at the bottom of the screen indicates how many times settings have been saved into EAROM. Once the desired settings have been made, you would press the EXECUTE key to continue. You can also depress the HELP key for additional help.

The two most common reasons we would access this menu would be to (1) change the SIO (usually a printer is attached here) port speed or (2) to boot from a diagnostic or cold boot diskette to diagnose some system problem. Here are the steps for changing the SIO or back port speed:

1. Power up the system while holding down the CANCEL/DEL key.
2. Depress the "F2" key to access the "Change back port speed" parameter.
3. Depress the space bar until the desired speed is dis-

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Figure 1

```
F1  Change front port speed      2400
F2  Change back port speed       9600
F3  Change power-up action       Boot up
F4  Change boot device           WD Boot,Drive 0
F5  Change boot program number   0
F6  Change floppy drive 0 type   Shugart
F7  Set boot file name           hd02/unix
F8  Read settings from EAROM
F9  Save settings from EAROM

EXECUTE
HELP

Type any highlighted key

EAROM has been changed x times
```

played.
4. Depress the "F9" key to save the new setting.
5. Depress the "EXECUTE" key to startup the system.

We can access the "Reconfiguration Menu" (which we will discuss further on) by either booting from the "reconf" file on the hard disk of the "reconf" file on our Cold Boot #1 disk. You should be able to see now what the "/sa/reconf" file that we discussed earlier is used for. Obviously, the "reconf" stands for "reconfigure". Here are the steps for getting to the Reconfiguration Menu:

1. Power up the system while holding down the CANCEL/DEL key.

2. If you want to boot up using the "reconf" file on the floppy disk, depress the "F4" key and change the "boot" device to Floppy drive 0. If you want to boot up using the "reconf" file on the hard disk, "F4" does not have to be changed.

3. If you want to boot up using the "reconf" file on the floppy disk, depress the "F7" key and set the "boot file" name to "fd02/sa/reconf". If you want to boot up using the "reconf" file on the hard disk, set the "boot file" name to "hd02/sa/reconf".

4. Depress the "EXECUTE" key to display the Reconfiguration Menu.

We will talk about the Reconfiguration Menu after we discuss the second type of screen you may see we discussed earlier.

The newer Fortune systems or systems that have the most current MOM ROM chips will display an "icon" menu rather than the menu we showed you above. That screen would look something like Figure 2.

Note that the arrows at the bottom are not actually displayed but are displayed so that we can give you a proper reference. Because this screen is a bit more complicated to use than the previous screen, we won't go into great detail on it other than to tell you how to get to the Reconfiguration Menu from either the hard disk or the Cold Boot #1 floppy. In any case, any of the parameters that can be changed from the Maintenance Menu can also be changed on the Reconfiguration Menu. To access the Reconfiguration Menu using the "reconf" file on the hard disk:

1. Power up the system while holding down the CANCEL/DEL key.

2. The cursor should be positioned where the arrow shows the hard disk portion on the display when the Icon Menu appears. Depress the EXECUTE key and enter "hd02/sa/reconf" and depress the 'EXECUTE" key again.

To access the Reconfiguration Menu using the "reconf" file on the floppy disk:

1. Power up the system while holding down the CANCEL/DEL key.

2. The cursor should be positioned where the arrow shows the floppy disk on the display. Normally the cursor will be positioned under the hard disk arrow when first displayed. Depress the <RETURN> key until it is under the picture of the floppy drive. Depress the "EXECUTE" key and enter "fd02/sa/reconf" and depress the "EXECUTE" key again.

Regardless of the what your first screen looks like, the Reconfiguration Menu will look like Figure 3.

Note that many of these parameters will be different for your particular system. Here is a brief description of each of the parameters:

Language - language to be used for error messages, the menu system, and multilingual programs.

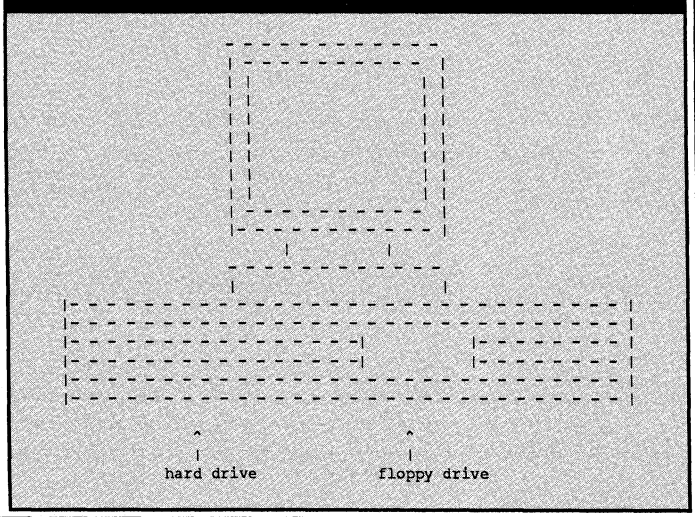
Root Device - the device which contains the root file system. Usually hd02.

Swap device - the device which will contain the swap space for the operating system, usually hd01.

Boot file - the boot file name. Usually "hd02/unix". To boot from a floppy disk, it would be "fd02/unix".

Boot drive # - which drive contains the boot program: 0, 1,

Figure 2



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2, or 3. Normally 0.

Boot Device - which device contains the boot program: SLOT E, floppy, etc. Usually SLOT E.

Boot Program # - several boot programs can exist on a specific drive. This parameter defines which program will be used.

Power up action - the process the machine will perform when it is first powered up. BOOT will load the program pointed to by the other boot parameters shown. MENU will display the Icon maintenance menu. MONITOR will cause the system to go into MomRom monitor mode. This mode is not used for normal system operation.

Console location - which device on the system will receive system error messages.

Console Type - the type of terminal attached to the console port. Usually FT.

TTY00 port speed - the speed of the keyboard port. Set to 2400.

TTY01 port speed - the speed of the SIO port.

Flex Drive #1-#4 - the type of floppy disk drive

Max process size - maximum process size allowed by For:Pro. Must be set to the largest process size required by any application program to be run on the system.

Approximate # of users - enter the maximum number of users expected to use the system concurrently.

Set params Auto - If "yes", the operating system parameters are set automatically.

Number buffers, inodes, files, clists, processes, ptys - these parameters define the size and structure of For:Pro operating system tables. Defining these parameters effectively requires an intimate knowledge of FOR:PRO. If these parameters are not set properly, the system may not operate, or will operate inefficiently. If "set parameters auto" is yes, these values are calculated from internal variables in the operating system. If "set parameters auto" is no, these values may be manually entered.

Timezone - set to your specific timezone.

Daylight savings - indicate whether daylight savings time is observed.

Line Frequency - AC power line frequency.

Hex Number - diagnostic error pointer. Leave at FFFF.

Usually, the only parameters that we need to change are boot file, tty01 port speed, maximum process size, approximate number of users, timezone, and daylight savings.

Note that the amount of memory and memory usage are displayed on the screen. The function key selections F1-F5 at the bottom of the screen can be used as follows:

F1 - will save the current settings into EAROM

F2 - will read the current setting from EAROM

F3 - will give you a "boot:" prompt to indicate how you want to continue with the system startup. This is usually used for diagnostic tests.

F4 - will restart the system using the current screen data.

F5 - will boot from flexible disk. We will talk more about this option when we discuss the "Cold Boot Procedure" in a future article.

In the normal course of operation where you have a need to change one of these parameters, you would:

1. Cursor to the parameter that needs to be changed.
2. Toggle to the correct value.
3. Depress "F1" to save the value.
4. Depress "F4" to continue with system startup.

The Reconfiguration Menu can be accessed directly from FOR:PRO while the system is running by logging is as "root" and executing the "/etc/uconf" command. The menu is the same as above except that there are only three function key selections at the bottom of the menu. Also, changes made while the system is operating are not recognized until the system is shutdown and restarted.

Some of the material presented above is taken from the Fortune Hardware Maintenance Manual (let's give credit where credit is due).

Well, we've probably given you enough to chew on till next time. In the next issue, we will talk about the "/tmp" and "/u" directories.❑

Figure 3

```
                    System Configuration Menu

        Language = ENGLISH          Max process size = 512
     Root device = hd02             Appx. # of users = 3
     Swap device = hd01             Set params auto? = YES
       Boot file = hd02/unix          Number buffers = 200
    Boot drive # =  0                 Number inodes = 200
     Boot device = SLOT E               Number files = 127
  Boot Program # =  0                   Number texts =  15
 Power up action = Boot                 Number clists =  50
Console location = CRT                Number processes =  30
    Console type = FT                      Number ptys =   0
TTY00 port speed = 2400                       Timezone = CENTRAL
TTY01 port speed = 9600               Daylight savings = YES
   Flex drive #1 = SHUGART              Line frequency = 60
   Flex drive #2 = SHUGART           Floating point? = YES
   Flex drive #3 = SHUGART                 Hex number = FFFF
   Flex drive #4 = SHUGART

  Total primary storage = 1024K; programs are using 361K of
                          628K available
               EAROM has been changed xx times

F1 STORE SCREEN DATA IN EAROM   F2 READ CURRENT EAROM SETTING
F3 CONTINUE WITH SYSTEM STARTUP F4 RESTART WITH SCREEN DATA
                    F5 BOOT FROM FLEXIBLE DISK
```

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Joyous Greetings and Best Wishes for the New Year.

As everyone's thoughts turn towards home and family this time of year, we want to take the opportunity to extend our warmest wishes to you and yours.

We want to remind you to feel free to contact us if we can ever help you with any of your computer needs.

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Hardware or Software problems.
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Product Review

Tactician and Ezgraf:

Numbers and Pictures Working Together

In recent months SCI/Fortune announced the availability of a new spreadsheet called **Tactician**, a mid-level graphics program called **Ezgraf** and a high-end graphics program called **Grafsman**. These programs were developed by **Southwind Software Corporation** located in Wichita, KS. SCI/Fortune has sent us evaluation copies of these programs so that we could use them and report to our readers how they work.

This particular article will discuss Tactician and Ezgraf. A future article will focus on the high-end graphics package called Grafsman. Also, this article will focus on 1) how these products work and 2) how Tactician compares with **Multiplan**. Finally, it should be noted there are other spreadsheet programs available for SCI/Fortune hardware. A future article will compare these spreadsheets.

I have been using these products on both our 32:16 computer (with 2MB of memory) and on an SCI/Fortune Formula 4000 (with 5MB) of memory. Although this article will not compare performance across machines, I must say that working with the Formula 4000 is a true pleasure - especially due to its speed. The speed of these products on our 32:16 is quite adequate.

Spreadsheet/Graphics Combination

The first thing that we should point out is that these products are not stand-alone programs. That is, Tactician and Ezgraf (and Grafsman, for that matter) were designed to work in concert and this is where their strength lies. It is true, you *can* use Tactician simply as a spreadsheet, and as such it has many more powerful features than Multiplan though it tends to be a bit slower, or you can use Ezgraf simply as a graphics tool. However, Southwind has designed these products so that the whole tends to operate at a higher level than simply the sum of its parts. For example, it is literally under 10 keystrokes to take some data in a Tactician spreadsheet and have it graphed on an output device of your choice - but more on that later!

Since these two products were designed to be used together that is what I did. In the course of preparing for this article, there were times when I used the spreadsheet capabilities without using the graphing capabilities but there was never a time when I used Ezgraf without using Tactician. (Again, I note, it *is* possible to use Ezgraf on its own).

Tactician looks and feels more like Lotus 1-2-3 than Multiplan. This is obvious in the initial screen where the menu is at the top and the columns are designated by letters. Thus, the first cell in the spreadsheet is designated **a1** instead of **R1C1**. Like Lotus, the main menu is accessed by typing a slash (/). To access a range of cells, you would type **a1..a20** instead of **R1C1:R20C1**. There are other similarities to Lotus but we won't chronicle them here. And, of course, there are many differences. I do not believe Southwind attempted to make a Lotus look-alike spreadsheet but I did want to point out that the feel of this program will be more like Lotus than Multiplan.

Tactician is provided with a translating program that is capable of handling Multiplan SYLK files, Lotus spreadsheets and Software Arts DIF format. We tested this program on several Multiplan files and all except one translated without flaw. This flaw was caused by the named cells in the original Multiplan spreadsheet - once these names were changed, the translation proceeded without a hitch.

As an aside, I can say that the technical staff at Southwind were very helpful and prompt when responding to my questions and when returning my phone calls. An updated version of one utility was shipped to me overnight so that I could continue with my review. All in all, I give Southwind very high marks on their technical help.

Functionality Improvements Over Multiplan

As a spreadsheet, Tactician has several functional advantages over Multiplan for SCI/Fortune products. First, Multiplan has a maximum capacity of 255 rows by 63 columns and the maximum size of the spreadsheet is under 60k. Tactician, on the other hand, allows 1024 rows by 1024 columns and the maximum size of the spreadsheet is limited by your process size. We have generated spreadsheets that are 4 times the maximum Multiplan limit.

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Figure 1

Functions in Both Tactician and Multiplan
abs - absolute value
and - logical and
atan - arctangent
avg - average
cos - cosine
count - count items
exp - e to the (x) power
false - logical false
if - logical if
int - integer
iserr - logical if (match error)
isna - logical if (match N/A)
len - returns length of a text stirng
ln - natural logarithm
log - logarithm (base 10)
lookup - lookup and substitute value
max - maximum value
mid - returns portion of a text string
min - minimum value
na - not available
not - logical not
npv - calculate net present value
or - logical or
pi - value of pi
round - rounded value
sin - sine
sqrt - square root
std - returns standard deviation
sum - returns sum
tan - tangent
true - logical true

Functions in Tactician Only
acos - arccosine
asin - arcsine
choose - select and return a value
corr - correlation coefficient
date - date in MM/DD/YY format
deg - degrees
e - natural logarithm base
err - error
freq - # of occ. of a given range of values
fv - future value of annuity
jdate - returns date in modified Julian notation
lsq - returns the least square of values in range
pmt - returns mortgage payments
pv - returns present value of annuity
rad - value in radians
today - returns today's date
var - returns variance

Functions in Multiplan Only
Column - returns number of current column
delta - max. chg. in values
dollar - create text string with dollar format
fixed - creates text string in fixed format
index - returns value at the intersection
of the specified row and column
itercnt - returns #N/A during normal recalculation
mod - returns remainder of division
rept - repeats a text string
row - returns row number
sign - returns number representing sign
value - returns value contained in text

Another big improvement is the ability to write **macros**. In essence, macros allow you to program some very fancy things in the spreadsheet. Macros are very similar to glossaries in Fortune:Word - difficult and time consuming tasks can be automated.

Then there is the related and very useful feature of function-key programmability. Tactician allows you to program 10 function keys. This allows you to accomplish some of your most used key-stroke sequences with literally the push of a button. For example, the key-stroke sequence to save the current spreadsheet is:

```
.s<CR>fy
```

This may look funny, but like Multiplan, these key-strokes are the responses to various questions that Tactician asks you before it will save the spreadsheet. With the function-key programming capacity you can assign the above sequence to any function key and then to save the sheet, you simply hit that function key!

Tactician also incorporates hooks into the major Data Bases that are available for SCI/Fortune hardware. Tactician is able to access and pull data from the following data bases: **Progress**, **Informix**, **Unify** and **Ingres**. In addition, for the first three, you can even interactively query the data bases.

On a more general note, Tactician allows you to load in data from an ascii file or even from any Unix command that generates ascii data. This is accomplished with the **Input** command which allows you to specify the field delimiter so that the data that you pull into the spreadsheet will go into separate cells.

Thus, we feel that this ability to access data directly from data bases or from other Unix commands is a big improvement over Multiplan. We have published in the past (See Volume 4 Number 11) ways to accomplish this with Multiplan, but they are round-about methods that don't always work or are relatively complicated. Since the *raison-d'etre* of a spreadsheet is to manipulate data, it is a very useful feature to be able to get data into the spreadsheet easily.

Another general feature about Tactician that I found very useful was its ability to control where the output goes. For example, in the spreadsheet configuration menu, you can specify what program will process the output. Normally this program is set to **lpr**, the Unix print spooler. But you could put the name of any Unix command in that spot. Why, you might ask? Well, suppose you want to embed codes to produce a new page, or to turn on bold, or compressed print, or any other feature that your printer could accept. You could make a program that would turn all these things on given the right codes. Then you could pipe the output from your spreadsheet through this command rather than **lpr**.

Figure 2

Chart Types Available

Horizontal Clustered Bar Chart
Vertical Clustered Bar Chart
Horizontal Stacked Bar
Vertical Stacked Bar
Horizontal Floating Bar
Vertical Floating Bar
Absolute Line
Stacked Line
X-Y Plot
Pie Chart
Horizontal Text
Vertical Text
Organization Charts

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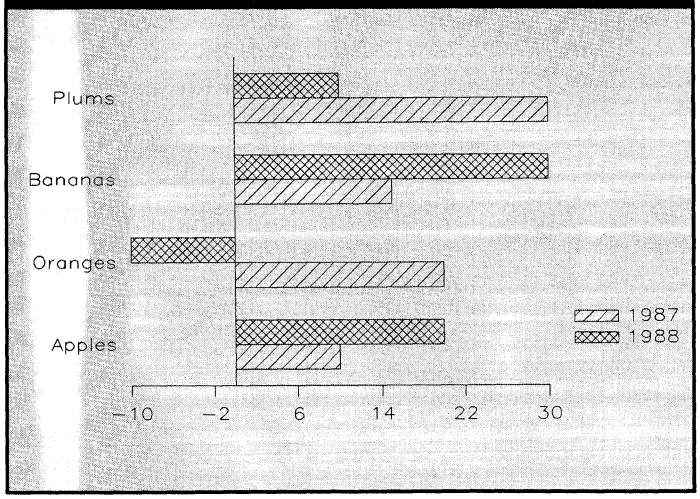
Figure 3



This feature was also useful for specifying graphic devices and diverting output to a Unix file. For example, when you configure a graphics device, you specify what "port" the output should go to. This "port" can be a command like `| cat > outputfile`. Thus, the graphics output could be sent to a file instead of to the printer. This is just a small example of the flexibility that has been built into Tactician and this flexibility provides the user of Tactician with many more possibilities than the user of Multiplan.

Finally, in general Tactician has a richer set of functions than Multiplan. Figure 1 is a listing of the functions for both Tactician and Multiplan.

Making Pictures

Tactician as a spreadsheet is functional and flexible. However, the really distinguishing feature of the Southwind products is the link between the spreadsheet functions and the graphing capabilities. Southwind has combined these two capabilities in a way that allows the graphic depiction of data in a spreadsheet to be accomplished very easily. The graphic representation of the data includes the ability to produce all of the chart types shown in Figure 2.

The graphics module is also able to drive a wide variety of graphic output devices. The output devices that we tested were 1) the standard Fortune terminal; 2) An HP LaserJet Series II; and 3) a NEC LC 890 Postscript printer.

Most graph types can be displayed on your Fortune terminal. A word of caution is in order, however. The standard Fortune terminal is not a graphics terminal and this limits the ability to display graphic images on your screen. Some types of charts will actually look quite impressive on your screen. For example, we were able to produce some bar charts that used the graphic symbols set of the Fortune terminal and these graphs were very acceptable. Other charts, however, leave a bit to be desired such as a pie chart or a line chart. This is to be expected with a character based terminal. We mention this here so that you won't think you can generate presentation quality graphics on your Fortune terminal.

The output from the HP LaserJet and the Postscript printer, on the other hand, were flawless. Figure 3 is an example of a horizontal clustered bar chart of fruit sales for 2 years produced on the HP LaserJet using the 300 dots per inch mode. Figure 4 is an example of a pie chart showing the composition of the December **/u/fortune** magazine produced from a postscript file sent to our NEC LC 890.

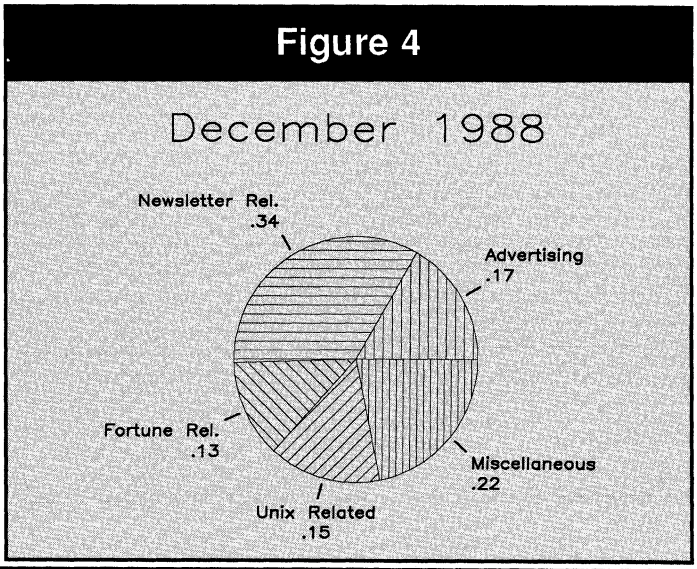
Each of these graphs were produced without ever leaving Tactician. In fact, for Figure 4 I set up a "graphics model" that knew where the data for the pie chart was. This data included the Title, the data points and the segment labels (e.g., Newsletter, Advertising, etc.). In this way, I have automated the production of this graphic so that next month I can put in new data (for the January issue) and generate this graphic with just 5 keystrokes (or one keystroke if I set up a function key to do the job for me).

Overall Evaluation

The Southwind products that we evaluated in this article included the Tactician spreadsheet and Ezgraf. They work very well in unison and provide the user with powerful spreadsheet functions as well as the capability of producing presentation graphics easily. The main strong points of these packages include: the flexibility inherent in their design; macro capabilities and function-key programmability; access to data bases and other ascii data; graphic presentation of data; a larger spreadsheet size than Multiplan; and a richer set of data handling functions than Multiplan.❑

Mark Palmerino

Figure 4



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DataBasics - *Our continuing series on Data Bases.*

Informix SQL

Database management systems (DBMSs) are computer-based, record-keeping and retrieval systems. They consist of software programs that perform a variety of data management tasks. They can be used to meet the sophisticated accounting needs of a Fortune 500 company or to organize a personal telephone list. They run on large, multi-user computers such as IBM mainframes, and on single-user PCs.

Existing DBMSs range in complexity from menu-driven application generators for users with relatively little computer experience, to specialized application languages requiring programming knowledge. This variety allows any user to choose the DBMS software package best suited to his or her needs.

The Unix operating system offers a particularly appealing environment for the development and use of a DBMS. The multi-tasking and multiuser capabilities of Unix have sparked the creation of some of the most powerful database management packages available. in addition to power and high performance, however, a DBMS must offer the flexibility that will make it useful to people with varying levels of computer competence.

Informix Software, Inc., was founded in 1980 to provide DBMS software for midrange computers running the Unix operating system. Today, the company offers a wide range of compatible and complementary DBMS products for most standard operating systems and networks.

The company's flagship product, **Informix-SQL**, was introduced in 1985. Like all Informix products, it is based on the relational database model.

The Relational Model

A database is a collection of related information, or data. A relational database stores information in tables. The information in a table is organized into columns and rows. Columns correspond to specific properties of the data such as a customer's first name, last name, and company. Each row contains all the information about a specific object in the table, i.e., the data for a particular customer.

Figure 1 illustrates the organization of data in the customer table of a database maintained by a sporting goods wholesaler.

A database can contain as many tables as necessary. Information in different tables can be shared through a technique known as **joining**, which lets a user create a temporary link between several tables that contain a common column, and retrieve the data from those tables in one operation.

The **relational** model offers several advantages over two other common database models, the **hierarchical** and the **network**. One advantage is that the database can be easily altered and expanded even after data has been entered. A second advantage is the flexibility of the statements used to retrieve and manipulate data.

Structured Query Language

A user organizes and manipulates the data in a database by means of a set of statements known collectively as a query language. Informix-SQL is based on Structured Query Language (**SQL**), an advanced, English-like database language devised by IBM to aid developers in designing database applications.

Since the introduction of Informix-SQL in 1985, SQL has grown in popularity. The American National Standards Committee (**ANSI**), an organization dedicated to creating

Figure 1

customer Table

customer_num	fname	lname	company	address1	address2	city	state	zipcode	phone
101	Ludwig	Pauli	All Sports Supplies	213 Erstwild Court		Sunnyvale	CA	94086	408-789-8075
102	Carole	Sadler	Sports Spot	785 Geary St		San Francisco	CA	94117	415-822-1289
103	Philip	Currie	Phil's Sports	654 Poplar	P.O. Box 3498	Palo Alto	CA	94303	415-328-4543
.									
.									
.									
118	Dick	Baxter	Blue Ribbon Sports	5427 College		Oakland	CA	94609	415-655-0011

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Figure 2

```
create database stores;
create table customer (
        customer_num    serial(101),
        fname           char(15),
        lname           char(15),
        company         char(20),
        address1        char(20),
        address2        char(20),
        city            char(15),
        state           char(2),
        zipcode         char(5),
        phone           char(12),
        );
create index custnum_idx on
```

standards, established an industry standard for SQL in 1986.

Dual-Process Architecture

A unique characteristic of Informix-SQL, and of all Informix products, is the software's dual-process architecture, also known as a front-end/back-end architecture. The front end of Informix products consists of the user interface, that is, the environment where the user requests operations on the data in the database. The back end receives and verifies requests from the user, and returns the desired information. It also handles file management tasks.

The front end and back end communicate with each other through a pair of links known on Unix systems as pipes. The sharing of information via links allows different Informix products to share a common back-end for greater efficiency. It also makes it easy to adapt the products to different operating systems and network protocols.

Informix-SQL Menu System

The user interacts with Informix-SQL through a menu-driven interface. While this application development environment is powerful enough for the creation of complex applications, it is simple enough to allow a novice user to begin creating basic applications.

The Informix-SQL Main Menu provides options that allow users to perform the following tasks:

1) create and run screen forms
2) create and run reports
3) execute interactive or stored queries
4) create and select databases
5) create and alter tables

Several of these options are discussed in detail in the following sections.

RDSQL Structured Query Language

RDSQL is Informix's enhanced version of SQL. Informix has extended ANSI-standard SQL by providing additional statements as well as optional extensions to the standard statements. RDSQL includes three types of statements for creating and accessing databases: data definition, data manipulation, and data control statements.

Data definition statements are used to create, alter, and delete databases, tables and indexes. Data manipulation statements are used to insert, select, delete, and update information stored in the database tables. Data control statements are used for controlling access to data in the database, for transferring data between database tables and files, and for *transaction* processing. (A transaction is a series of operations on a database that Informix-SQL completes entirely or not at all. The user can control whether the transaction should be "committed" or "rolled back.")

Let's look at an example of how an Informix user would use RDSQL to create a database and table. The user can enter RDSQL statements like the following through the Query Language option of the Main Menu.

In the example shown in Figure 2, the first statement creates a database called **stores**. The second statement creates the **customer** table illustrated in Figure 1 that holds customer information such as first name (**fname**), last name (**lname**), etc. The third statement places an index on the **customer_num** column of the customer table. (An index helps Informix-SQL locate information more quickly. In this case the **customer_num** is indexed because that column will be used to find the customer rows.) At this point the database has no data, but the structure of the database is defined.

As an alternative, the use could also create this database and table by selecting the Create Database and Create Table options from the Informix-SQL Main Menu.

Perform Forms Package

Perform provides an Informix user with the capability to design customer screen forms for data entry and retrieval. An Informix user would begin this process by creating a default form through the Form option of the Main Menu. The user can then customize the form, using any text editor.

Ace Report Writer

With the Ace Report Writer, the user can create reports that will extract information from a database and format it according to the user's requirements. Ace can calculate totals and averages, sort rows, produce multi-column output, and more. The output of the report can be directed to the screen, to a file, or to a printer.

Through the Report option of the Main Menu, the user can create a default report which can then be customized to suit the user's needs. For example, the following report specification, shown in Figure 3, prints out all the customers in the customer table.

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This includes a DATABASE section that specifies the database to be used, a SELECT section that specifies the data to be selected from the customer table, and a FORMAT section that describes how to format the data. Ace can not only produce simple reports, but also very elaborate reports for payroll, medical, and other types of applications.

User-Menu Facility

The developer can design custom menus for his or her applications through the User-Menu option. A custom menu can have 19 levels of nesting with a maximum of 28 options at each level.

The application designer specifies the name of each menu item and the action to be taken when the item is chosen. By creating a User-Menu, the designer can control the user's choices within the application.

Other Informix Tools

In addition to Informix-SQl, Informix software offers a full range of database products for a variety of users and needs, running on a wide range of operating systems. most of these products require basic programming knowledge to take full advantage of their capabilities. These products include Informix's leading line of fourth generation application development tools, an enhanced database server, and networked products.

Figure 3

```
DATABASE
   stores
END

SELECT
      fname, lname, company,
      city, state, zipcode
   FROM
      customer
   ORDER BY
      city
END

FORMAT
   PAGE HEADER
      print column 32, "CUSTOMER LIST"
      print column 32, "- - - - - - -"
      skip 2 lines
      print "NAME",
         column 25, "COMPANY"
         column 50, "LOCATION"
      skip 1 line

   ON EVERY ROW
      print
         fname clipped, 1 space, lname clipped,
         column 25, company clipped,
         column 50, city clipped,
         ", " , state, " ", zipcode

      ON LAST ROW
         skip 1 line
         print "TOTAL NUMBER OF CUSTOMERS:",
               column 30, count using "##"
END
```

The fourth generation application development tools include **Informix-4GL**, a Cobol-replacement caliber language developed specifically for database applications; the Informix-4GL Rapid Development System, a version of Informix-4GL that greatly reduces application development time by eliminating the need for a C compiler and linker; and the Informix-4GL Interactive Debugger, which assists developers in debugging programs created with the Informix-4GL Rapid Development System.

As an alternative to the "standard" back-end, Informix offers Informix-turbo, which works with any Informix front-end product to provide improved performance and fault tolerance. Informix-Net provides network users with modules that enable Informix applications to run on a number of networks, including TCP/IP and Starlan.

Conclusion

Informix products are uniform in their use of SQL to manipulate data. These products have been ported to more than 150 Unix-based machines, while maintaining the same functionality and user interface on all platforms.❑

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/u/help

The following are excerpts from a letter we received from one of our subscribers. We hope someone will be able to help him with his question. In addition, we appreciate his helpful pointers.

Gentlemen:

Has anyone ever written a printcap entry and printwheel descriptor file for the Fujitsu DL-2400 dot matrix printer? I would appreciate hearing from anyone who has.

A few miscellaneous notes:

1). High Tech Business Graphics from LatiCorp is not available for the Fortune systems. I called them about it a couple of months ago and was told that they do not offer it for Fortune computers.

2). For anyone who is interested in learning the vi editor, a good book to get is *Learning the vi Editor* by Linda Lamb. It's a Nutshell Handbook published by O'Reilly & Associates of Newton, Mass.

3). In the path line in the .cshrc file, the "." should be last, not first, for security reasons. A sharp user could use that fact to gain superuser privileges on a system. Example:

```
set path = (/bin /usr/bin /u/bin /usr/ucb /etc .)
```

4). A .login file is useful for setting up other parameters such as mapping the function keys for various vi commands or running a menu to choose from different terminals. In the following .login file, the characters with the "^" in front of them are actually non-printing characters which must be embedded in the file. The setenv EXINIT must be one continuous line.

```
setenv EXINIT 'set wrapmargin=10 | map #1 :q\!^M | map #2 :q^M
| map #3 :w^M | map #4 :wq^M | map #5 :set nu^M | map #6 :set nonu^M
| map #7 ^B | map #8 ^F | map #9 1G | map #0 G'
```

5). I am a staunch believer in doing daily backups on our SX-70T. I use two tapes marked EVEN and ODD (for even- and odd-numbered days). I use **cron** to run the backup in the evening when no one is on the system. Since each DC-600A tape can hold 60MB and only 13MB of disk space is used so far, four backups can be put on each tape. I created four scripts which are run by **cron** to do the backup. The scripts are called **buc**, **bua1**, **bua2** and **bua3** and **buc** is listed below:

```
far -Backup -create -keepset_number=1 -far_file=/dev/st00 / 2>/
tmp/buerr
```

Error messages are sent to the file /tmp/buerr. So far (no pun intended), no errors have appeared in the file. *Editor's note: Some versions of far cannot be run with cron or at.*

David Katzakian, Decision Data Service, 3400 W. Warren Ave., Fremont, CA 94538, Tele. 415 659-8008, x. 3107.❑

Index to /u/fortune *news*

Once again it is time for our annual index to /u/fortune news. We hope that it will prove useful for our readers. The format for each entry shows the name of the indexed item, the name of the article and the issue that contains the article. The issue is specified by the volume number and the issue number, followed by the page number. The names of regular columns are abbreviated according to the chart at the bottom of the page.

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