

OPCUG The Ottawa PC Users' Group

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MICROPROCESSOR MEMORY MODES

By Chris Taylor

All, the wonders of DOS! Out of the 1 Mbyte address space designed into the IBM-PC, there is only 640K that was made available for programs to run. Other memory space was reserved for things like video. So you are starting with 640K of space for programs. DOS (which is a program) uses some 50K (depending upon the version). If you have BUFFERS defined in your CONFIG.SYS file, they steal a bit (half a K per buffer). If you load in device drivers such as ANSI or VDISK, or a driver to operate a mouse, they each steal obit.

Memory-resident programs go for more. After your computer is finished booting, you can end up with significantly less than the original 640K available.

With the advent of the AT came "extended memory" (unavailable in the PC or PC-XT). It is basically memory above the 1 Mbyte line. Unfortunately, DOS can't run programs in this space. DOS runs only in what is known as "real mode" on the 80286, 80386 and 80486 processors.

are other modes available, "protected mode" being common to all three mentioned processors. In protected mode, 16 Mbytes may be addressed (4 terabytes on the 80386 and 80486). DOS won't run in this mode. This is where OS/2 slides in. It is designed to run in protected mode and therefore give people access to all this gobs of memory.

When you see a program such as 1-2-3 release 3 that demands over 640K of memory, but runs under DOS - it uses a DOS Extender. If it needs the stuff it has placed in the extended memory area of the the computer, it switches the processor

into protected mode, accesses the memory and then switches back to real mode when it needs to use DOS services.

Although the 80286 processor was designed to easily be switched from real to protected mode, the designers never thought anyone would want to go the other way, so it has no instruction to go from protected to real mode. To get around this, they effectively switch the processor off and "restart" it. One description I heard went like this:

"You hit the processor over the head and knock it out. Then as it comes to -but just before it resets everything -- you yell at it: "No, no don't do that, everything is O.K.!"

That is why the 80286 is referred to as "brain damaged". The 80386 and 80486 include instructions to go from real to protected mode and back again without kludges like that.

* * *

FROM THE EDITOR

Bonnie Carter

Hi Folks! For those of you who would like a listing of the BBSs in the Ottawa area, an up-to-date list is available in the "Recently Uploaded Files Section" (1) on to PUB. The name of the file is BBSNUMS.ZIP. As it is three pages long, it is not feasible to publish the whole list in the Newsletter.

This month's Newsletter introduces a continuing series of articles for beginners. John Whelan has written the first article.

Beginning this month, there will be a Question Box at each meeting. The purpose of the box is to enable members to jot down questions they have and have them answered either during the Question and Answer part of the meeting or, if time does not permit, have them directed to someone who will answer them by phone, on the PUB or in the Newsletter.

Happy reading!

NEXT MEETING

The next **meeting of the OPCUG** will be held on March 28, 1990. The Guest Speakers will be a team from the Hewlett Packard Company of Canada. Their topic will be an answer to a PC user's Dreams: "HP's New Wave Environment".

Remember, bring your ID card as it will be required to claim the numerous valuable door prizes and large discounts on current software which they will be offering.

The Guest Speakers for the April OPCUG meeting will be a group from CompuServe, a very dynamic company- in the Ottawa area. They will be demonstrating graphic packages with help from The Xerox Corporation of Silicon Valley, California.

VOLUNTEERS NEEDED

The Newsletter Editor would appreciate one member who has an "eagle eye" and is computer literate to assist with the final proofreading of the Newsletter each month.

Marc Riou would like to take a well-deserved vacation for a couple of month. Therefore, two members are needed to prepare envelopes for the Newsletter.

Help the Group that helps you!

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Meetings are held at 100 Sussex Drive, Ottawa
Last Wednesday of the month - 8:00 p.m. to 10:00 p.m.
No meeting in July and December

THE BASIC COMPUTER SURVIVAL GUIDE FOR THE RAW BEGINNER

By John Whelan

So you've just brought your first computer. I'm sure that you know all of the following, but this is going to be a very simplistic recap for some and quite adventurous for others. Everything included here I have seen give trouble to previous new users. The idea is to learn from their mistakes. Its cheaper and easier!

One of the best descriptions I ever heard of a computer was, "a man in a black box who will do exactly what you say very quickly, but hates you, knows all the rules backwards, and if he possibly can, will, without breaking the rules, do his best not to give you the answer you are looking for, or will cause chaos at the fastest possible speed".

This means you have to be very precise when telling the machine what to do. If you make a mistake the results can be very bad.

For example, if you are writing a letter on paper, drop the pen and your may get a small blot. With a word processing program, such as WordPerfect, if you exit the program or turn the machine off before telling it precisely that you wanted the letter saved, all traces are gone completely. Fortunately, these days the computer programs that you will be using are getting better at working with real people, but the potential is still there.

I'm going to assume that you have purchased an IBM PC Clone and that it has a hard drive (sometimes known as drive C:) and a floppy drive (sometimes known as drive A:), and that you have managed to put it all together.

When you switch on the PC it looks for instructions. It first looks to see if you have a *floppy* disk in drive A: (that's the hole at the front that often has a small bar that locks the *floppy* in place). If there is no floppy in drive A, it looks at drive C:.

Computers are like small children and pets. They like everything to be exactly in the right place. The right place for instructions, when you switch on, is a series of files; IO.SYS, MSDOS.SYS and COMMAND.COM.

The computer stores all its information in files, and it has special rules about the names. The names are split into two parts. The first part of the name is the biggest and can be up to a maximum of eight characters long. Then comes a dot or period followed by a further part with a maximum of three characters (i.e. COMMAND.COM).

There are special rules about the three character part of the name that we will find out about later. The first two, IO.SYS and MSDOS.SYS (named IBMBIO.COM and IBMDOS.COM by IBM and some clones), are hidden in a special way and we can now forget they exist. COMMAND.COM is worth remembering if you see it on a *floppy* disk. It means the disk is probably "bootable" (as long as IO.SYS and MSDOS.SYS are present". If you delete it from any disk, the machine gets confused when it looks for its instructions and typically says, "Non-System disk or Disk error: Replace and hit any key when ready".

Having found COMMAND.COM, the machine then looks to see if either CONFIG.SYS or AUTOEXEC.BAT exist and takes more instructions from them. These files are important and should not be deleted or modified unless you are very very certain what the result will be.

"a man in a black box who will do exactly what you say very quickly, but hates you, . . ."

Occasionally these files can be modified or deleted by mistake and we need a way to get the system running again. Computers are exceptionally good at making copies of files, and one of the very first things you should do is prepare a diskette as an emergency way to get your machine running. First, take a new or blank diskette and put it in the A: drive (the slot in the front). Then type the following at the C:> prompt: "Format a: is". You will be asked to:

"Insert new Diskette for Drive A: and Strike ENTER when ready."

The <Enter> key is where you would expect to find the carriage return key on a typewriter. It then mutters about heads and cylinders says "Format complete" and copies the three files that the PC needs for its instructions: IO.SYS, MSDOS.SYS and COMMAND.COM onto the diskette. Now all we have to do is copy the other two "start-up" files if they exist.

To start we will use the DOS command "DIR". So, at the C:> prompt type:

```
dir a*.*<Enter>
```

Look to see if there is a file called AUTOEXEC.BAT. If so, type:

```
copy autoexec.bat a:<Enter>
```

It should respond with "I file(s) copied". "File not found" usually means you misspelt the filename. Try again. For CONFIG.SYS, at the C:> prompt type:

```
dir c*.*<Enter>
```

Look to see if there is a file called config.sys. If so, type:

```
copy config.sys a:<Enter>
```

I suggest you put this diskette in a safe place and make sure that the names of the files is well marked. Don't write on the floppy disk label with a ball-point pen. The diskettes are delicate and easily damaged. I often use a small "post-it" pad to scribble what is on the diskette. I stick the sticky bit onto the label and tuck the rest down the front of the diskette sleeve so it doesn't pull off easily.

Take a break and have a cup of tea or coffee. One of the nice things about PCs is they really don't mind waiting for you. After the break, try making another diskette up in the same way and labelling it. Now you are ready to start using your PC.

When strange things start to occur when you power the machine on, it is probably because your AUTOEXEC.BAT and CONFIG.SYS files have been deleted. You can copy them back to the hard drive by putting the diskette in the A: Drive and typing:

```
copy a:autoexec.bat c:\
and
```

```
copy a:config.sys c:\
```

One of the easiest ways to find your way around a PC is by using a book. Many are available, but some of the ones I feel the most comfortable with are published by QUE (Using Turbo Pascal, Using 1.2.E etc.). After many years of using computers and databases, my favourite Dbase IV book is Ashton Tate's "Dbase IV for the First Time User" (hope I got the title right). Often these books tell you how to create ".bat" file to make the product easier to use.

Be careful. Unknown to you, your supplier may have already set you up a ".bat", and by following the instructions in the book, you can undo much of the work that has been done already. Before blindly creating a new "WP.BAT", check to see if you have one already by using the DIR command, dir *.bat<Enter>. It should show you if there are any existing ones.

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You may want to ask someone a question about something on the computer that hasn't worked out the way you expected it to. It could be the Ottawa PC User' Group or your daughter's boyfriend (Well, if you have a teenage daughter who is going out with a long-haired something, who is taking a computer science degree, why not bug them?).

One of the best ways to explain to them exactly what happened is to print out what is on the screen. Make sure the printer is turned on, hold the <Shift> key down, and press the key marked <PrtSc>. You'll find it on the far right-hand end of the keyboard somewhere. This crude printing technique can also be used to print your letter from a word processing package or a printout from a spreadsheet if you get really desperate and don't have the right printer driver, etc.

The Ottawa PC user group's BBS (The PUB) is an excellent place to ask questions. If you don't know how to get there, write to the Editor of this Newsletter and ask her to get someone to write an article about how to do it.

Although I have used the DOS "copy" command in the examples, in real life many users of WordPerfect press <F5> when in WordPerfect. Highlight the file to be copied, press C for copy and enter the new name or disk drive it is to be copied to. If you highlight <Parent> and hit <Enter> this will take you up a level in the directory structure. Highlight any name followed by <DIR> and WordPerfect will take you down into that subdirectory. Useful for getting into unpack and either deleting unwanted files or copying them to the correct subdirectory.

If your machine is an "AT" class machine the diskette should have "HD" or 96 or "high density" written on it somewhere. If it doesn't, don't use the diskette for writing or formatting.

OPCUG AIMS FOR CRITICAL MASS

By Carl-Henri Gomez

As Membership Chairman, I have identified several variables that could be modified to enhance the benefits of being a member of The Ottawa PC Users' Group

(OPCUG). One of them is the membership count. Presently, we are 525 members strong and growing at an annual rate of approximately 10%. A decrease in the membership count is obviously not a viable alternative, as we will not be able to financially support our activities. On the other hand, an increase is always welcome if we properly fine-tune its idiosyncrasy.

On a short-term basis, what is the maximum number of members we could adequately accommodate while:

- a) minimizing the cost of publishing the Newsletter;
- b) minimizing the number of attempts to access the PUB (time waiting in queue);
- c) minimizing the cost of processing membership applications;
- d) realizing that the NRC auditorium has a given capacity of 300 people.

A rigorous approach to the problem requires the use of operational research methods. A timely longitudinal treatment of my analyses will be the topic of a subsequent article in the OPCUG Newsletter. As a result of my calculations, I came up with the target number of about 1000 for our membership drive.

How then can we achieve such a goal? It's easy. Just introduce a friend to the OPCUG and I will do the rest. Let us suppose that every member participates in the "Member-Get-A-Member-1K Relay" that I propose. We will double our size and reach our goal as easy as 1-2-3. I am not about to lead you into an exponential path as narrated in the history of the Sultan who asked one of his servants what could he do to reward him for his services? "Put one grain of wheat on the first square in the chess board and double the amount of grains with each subsequent square." he replied sheepishly. I will let you figure out the resulting wealth he amassed with a series like 1-2-4-8-16-...

A less tangible aspect of an increase in membership is the enrichment we all gain through a greater diversity of members. Not only will we be able to command better discounts on bulk purchasing but also tap the resources of a most valuable group of members.

The Executive members of the OPCUG have approved my incentive program which is the following. Each time you sponsor a new member, you add an additional chance to win a software package worth around \$80.00. That is, for every member that you sponsor, your name is entered once. There will be three draws which will take place at meetings in

the months of June, October and February. Furthermore, a Hewlett Packard calculator will be awarded to the person who sponsors the most new member. Remember to write your name as the sponsor at the verso of the application form.

Moreover, I introduced a new membership card which replaces the three previous ones that some of you had. A close look reveals three well-delineated sections, namely top, middle and bottom. The last two should retain your attention.. In the top right corner of the middle section, there is a series of ten small O-rings corresponding to the ten diskettes of the month that Chris Taylor, the Software Librarian, offer to the membership. However, a red validation tag is needed to be able to use that particular feature. A bar code representing your ID number is located in the bottom section. The bar code is of the type 3-of-9, an industry standard. It was added for numerous purposes:

- 1) fast access to the NRC auditorium and tally of member present;
- 2) the drawing of door prizes. A random number generator (which uses as seed a random number based on the current clock reading of the computer) will generate an ID number within the then membership count. The program then matches the ID number with the name of the winning member. The HP 71B computer from Hewlett Packard that we use, generates a random number which passes the Spectral Test.
- 3) Voting or information requests from vendors will be handled in the following manner. Scan the bar code on your badge and your selections (in a bar-coded format as well) and the program produces a tally or a mailing list with the appropriate request.
- 4) Discounts at participating stores, etc.

On the verso of the card, there is a validation stamp for the current year. The card is to be used as an ID badge, a membership and a disk-of-the-month card. So, become accustomed to carrying your card in your wallet. Now your card will be necessary to claim any prizes you might win and to fully participate in all activities.

Happy computing!

BAT HINTS

By Morris Turpin

USING THE ANSI ESCAPE SEQUENCE

If you're not too thoroughly confused by the ANSI escape sequences in last month's Newsletter, let's verify that they work. Don't forget to use the appropriate beginning of the ANSI.SYS command wherever ESC[appears.

Write the following batch file and run it:

```
CENTRE1.BAT
@echo off (echo off for DOS < 3.3)
cls
echo ESC[12;35H--CENTRE--
```

Centre1.bat moves the cursor to row 12, column 35 and displays the text "--CENTRE--". That's relatively simple. Let's try another: DISPLAY1.BAT

```
@echo off
cls
echo normal
echo.
echo ESC[1mhigh intensityESC[m
echo.
echo ESC[4munderlinedESC[m
echo.
echo ESC[5mblinkingESC[m
echo.
echo ESC[7mreverseESC[m
echo.
echo ESC[8minvisibleESC[m
echo.
echo the line above is invisible
```

Display1.bat will create seven lines of text. The first line will be the word "normal" and will appear at the top left of the screen in normal text. The second line will say "high intensity" and will appear in bold text. The third line will say "underlined" and will be underlined. The fourth line will say "blinking" and will blink, the fifth line will say "reverse" and will be in reverse video. The sixth line will appear to be missing and the seventh line will give the message "the line above is invisible" in normal text. Note that the "echo." will leave a blank line when the file writes to the screen.

We can use multiple attributes as well. Try the following:

```
DISPLAY2.BAT
@echo off
cls
echo ESC[12;28HESC[1mCentre and high intensityESC[m
echo ESC[1;28HESC[5mTop of screen and bhinkingESC[m
echo ESC[24;28HESC[7mBottom of screen in
reverseESC[m
```

To re-map a key, create key1.bat and run it. Key1.bat will remap ALT-F1 to perform the following keystrokes: cd\wp50 <enter> wp <enter>. If you don't have \wp50\wp.exe on your default drive, substitute a directory and program of your own. Note that the ASCII code for <enter> is 13 decimal.

```
KEY1.BAT
@echo off
CLS
echo ESC[0;104;"cd\wp50";13;"wp";13p
To restore ALT-F1 back to normal, create and run key1bat.
```

```
KEY2.BAT
bat@echo off
cls
echo ESC[0;104;0;104p
```

Last month we said that we could also use the prompt command. If your prompt is the familiar \$p\$, try the following:

```
prompt=$e[s$e[1;67H$d$e[2;67H$t$h$h$h$e{u$ - $g
```

The prompt first saves the cursor position (\$e[s), sends the cursor to row 1, column 67 (\$e[1;67H), writes the date (\$d), goes to row 2, column 67 (\$e[2;67H), writes the time (\$t), backspaces 3 times to remove the hundredths and tenths of seconds and the colon (\$h\$h\$h), retrieves the saved cursor position and returns to it (\$e[u), displays the current directory (\$p), leaves a space, inserts a dash (-) and produces the ">" (\$g).

If you have a colour monitor you may wish to write your own prompt to take advantage of the colours available.

This section on the ANSI escape sequence has been lengthy., but you now have the ability to place text (or any other character for that matter) anywhere on the screen that you wish. I like to place text for interactive programs inside a reverse video box in the centre of the screen.

MAKING OUR BATCH FILES INTERACTIVE

We can write a short program which will identify the most recently pressed key. That may not sound like much, but it does allow you to personalize your batch files by carrying out different commands depending on which key was pressed.

DOS stores a number called "errorlevel" in memory. The IF command allows us to test the value of errorlevel. We will write a program REPLY.COM that will wait for you to press a key, then set the value of errorlevel to the key code that you pressed.

The IF command actually checks for an errorlevel equal to or greater than the number specified, so we will have to aware of when checking for keycodes and write our program accordingly.

Every key on your keyboard has its own code. The key code of the standard typewriter portion of the keyboard is the ASCII code of the character, other keys, including control and alt combinations use a two part scan code. Because the first number of this scan code is always 0, REPLY.COM sets errorlevel to the second number.

The codes for the function key F1 to F10 are

```
alone 0;59 to 0;68
shifted 0;84 to 0;93
ctrl 0;94 to 0;103
alt 0;104 to 0;112
```

These will be sufficient for our purpose. is create REPLY.COM, we will use DOS' DEBUG program. At the DOS prompt, type "debug". You should see:

```
C>debug
```

The "-" is DEBUG's prompt. Now type "a 100". Debug will respond with an address xxxx:0100 (it doesn't matter what the xxxx is):

```
C>debug
-a 100
xxxx:0100
```

Enter the following:

```
C>debug
-a 100
xxxx:0100 mov ah,8
```

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BAT HINTS

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```
xxxx:0102 int 21
xxxx:0104 cmp al,0
xxxx:0106 jnz l0a
xxxx:0108 int 21
xxxx:010A mov ah,4c
xxxx:010C int 21
xxxx:010E <enter>
```

Note that on the last line (xxxx:010E) nothing is entered, just hit the enter key. Debug will respond with:

```
C>debug
-a 100 xxxx:0100 mov ah,8
xxxx:0102 int 21
xxxx:0104 cmp al,0
xxxx:0106 jnz l0a
xxxx:0108 int 21
xxxx:010A mov ah,4c
xxxx:010C int 21
xxxx:010E
```

To verify that you have entered the program correctly, enter: -u 100
DEBUG should respond with:

```
xxxx:0100B408MOVAH,08
xxxx:0102CD21INT21
xxxx:01043C00CMPAL,o
xxxx:01067502TNZ010A
xxxx:0108CD21INT21
xxxx:010AB44CMOVAH,4C
xxxx:010CCD21INT21
other code in memory will continue here.
```

If your output does not agree with the above, type "a 100" at the DEBUG prompt and start over. If your output agrees with the above, type the following commands to store REPLY.COM on disk and quit DEBUG:

```
-r cx
CX 0000
:e
-n reply.com
-w
Writing 000E bytes
-q
```

You now have REPLY.COM in your current directory. To check that it works, write and run the following batch file:

```
TEST.BAT
@echo off
CLS
echo F1 - Clear the screen
echo F2 - Display the directory
echo Press any other key to quit
reply
if errorlevel 59 if not errorlevel 60 goto F1
if errorlevel 60 if not errorlevel 61 goto F2
goto END
:F1
cls
goto END
```

```
:F2
dir
:END
```

Basically, the line "if errorlevel 59 if not errorlevel 60..." says that if errorlevel is 59 or higher AND if errorlevel is not higher than 60, go to the label F1. Only the F1 key satisfies this condition, therefore only the F1 key will send the program to the F1 label. Similarly, the next line can be satisfied only by the F2 key. Any other key will send the program to the label END.

SUMMARY

We've come a long way in the past couple of months. We can now control the cursor and screen attributes and write batch files that will accept user input, albeit to a limited degree. We have even gone beyond batch files into the world of DEBUG.

If you have trouble creating REPLY.COM, drop me a line on the PUB and I'll either answer your questions or upload a copy of REPLY.COM that you can use directly. If you have any other queries, or would like a particular topic covered, drop me a line - either on the PUB or in care of the Newsletter. I'll be back again next month with some more tips and examples.

SOURCE OF EMI FILTERS

By Len Gelfand

A variety of surplus, mostly new, electromagnetic interference (EMI) filters originally designed for computers, can be purchased from Addison Electronics Ltd., 8018 - 20 a Avenue, Montreal, P.Q., H1Z 3S7.

The filters range in price from about \$2.00 for a 2-amp unit to about \$12 for a 10-amp. A 3-amp unit sells for \$2.95 and contains 4 chokes, 4 capacitors and 1 register, fully enclosed in a sealed metal case which is approximately 50 x 65 x 45 mm in size.

Some filters have the 3-prong male input like the ones on IBM-type power supplies while others have wires for both input and output. Most have the circuit diagram on the case.

If you go there, the filters are located in their building marked "INDUSTRIEL". If you would like further information, such as how to get there, etc., feel free to call me at 749-5101.

FOR THOSE WHO WANT THE REAL THING

Hayes 2400 baud modem
V42 MNP5
Sync and Async
Price: \$549.00 (tax included)
Ten purchases are required
to keep this price.
Contact Carl-Henry Gomez
Membership Chairman
731-1462

BASIC INTERPRETER EDITOR

By Harry Gross

As part of the interpreter package, an editor is included to allow the user to enter and modify programs. While it is possible to use any word processor, such as WordStar or WordPerfect, in a non-document mode, in general, this would be inconvenient. The editor is automatically loaded when you start BASIC, and control is returned to it after a program is run.

CHARACTERISTICS OF THE EDITOR

It is almost a full-screen editor, and the reason I say almost is that, after typing a line in, you must press <Enter> to save it. Being on the screen does not mean it is in memory the way it is in a word processing package. You cannot scroll through it. To get a listing on the monitor, the LIST command must be executed.

PROGRAM LISTING

LIST	list the whole program
LIST N1, N2	list all lines from line1 to line2
LIST ,N2	list everything from start to line2
LIST N1,	list everything from line1 to the end
LIST N	list only line N

To send it to the printer, use LLIST instead of LIST.

LINE NUMBERING

For a line to be part of a program, it must be preceded by a line number and space and terminated by pressing <Enter>.

Line numbers are positive integers in the range 1 to 65,535. Lines may be entered from the keyboard in any order with any interval. The interpreter will sort them out, store them, and run in the proper order. Any line entered with an existing line number will replace the prior one. Entering a line number by itself will delete a prior line with that number from memory.

To speed the works up, the editor can be made to do some of the work. Enter AUTO N1,N2 and the editor will place numbers in sequence at the left side of the screen starting with N1, and going up in steps of N2 as each line is entered. If the numbering would overwrite an existing line, the editor will warn you with an asterisk after the line number. Press <Enter> to avoid replacing an existing line.

If you have entered lines in some oddball order, the command RENUM will renumber all lines in step of 10, starting at 10. RENUM N will renumber, starting at 100 a editor will reconcile all differences involving GOTO, GOSUB, etc., statements.

SAVING AND LOADING

To save a program named MYPROG.BAS, enter from the keyboard the line:

```
SAVE "A:MYPROG.BAS"
```

"A:" is the drive you want to save it on. It could just as well be "C:\BASIC\SUBIR\MYPROG.BAS". The extension ".BAS" is, strictly speaking, optional, but you will save yourself a lot of grief by adhering to a strict naming convention.

The file is saved in a tokenized form, that is to say, instead of the PRINT command being saved as you see it on the screen, an ASCII character is used instead. This greatly reduces the amount of space used, both in memory and on disk, and time saved in loading and saving.

To save the program as an ASCII file, use:

```
SAVE "A:MYPROG.BAS",A
```

This will be useful for importing a program into a compiler. or for importing it into some word processing package (perish the thought) for instructions and documentation.

Here is a small tip that will save you much grief and ulcers when programs become larger. Always make the first line of your program the following statement:

```
10 'SAVE 'A:myprog.bas"
```

Remember, the apostrophe (') means that anything after it is a comment and is not executed. Then to save the program, just enter LIST 10, and the line will pop up on the screen. Move the cursor to the stars of the line, erase the number and the apostrophe, press <Enter>, and the program is saved.

Why all this? Two reasons, first, when you list the program to paper, the name will be at the top, and second, it will save you from looking like an idiot when you lose it under a misspelled name, or worse, overwrite some other program.

To bring back a program for editing, enter:

```
LOAD "A:MYPROG.BAS"
```

To load and run a program, enter:

```
RUN "A:MYPROG.BAS"
```

To return to DOS, enter:

```
SYSTEM
```

So try writing a few lines and experimenting with the editor, saving them, and reloading them. If you have a chance, try looking at the tokenized form and the ASCII form in some text editor or word processor.

In the next issue, we will look at the PRINT command and related material.

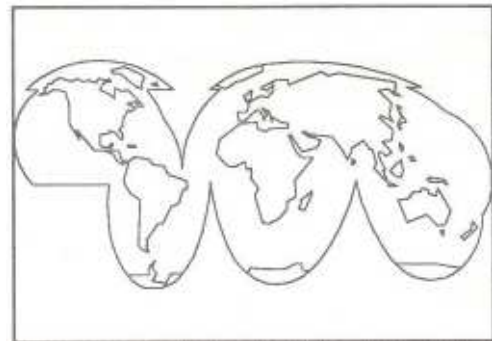
IF YOU CAN'T CARRY A PRINTER

By Fred Ennis

It's bad enough lugging a 20-pound laptop on trips, and I can't wait for the 8-ounce computer and the 4-ounce printer to be invented. If you're like me, there are times you really need to print something out while you're on the road. If you're equipped with a modem, simply use CompuServe, Telecom Canada's Envoy or CN-CP's Dialcom to send your file to the hotel's fax machine. A few minutes later, your printed file is shoved under your door! You don't even need a special fax modem to do it, since the big online services now offer outbound faxing.

Of course the printout isn't "letter quality" but it sure serves the purpose. Expect a hotel to charge about \$4.00 for an incoming fax for you.

The typical fax message cost from an on-line service is about \$1.00 per 3 pages.



WILL THE REAL POSTSCRIPT STAND UP?

By John Whelan

The page description language Postscript is produced by a company called Adobe, and, at the present time, the word is copywrited by them. It was initially produced to simplify the interface for typesetters so that companies such as Adobe could license their range of typefaces to a wider market. Once you had purchased a Compugraphic typesetter, for example, the only place you could purchase typefaces was Compugraphic. Even in Pacific Data advertisements you will see the words "Adobe acknowledged".

Prices were set according to what Compugraphic decided the market would tolerate. Each font was priced: around \$200 for 12 point, \$200 for 11 point, \$200 for 12-point bold, \$200 for 12-point italic, \$200 for 12 point italic bold, etc. The cost of a reasonable range of fonts was high, and many typesetters managed on a few work-horse typefaces.

A page of typeset output on a typesetter would cost about \$12. For a mere \$20,000, Compugraphic would sell

o-;u a laser printer with much the same n,pabilities as the current Laserjet, except that it would only work with their software and print the same fonts. Each font, of course, was extra -- at about the prices quoted above. The cost for proofs was much less, and even at \$20,000, the payback was quite rapid for many printers.

Postscript allows the same file to be sent to different output devices from different companies and provide an identical output to look the same. Linotype was one of the smaller typesetting companies that decided to go to open standards for Postscript. Consequently, many laser printer manufacturers decided to implement the new Postscript standard. This new standard offered graphical output on typesetters, something which hadn't been common until the introduction of Postscript and scalable fonts. Many typesetters felt that scabale fonts didn't look quite right in all sizes and there are definitely some problems when kerning, but the advantages, especially the cost, were well recognised.

Each device that uses the name Postscript is certified by Adobe. It is mtoroughly tested for compatibility. I think ,ne number of programs is now around

2,000, and thus, this third party interface provides a well defined standard. Software developers write to the standard, knowing that if the product works on one machine, it will work on all Postscript devices and there will be no misunderstandings with the hardware manufacturer. Hardware manufacturers can produce standard products knowing there is a wealth of software that will work with them.

In earlier times Postscript laser printers offered a good price advantage over the Laserjet, especially with scalable typefaces that required several separate cartridges on the Laserjet. The Postscript NEC LC890 **was actually** cheaper than the two-bin Laserjet without cartridges.

Times have changed. Today you pay a premium for a Postscript device. What you are paying for is Adobe certification and the use of genuine Adobe typefaces. The classic Adobe Times Roman typeface looks impressive because it was designed by a professional designer. At a resolution of 2,400 dpi, the difference in quality between it and the clone typefaces (Dutch) can be clearly seen. At lower resolutions, the lay person gets the feeling the typeface doesn't look quite right.

It is interesting to note that the Hewlett Packard range of Laserjets do not always pant out exactly the same output with the same file. For reliability, third party certification takes a lot of beating. Even today, the only Wordperfect drivers I really trust are the Postscript ones. The others have little quirks in them.

The Pacific Data cartridge offers only Postscript emulation, is not certified by Adobe, and provides only imitation Adobe typefaces. It does, however, offer scalable fonts and has advantages for users who only wish to produce output for a particular laser printer and aren't too worried about sending the file to a Postscript typesetter afterwards.

A number of companies now offer page description languages with scalable fonts which are better suited to the PC laser printer market. Canon is one, but there are several others. I believe Hewlett Packard has shown interest in bringing out something for the new range of Laserjets.

As always, defining your requirements is necessary before purchasing any item. Many PC laserprinter requirements can be met by non-Postscript machines. However, if you need a Postscript solution, make sure you are getting a genuine Postscript solution and not an imitation.

PUB TALK

QUERY: BONNIE CARTER

Is there a way to delete a ROM file? I want to remove a directory, but I found a hidden file. I tried to delete it, but because it is a ROM file, I was unable to delete it and thus remove the directory.

REPLY: JOHN WHELAN

Use the ATTRIB command to change your read-only file to none read only.

ATTRIB filename.ext -R

QUERY: CHRIS TAYLOR

Why is SHARE needed when using a large disk partition under DOS 4' . All the documentation talks about SHARE being used for file locking on a network.

If you have DOS 4 with a disk partition larger than 32 Mbytes and you don't load SAE, you get a warning message that SHARE must be loaded. SHARE will load automatically if it is in the root directory. I got around it by installing it on a PC under DOS 3.3 and moving the files to the PC with DOS 4.

REPLY: MICHEL RENAUD

The code for handling large partitions was put in SHARE.EXE so people who don't need the large partitions would have more RAM available. As a result, running DOS 4 with large partitions takes more RAM than when you have 32Mb partitions. *RE:* Program not handling DOS versions over 3.x, I've got the same problem on a 3Com network, The network software does not work with DOS 4.01. I get "Require DOS 3.x to operate" and all our new PCs come with DOS 4.01 Do you let DOS load SHARE by itself or do you "force" it. If I use MI (Memory Info in PCTools), it says that SHARE was loaded with the /NC parameter. Have you tried COMPAQ DOS 3.31? This version includes the large partition code without having to load SHARE or whatever else, and you don't have the compatibility problems you related. It's worth trying it.

CHRIS TAYLOR

I load SHARE through CONFIG.SYS. The times I ran without SHARE and got the SHARE error message, I did a DIR and TYPE. Everything worked. One example where you will get a SHARE violation is if you run the distribution copy of TELEMATE (at least up to vets. 1.20) without first installing it. TELEMATE tries to run its install program from within itself and everything crashes. Interesting note re COMPAQ DOS 3.31. I may look into it.

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