

EDITORIAL JOTTINGS

I do enjoy hearing or reading what other people are doing with their computers. John Kilpatrick's monthly report is always enjoyable reading. Dave Washford and Roger Storrs also contribute now and then. Last month Ivor McAmstrad's article was most readable and I look forward to his next contribution.

Such articles provide a good balance to the technical epistles and I would very much like to see more of our hundreds of members telling of their experiences. What do you actually use your computers for? Ivor mentioned that he has a house effects data base which is no doubt very useful for insurance purposes. I can imagine the Amstrad being put on a trolley and being wheeled from room to room in order to input the contents of each room. When I was at Harrods during the 70's, departmental stocks were taken by being input into transportable small computers wheeled around on trollies. Also reading about what one person is using their computer for can perhaps expand what other members can use theirs for. Again when I was at Harrods I introduced a method for taking furniture stock which I had previously seen for taking stock in a cable and wire works. Then in a small life insurance company I introduced a simple book-keeping system I had seen in an advertising agency.

I was somewhat disturbed to read that Ivor was worried about the necessity of producing an ASCII file and Christopher Curry in this issue about producing tabular information. Now I am getting into the editorial job I am finding Word Perfect is able to cope with a surprisingly large range of different types of files. I am also getting the hang of Word-Perfecting tabular information. So please don't feel inhibited. Send me your disk. I am beginning to enjoy the challenge each one produces. After all if I am completely baffled I can always telephone you for help.

I have PC-CROSS with which I can read files produced by most DOS's on Models I, III & IV; single or double sided; single or double density. While it can read 80 track disks, I haven't got an 80 track 5¼" drive on my PC so, please, only 40 track or 3½". It would be nice to hear from some of our Model I, III & IV owners. What are you using them for? When did you buy it and why?

Thank you Ted Barnes for your expression of appreciation about the help you have received. Anyone else want help with problems?

WORD PROCESSOR TEXT FILES FROM TRS-80 TO IBM

Bill Stomfay

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The subject of transferring files from our TRS-80 machines to the new 'Big Blue' IBM's have been raised a number of times at recent meetings. I've been through this myself, so, I thought I'd relate my experience in this area.

Firstly, preparation for the transfer. There are two approaches; a transfer of a raw word processing file, or transfer of a formatted print file. The one you use depends on what you want to do with the file once you get it over to an IBM. If you simply want to print out the document on a higher quality printer, then you should transfer a formatted print file. A formatted print file is created by directing the word processor output to a replication of what would be sent to your printer.

If you're using Lazywriter, this is a standard print option. If your word processor doesn't have this option, you can achieve the same result via DOS. NEWDOS86 has the facility to create a phantom device (via the DEVICE utility). This may be a disk file to which printer output can be directed using the ROUTE command. If you're still using NEWDOS80, there is a utility called STD/CMD (written by Warwick Sands) which will achieve the same result. Both of these techniques are documented in past issues of Bits & Bytes (Issues 60 & 31). The advantage of this approach is that you don't need to worry about getting your text file into an IBM word processing program - you just PRINT from DOS. However, there are a couple of disadvantages, which I'll discuss later.

If, however, you want to do a significant amount of editing to the text file, you should transfer the raw word processing file. This is not a problem if you're using a word processor such as Lazywriter or Allwrite that saves their standard files as ASCII (although you should check the upper/lower case default with Lazywriter) and that don't have any special headers on their files. Superscriptsit, on the other hand, is a real pain because it scatters bits of text all over the place and has special headers - you should do a compressed ASCII save before attempting to transfer any such file to ensure that the text sequence is correct. If in doubt as to the format used by your word processor, just take a quick look at the file with Superzap.

The second basic step is the actual file transfer from TRS-80 to IBM. There are three ways of doing this - creating a disk on a format recognizable to an IBM machine on a TRS-80, uploading your file to a bulletin board from your TRS-80 and downloading it into an

IBM, or physically connecting the two machines via an RS232 interface. I've only done disk transfer myself, but I'll talk about the other two methods as well.

There is a program called HYPERCROSS that will create IBM readable disks on TRS-80 machines, but to create directly readable disks you will need double density and a double sided drive. If you have one of these, you've got no worries - the program is available for all models of the TRS-80 range and I've used it extensively without any problems whatsoever. If you don't have a double sided drive and double density (or can't put the bite on someone who has), you may need to get a bit sneaky. Whilst IBM's will only normally read IBM disks, there are utilities available (i.e. PC-ALIEN and MEDIA MASTER) which will read other disk formats (although not standard format TRS-80 disks). They will, however, read some CP/M formats which are only single sided and you may be able to use HYPERCROSS to produce these on your machine.

The second transfer method of physically connecting the machine via an RS232 interface is the least convenient but requires the least resources. You would need an RS232 and a (probably custom) cable to actually connect the machines; then you'd need to write a short program on both machines (or use a proper modem program after making sure that they both support the same transfer protocol). However, the advantage of the direct connection is that you could probably support higher baud rates than you'd get via a bulletin board and that you aren't limited in the volume of data you can transfer in a single session - if a bulletin board throws you off every half an hour or limits the disk space available to you, it is going to cause problems if you want to transfer large volumes of data - particularly if they're spread over a great number of small files.

The third stage of the transfer process - what you do with the file once it's on the IBM - depends on whether you've transferred a raw word processing file or a formatted print file.

As I mentioned earlier, if you transfer a formatted print file you could just simply do a PRINT from DOS. However, this might not have the desired result. When your TRS-80 word processor is sending output to the printer, it should be sending the appropriate control codes for page throws, bolding, underlining, etc. to your printer. If the printer on the IBM uses different control codes, there's no telling what it's likely to do when it gets those TRS-80 generated control codes - but you can bet that it won't be what you want it to do. There are three ways around this problem (aside from not using any special print features in the first place). Firstly, you

could use a printer driver on your TRS-80 for the printer that's connected to the IBM (so the correct control codes are already there). Secondly, you could edit the control codes in the file via the text editor and then PRINT from MS-DOS, or (thirdly) you could load the file into an IBM word processor and use its print facilities and printer driver - this is probably easiest, although you'll still have to take out the TRS-80 generated control codes and fiddle with the margin and page length settings.

The other limitations of formatted print file transfer is that if you want to amend the text once it's on the IBM (other than to just alter some control codes) you have to use a pure text editor or a word processor that will read simple ASCII format with the justification and other features disabled. Because the file probably already has page headers and numbers and the text is justified, you can't upset your word length within a line or alter the number of lines within a page - if you do you will stuff up the justification within the line and/or page throws, so you'll get short lines in the middle of a paragraph and/or line page heading halfway down the page. If you just want to print your document on a laser printer and you're not using any fancy printing commands this is fine. Otherwise, you should have done a raw word processing file transfer.

To understand what happens when you do a raw word processing file transfer, you need to know something about how word processors store their documents in files. Advanced TRS-80 word processors such as Lazywriter and Allwrite store files in ASCII format as a continuous string of text and format then on the screen. This screen format does not necessarily resemble what comes out on the printer because the print formatting is controlled by embedded codes in the text file (e.g. >lm+5 or ;in+5 in Lazywriter and Allwrite to move the left margin in five characters). IBM word processors, however, try to emulate on screen what the printed output will look like - hence the term WYSIWYG (or What You See Is What You Get). To do this, they normally don't display the commands that do the actual formatting (although they normally have an option which allows you to see the formatting commands). In either case, however, the word processor is inserting 'soft' line feed/carriage returns in the text according to its own software logic. The only line feed/carriage return actually stored in the text is the one at the end of the paragraph.

Therefore, to use your favorite IBM word processing programs on your TRS-80 text files, you have to do a raw file transfer and then convert the embedded format codes into the (non-displayed)

address marks are however accessible and can be re-written to salvage the disk.

The tools you will need are:-
SuperZap (on Newdos disk)
Trakcess
A blank diskette.

First, using Superzap identify the sector that is corrupt. You will need this information later when using Trakcess. This is done by entering DTS (Display Track Sector) in Superzap and specifying the drive number that the damaged disk is in, then track 0, sector 0. Press <ENTER> and the first sector will be displayed on the screen. When Superzap finds a sector that it cannot read, it will display a message requesting <ENTER> to be pressed to display the sector. Press <ENTER> to display the sector on screen and then press <JKL> to obtain a screen dump of the sector on the printer. When the printout has finished, hold down the <+> key again to identify any other faulty sectors on the disk.

[BNB ed. Couldn't help but stick my two bits worth in here. It would speed things up no end if you use the VDS (Verify Disc Sectors) facility to actually locate the faulty sectors, make a note of them then jump to the DTS facility to get a printout of these bad sectors.

Just keep in mind that if the sector cannot be read correctly by Superzap, you will get an E displayed in the bottom left hand side of the screen, in this case the sector has NOT been read in and what you are looking at is the garbage that is in the buffer. In most cases this Garbage is exactly that and has no bearing on what is on the Bad Sector you really want to look at.

There is however a way to look at a sector that cannot normally be read by Superzap, by using the RRT undocumented facility, but this is really worthy of an article by one of you expert users of Superzap.]

Remove the damaged disk and FORMAT a blank disk, using the same PDRIVE specifications as the damaged disk. This disk will then be used to rebuild the faulty sectors. These sectors will then be copied to your damaged disk.

Load Trakcess. This utility (like Superzap) does not require a system disk, or the program disk, once it is loaded into memory, however I tend to leave the System Disk in Drive 0 and work with the damaged disk in another drive. Once Trakcess has loaded, you can remove the program disk and insert the Formatted disk.

Now press <R> to read the sector. You will first be asked for the track number, check that the number is correct, the press <ENTER>. You will also be prompted for the sector number and this must be entered in HEX also (This is printed on the left side of the screen dump obtained by Superzap). Another message will appear, asking where in memory the sector is to be placed, press <ENTER>, to read the track into memory. A message will appear to advise whether the track has been successfully read or not. If it was not successful, try again. If the track was read successfully, another message asking if you want to EDIT memory. Press <E> to EDIT memory.

Very carefully input the HEX code from the Superzap printout, starting from the top of the screen. The screen will display one complete standard sector of 256 bytes. Check each line once it is entered and correct any errors. When you are happy with the changes that you have made to memory press <Left Arrow> to return to the main menu.

Remove the blank disk from the drive and insert the damaged disk in its place. Press <W> to write a sector. Press <Y> to use the previous sector data. The modified data has now been written to the corrupt disk.

Repeat this exercise from <R> Read a sector, for each sector that is corrupt and then exit Trakcess.

To verify that the disk is now OK, I use DIRCHECK. This verifies that all of the files have been recovered. If this test fails, it may mean that you have made an error in the EDIT Memory phase. In that case, reload TRAKCESS and try again.

This procedure has worked for me in 99% of cases and I have successfully repaired HIT, GAT, Directory, Boot and System sectors, where other utilities, such as Super Utility, have failed.

CAUTION **** when using TRAKCESS and attempting to repair a NEWDOS disk that has anything other than a 'standard' 40 track

remember DOS instructions. JCL files can be created using TED, the LS-DOS 6.3 Text Editor. To create the files, simply type in <TED> from LS-DOS ready and then type in the statements as you see them. The full stop on front of the first line is important. When finished, store the files separately by typing in <CTRL/F>, followed by the name of the files. I use the names "MEMDISK/JCL", "PRINTSPOOL/JCL" and "FORMS/JCL". You can use simpler names with less keystrokes if you want. To exit from TED simultaneously type <CLEAR/SHIFT/=>.

The print spooler sets up 1K in memory and 15K on drive 1 as temporary storage for output. Everything which is destined for your printer is first written to memory. Once the memory is full, further information is then written to disk:1. The computer retrieves the information from the disk or memory at a rate which the printer can handle. The nett result is that you and the computer can get on with the next task while the printer clatters away at its snails pace. No more waiting for the printer. You can use the print spooler with Visicalc or under your favorite BASIC programs. To install the print spooler, just type <DO PRINTSPOOL/JCL> from LS-DOS Ready. (Remember to use a disk in drive:1 with more than 15K free space).

Most Tandy printers support a Top-Of-Form statement. Unfortunately, you have to set the system so that this statement can be used. This is done by typing <DO FORMS/FLT> for LS-DOS Ready, or <SYSTEM "TOF"> from BASIC will advance the paper in your printer to the top of the next sheet. (A BASIC statement such as <100 SYSTEM "TOF"> does the same). This facility is very useful when using the print spooler. Without it, you would have to judge when to roll the printer platten manually.

The third file set up a "pseudo-drive", in this case drive :2. The value is fairly limited with a 64K computer, but nevertheless I use it quite often. To install the drive, just type in <DO MEMDISK/JCL>. You will now have three drives which are referred to as :0 :1 and :2. Drive :2 is faster (but much smaller) than the others, and it doesn't need to be removed at the end of a session. My operating disk is usually fairly full, so I use Drive :2 when I want to copy a file from one data disk to another . I also have a number of programs for the design of conveyors and structures which build files heuristically. The result is that at the end of a session, I have lots of little files to remove. As I said, a 64K version runs out of puff fairly quickly, but even so, Memdisk may be helpful to you.

ARCHIVING AND COMPRESSION UTILITIES: A SUMMARY

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Since archivers and compressors can reduce disk storage requirements by up to 70 per cent (more for some types of encoded graphics), their advantages are obvious. Even if you don't want to use them you still need to be able to extract files from archives that other people send you.

This note is concerned with public domain and shareware, and mainly with what's available for TRS-80 machines (whether TRSDOS/LDOS/otherDOS or CP/M), and what archiving systems are compatible and incompatible with what others. But some account of the MS-DOS background is unavoidable and may be useful to MS-DOS beginners. I decided to write something after discovering how many goodies were available in the Model 4 Library; thanks to David Sampson for providing copies. We don't always appreciate how much hard work goes into maintaining the NATGUG libraries and meeting our needs from them.

I'll start with utilities originating on the TRS-80, and then look at utilities originating on CP/M systems, utilities originating on MS-DOS, utilities originating on Unix but ported to MS-DOS, MS-DOS utilities ported to CP/M, and finally MS-DOS and CP/M utilities ported to TRS-80 DOSes.

1. Utilities originating on the TRS-80.

In the early 1980s various utilities for the Models I and III appeared which allowed you to store files in 'libraries', thus saving grants and directory slots. Those utilities were commercial and rather expensive, and not compatible with each other. They have now been made redundant by public-domain and shareware utilities originating on other systems.

In 1985 a shareware program called ARCHIVE4/CMD or ARCH4/CMD, for Model 4, appeared. It runs under TRSDOS 6 and mimics MS-DOS archivers (see below), squeezing files as it puts them into the archive. The documentation claims it can also crunch a completed archive, but I haven't been able to get it to do this. The program provides an easy shell interface. But be warned: although archive files have the /ARC extension they aren't compatible with MS-DOS .ARC files or with MS-DOS compatible archivers for the TRS-80.

2. Utilities originating on CP/M systems.

Meanwhile in the CP/M world the SQUEEZE/UNSQUEEZE utility, which used Huffman encoding to compress files, appeared in 1981, and Gary Novosielski's LU (Library Utility) in 1982. Squeezed files can be recognized by the fact that a Q is always the second character of the extension (e.g. filename.eqt). LU did not (originally at any rate) compress the files: it simply stored them in a single file with a centralized directory. If you wanted further compression you had either to squeeze the files before putting them in the library, or squeeze the whole library afterwards. This was a slow process, and extracting the files was also complex. Later the NULU library shell program appeared, which was much easier to use than LU and could unsqueeze files while extracting them.

From the mid 1980s appeared CRUNCH/UNCRUNCH utilities, which used Lempel-Ziv-Welch algorithms developed on Unix systems to compress files; they were far more effective than SQ/USQ for compressing binary .COM files and graphics. Crunched files have a Z as the second character of the extension, e.g. filename.ezt. Many public-domain .LBR files contain crunched *.?Z? files, so you need an uncruncher to complete extraction. More recently, the CRLZH/UCRLZH utilities have provided both faster and fiercer compression. Files compressed with this method have a Y as the second character of the extension (e.g. filename.eyt). UCRLZH.COM will decompress both *.?y? and *.?z? files, but UNCRUNCH.COM will only decompress *.?z? files.

3. Utilities originating on MS-DOS systems.

(A version of LU for MS-DOS, called LU86, appeared several years ago; it will generally extract files from CP/M libraries that have been copied to DOS.) It was soon made redundant by the new 'archiving' technique, developed by System Enhancement Associates, which used a single program, ARC.EXE, to compress the files and concatenate them in the archive, which had the extension .ARC. It provided three compression methods (squeezing, crunching, and 'packing' (?RLE encoding) and automatically chose what it thought would be the most effective one for each file. The archive no longer had a central directory. ARC, which was shareware rather than public-domain, went through various versions. Eventually Phil Katz produced PKARC/PKXARC, which was much faster and provided a

fourth compression method, 'squashing' (still based on an LZW algorithm). PKXARC could decompress SEA archives, but SEA's archivers could not necessarily decompress PKARC's .ARC files. In practice Katz's archiver drove SEA's out of the market. SEA therefore sued Katz for a breach of copyright in the .ARC format; Katz had to agree to omit the letters ARC in his software (which was renamed PKPAK.EXE and PKUNPAK.EXE) and to stop distributing the programs a few months after the agreement.

The result was good for lawyers but grossly inconvenient for users, who no longer had a single widely used compression format from which they could extract files with a single utility. Katz brought out the new PKZIP archiver, which produced .ZIP files; the format of these has been placed in the public domain, although the archiver is shareware. It includes a new form of compression called imploding (another LZW algorithm, I think). ZIP format, however, is incompatible with .ARC format. Most people are switching to .ZIP for distributing software, partly because of the legal uncertainties surrounding PKPAK, etc. and partly because .ZIP provides better compression. Nevertheless, to make matters worse, the early versions of PKUNZIP won't always decompress files produced by later versions of PKZIP, and there is a phoney version 1.20 circulating. Moreover, Pow! the lawyers have struck again: Katz has been forced to suspend the distribution of the standard version of PKZIP/PKUNZIP outside the U.S.A. because it contains an encryption algorithm. This could mean that if you get encrypted text from a U.S. source in a .ZIP archive, even if you are entitled to the key and the supplier has sent it, you won't be able to unzip it.

The disappearance of a single standard .ARC format has encouraged the arrival of other incompatible archiving utilities, particularly ZOO and LHARC. LHARC (Japanese) is a fairly recent contender; it offers better compression than ZIP, and Sydex use it to distribute their products, but it's still not widespread. ZOO (?Indian) also runs on Unix systems and may have originated there (if so I've put it in the wrong section). It is the most complex of the archivers, with a wide range of sophisticated options, but it doesn't offer as good compression as ZIP. Its main advantage for me is that the extractor program (LOOZ.EXE) was written by Rahul Dhesi, the author of ZOO, and includes an option to run executable files directly without extracting them to disk first. So you can put many small utilities into a ZOO archive and run any of them with a simple batch command.

Various utilities have also appeared for compressing executable files without archiving them. The resulting files are then run automatically by the decompressor. One such program, SLIM, was written by an Irishman from the Ox Mountains or thereabouts. He wasn't satisfied with any of the existing compression algorithms so wrote his own Irish one from scratch. It works, and achieves a high degree of compression, but the shareware version of the program is brain-damaged so that it won't compress files more than 64K long, which is useless for most purposes.

More useful is LZEXE, by Fabrice Bellard (French). That attaches the decompressor to the compressed .EXE file, which runs as before, unpacking itself after loading. Some programs won't work after being compressed in this way, particularly those which contain overlays; LZEXE detects such overlays and warns you not to continue compression. LZEXE also provides some protection against viruses, but this is two-edged. If an .EXE file already contains a virus and is then LZEXE'd, the virus is undetectable by most virus detectors (although Virus Scan version 3.5 no. 63 claims to detect viruses of that kind). So even if you have no intention of using LZEXE, you need a utility called ISLZEXE to tell you whether a new .EXE file has been LZEXE'd or not: if it has, don't run it until you have an appropriate virus detector. The instructions for LZEXE are in French. If that bothers you there is a program called LZESHELL which runs LZEXE and superimposes pop-up messages in American. There is also a decompressor, UNLZEXE (Japanese), which tries to reverse the compression process, usually without success.

4. Utilities originating on Unix systems

If you download a file, even one containing source code for CP/M or MS-DOS programs, from a Unix machine, it may have been archived with one of the Unix archivers or compressors. The commonest archive format appears to be tar. There are two public-domain detarrers for Ms-DOS; neither is very helpful if you don't know what you are doing (and I don't in such circumstances). Files ending in .tar.z should first be decompressed with Brian Ripley's Decompress program (Scottish), which is available from SIMTEL20. It runs under MS-DOS.

The file trsp.tar.z (?Australian), which is sometimes found on Unix machines, has nothing to do with the TRS-80. For the ZOO archiver, see above.

5. Utilities ported from MS-DOS to CP/M

In the mid 1980s the UNARC program (most recent version 1987) appeared on CP/M; it was designed to extract files from Ms-DOS .ARC archives, whether created by ARC or PKARK/PKPAK. The latest version is UNARC 1.6. Later the CP/M ARK.COM utility allowed creation of MS-DOS-compatible archives; though only crunching and packing are implemented, that doesn't in fact matter.

The archives have the extension .ARK to distinguish them from MS-DOS ARCs, but both UNARC and PKUNPAK will extract files from them. Both UNARC.COM and ARK.COM perform at respectable speeds, so they make a useful pair for storing CP/M text and software in compressed format.

In 1989, in addition, CP/M utilities appeared to unarchive LHARC and ZIP archives, with a separate utility to read ZIP directories. There appears as yet to be nothing that creates or unarchives ZOO archives on CP/M, nor an archiver to create ZIP and LHARC archives.

All the CP/M utilities described can be obtained from SIMTEL20; if any of them aren't yet in the NATGUG CP/M library, they soon will be.

6. Utilities ported from CP/M and MS-DOS to TRS80 Doses

Both Squeeze/Unsqueeze and LU became available for TRS-80 Doses in the mid 1980s. There are versions of SQ/CMD and USQ/CMD for the Models I, III, and 4, and of LU/CMD for Model I, Model 3, Model 4 TRSDOS, and Model 3 Newdos80 (LUN3). The libraries created were compatible with each other but not with MS-DOS and CP/M .LBR files; for those you need LUM3/CMD and LUM4/CMD. Most or all of these programs were written by David Huelsmann. The library utilities would not squeeze or unsqueeze files; to achieve compression you had first to squeeze the files individually, then put them into the library, or put them into the library and then squeeze it to an /LQR file. The whole process of getting files in and out of libraries in compressed form took up a lot of disk space and time, since the utilities are all rather slow. It was not a practical proposition except for long-term storage of seldom-used material.

In 1986 or 1987 versions of the SEA archiving software, adapted by

David Huelsmann from the MS-DOS source, appeared for Model 4, as ARC4/CMD, XARC4/CMD, and MARC4/CMD (for merging archives). Those programs are shareware, not public domain. They can manipulate MS-DOS .ARCs created with SEA's ARC program and copied to TRSDOS/LSDOS. They have gone through several versions. Presumably ARC4 and XARC4 will not handle archives created on MS-DOS with PKPAK and copied onto TRSDOS or LSDOS, though I haven't yet been able to test this. ARC4 is sufficiently fast to be usable, though still very slow by comparison with PKPAK/PKUNPAK on MS-DOS. ARC4, etc. should be able to handle CP/M ARKs, though I haven't tested that. I believe that there are also model III versions. The model 4 versions allow you to remove the line feeds when extracting text files from archives copied from MS-DOS.

In 1989 Richard Van Houten produced DEARC31/CMD for the Models I/III and DEARC4 (now DEARC4V2/CMD) for Model 4 TRSDOS. These programs will extract files from PKPAK archives as well as SEA ones & allow removal of line feeds. DEARC31 is reasonably fast.

Van Houten also brought out separate versions of a DEZIP program, one for the Models I and III and the other for the Model 4. Later he revised them as DEZIP4V2, which runs on Model I/III LDOS as well as Model 4 TRSDOS. It doesn't run properly on Newdos86, wrongly claiming that correct ZIP files have bad archive markers. The older version, DEZIP31/CMD, does work on Newdos, at least with the archives I've tried it on. These programs are shareware. The unregistered versions won't extract IMPLoded files, except to the display or the printer. You can get round this by rerouting printer output to disk, but obviously the results would be unreliable if the extracted files were binary rather than text files.

The Model 3 and 4 programs described are in the NATGUG Model 4 library. There don't yet seem to be TRS-80 dearchivers for ZOO and LHARC archives.

7. Squeeze Printing

This is a way of storing computer documentation in miniaturized compressed format, on paper rather than on disk. Paul Dawson's Squeeze Print, which Ariela provides from the MSDOS library, will produce compressed output in half a dozen different formats, with blank lines omitted. The default printer driver is a standard Epson one; I think that you can customize it if necessary. The format I

found most useful prints four 80 column by 66 line blocks on an 11-inch, A4, or 12-inch page, so with long documents you save 75% or more of the paper you'd otherwise need. I couldn't find a program that did this on TRSDOS 6.x or CP/M, so I wrote one. It only produces the four-block format, and requires an Epson-compatible printer, and there are still one or two minor problems with it, but it's usable. Since it will print up to 10 files in one run I gave a version to the MS-DOS library as well. I have not yet got a version to work in Model III mode, because whatever I do the FORMS command gets in the way.

8. Timings.

Perhaps you're wondering why I haven't included any actual timings in this review. Well, I tested most of the programs using a draft of this note - about 14k of text - and made a nice Visicalc spreadsheet ready to print to disk as a table at the end of the article. Then I remembered to look again at what the Editor said in the June issue about preparing tabular material for NATGUG, and thought better of it. Wonderful Word Perfect! I never use it myself: word processing and Scott Adams adventures are not the same thing and should be kept strictly separate. Nor do I like manuals which call spades entrenching tools and ASCII files by some proprietary name. Several colleagues use Word Perfect and keep telling me how splendid it is. When they want to do anything more complicated than typing a bit of text and printing it out with the printer driver that the dealer set up for them, they come and ask me to read their manuals and sort their problems out, which usually wastes several hours of my time. Have you ever tried using WP to edit a few words at the end of a 300K ASCII file and save it back again in ASCII? (Take out a life insurance policy first.) End of diatribe.

The timings, by the way, were carried out on a Model 4P at 4mhz, and on an XT clone at 10 mhz using the floppy drive only, for maximum comparability with the CP/M and TRSDOS, etc. software on the 4P. They showed that the Model III versions of the programs under Newdos86 were consistently faster than their Model 4 equivalents under LSDOS; that the CP/M versions were faster than either; that PKPAK/PKUNPAK were faster than PKZIP/PKUNZIP; that the greatest compression was achieved by PKZIP (59 per cent) and CRLZH.COM (57 per cent); and that allowing for differences in hardware speeds the most effective use of disk space and time was obtained by combining CRUNCH.COM and UCRLZH.COM under CP/M.

DATESTAMPING DIFFERENT VERSIONS OF
BASIC PROGRAMS WHEN SAVING

Jim Wragg

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A constant source of confusion when developing BASIC programs is trying to figure out which was the latest version of the program under development when you look in a directory listing. Another problem is trying to remember the version number of the last program you saved and quite often an important version can be overwritten with the current version when you are saving it using the wrong name.

There would be as many solutions to this problem as there are programmers and I will now pass on my solution which I have been using for some time now. This article was inspired by an article in Australian Personal Computing, April issue in TJ's work shop.

The essential elements of the method I use is to append a small program to the end of the program that you are developing which will automatically save the program in memory. This is fine if you always want to save the program using the same name, and I seldom do. So why not let the computer keep track of the version # and append it to the filename when it is saved.

To calculate the version number it is simply a matter of taking the VAL of the dummy variable T\$\$ and adding 1 to it. This new value is then POKEed into the dummy string T\$\$ and the new version number is recorded in the program. I have made provision for 999 versions, this can be increased at the expense of reduced alpha characters in the filename - remember, a legal filename has a maximum length of 11 characters including the extension.

The date is obtained by carrying out a string manipulation on TIMES\$ and poking the individual characters into a dummy string D\$\$.

Once this has been done the program can be saved using the name that has been defined in the variable PG\$. However, before the program is saved the version number is appended to the program name. This is done by stripping off the leading blank from the version number and appending it to the filename. If you fail to strip off the leading blank before adding the two strings the program will be saved WITHOUT the version number as the basic interpreter ignores anything following a non alpha or numeric character (the /

is an exception) in a filespec/

I always insert a STOP command immediately prior to this saving routine to prevent accidental saving of the program, and have a STOP command immediately after the save has been completed. This enables me to have control over what the computer will do next rather than calling this routine via a GOSUB. I execute it by typing GOTO 60000 from the > prompt.

Another small feature of this routine is the screen that you are presented with when the routine is accessed. It gives the filespec, last version and time that the program was last saved.

There are only two requirements when using this routine, first it depends on the time and date that has been set when the system was turned on. If this feature is not required, it is not important, the choice is yours. More critically though avoid using the variables DS\$ and TS\$ in your program. If you cannot avoid using then you MUST rename the variables in the subroutine to names that are not being used in the main program.

Finally, I have used this program with NEWDOS, MULTIDOS, TRSDOS and DOSPLUS on the Model III and the Model I.

Model IV users will need to change the line 60080 and insert line 60085 as follows:

```
60080 FOR I=1 TO 10:POKE ZO!+I+1,ASC(MID$(TIMES$,I,1)):NEXT
60085 FOR I=1 TO 8:POKE ZO!+I+10-1,ASC(MID$(DATES$,I,1)):NEXT
```

PROGRAM LISTING

The only variable you should not duplicate in a program are TS\$ the version number and DS\$ the date stamp

```
59999 STOP:          'Variables used - DS$,PG$,PN$,TS$,VP,ZO
60000 TS$="          ": 'Version number
60010 DS$="04/13/89 07:14:29":'Date and time of last save
60020 PG$="PROG":'Insert name of program here. Up to 8 letters, no
                                     extension!
60030 CLS:PRINT:PRINT PG$;"Version number ";TS$:PRINT"Last saved
                                     on ";DS$
60050 VP!=-VARPTR(TS$):TS!=-VAL(TS$)+1:GOSUB 60110
```


the cursor.

Unlike the other file types used with Visicalc, saved spreadsheet files cannot be employed in any other application programs. While they contain numerical and alpha-numerical data which could be used inside other programs, there are also formulae (cells C13 & B13) and command sequences which are unique to Visicalc and could not be utilised other than by compatible spreadsheet programs.

SCREEN DISPLAY OF SAMPLE SPREADSHEET

```

      :::A:.....B:.....C:
1:           WIDGET PRODUCTION
2:  Month           1987      1988
3:  Jan             238       311
4:  Feb             331       393
5:  Mar             299       416
6:  Jun             298       400
7:  Jul             227       405
8:  Aug             388       422
9:  Sep             313       397
10: Oct             320       412
11: Nov             339       423
12: Dec             256       376
13: TOTAL           3009      3955
    
```

LISTING OF SAVED SPREADSHEET FILE

```

>C13:@SUM(C3...C12)    >C8:422                >C3:311
>B13:@SUM(B3...B12)    >B8:388                >B3:238
>A13:"TOTAL"           >A8:"Aug"              >A3:"Jan"
>C12:376                >C7:405                >C2:1988
>B12:256                >B7:227                >B2:1987
>A12:"Dec"             >A7:"Jul"              >A2:"Month"
>C11:423                >C6:400                >C1:ODUCTION
>B11:339                >B6:298                >B1:"WIDGET PR
>A11:"Nov"             >A6:"Jun"              /W1
>C10:412                >C5:416                /GOC
>B10:320                >B5:299                /GRA
>A10:"Oct"             >A5:"Mar"              /GC9
>C9:397                 >C4:393                /X>A1:>A1:
>B9:313                 >B4:331
>A9:"Sep"              >A4:"Feb"
    
```

The second type of file used is a print file, usually identified by its extension /PRF. Unlike the other two file types, it is not generated by the /S (storage) command. Also, once created, it cannot be reloaded into a spreadsheet.

The file is created as an option of the /P (print) command, and will contain the same data that would have otherwise been sent to the printer. A print file can be used within a word processor, for example, to include tables created by Visicalc in other documents. Unlike the saved spreadsheet file, any portion of the spreadsheet may be saved in a print file, by placing the cursor on the top left corner and specifying the co-ordinates of the bottom right hand corner of the required part of the spreadsheet. Command sequence is /PF "filename" <ENTER>, followed by the corner co-ordinates.

The third type of file is called Data Interchange Format (/DIF).

This is a common format for storing data originating from, or destined for, a Visicalc spreadsheet. As with the other file types, ASCII is used, and DIF files can be manipulated by BASIC programs, and other application programs designed to read these files (e.g. VISIGRAPH, BIZGRAPH [Hi Res]).

Unlike the saved spreadsheet files, DIF files will only contain data (numeric or text), not formulae or command sequences.

DIF files are probably most used as transferring data from one spreadsheet to another.

For instance, totals calculated at the end of one sheet could be saved and loaded into another as the initial "carry forward" values. When used between Visicalc and BASIC, the most common reason is to sort the data within the BASIC program, as a sorting facility is not provided in Visicalc. As with print files, any portion of the spreadsheet can be saved.

DIF files have a structure which at first seems unintelligible, but when studied more closely, a pattern begins to emerge.

In our example DIF listing, which consists of all the data in our sample spreadsheet, it can be seen that there is a recurring pattern.

Each data item is expressed over two lines, in the form:

(Type indicator),(Numeric value)

(String value)

Type indicator - can be one of three values.

-1...Not actually a data item, but a Marker Item. Numeric value will be 0. String value will be either BOT ("beginning of tuple"), where it is used as a separator between section of data, or EOD ("end of data"), to signify the end of the file.

0....Indicates numeric data, the value of which follows the comma. String value will normally be V, this being a non-significant "filler" which can be ignored.

1....String value indicator. In this case the numeric value, not being significant, will be 0. The string value following will be enclosed in quotes.

Comparison of the DIF file with the actual spreadsheet will reveal that each two line data item corresponds to a cell. It can also be seen that data is set out in columns, each headed by a Marker Item (BOT). So what are the four items at the beginning of the file?

These form the "File Header", which contains data regarding the physical size of the spreadsheet (or part thereof) data has been saved from. The first item (TABLE) appears to be the same in every DIF file, and appears to do nothing other than signify the start of the file. Similarly the item headed DATA marks the end of the header.

The other items (VECTORS and TUPLES), have type indicators of 0 (numeric value significant), contain values of 13 and 3 respectively, which happen to be the number of rows and columns in the source spreadsheet. In cases where the data will be read by a BASIC program into an array, these values are read and used to DIMension the array.

So why think up more names? What's wrong with ROWS and COLUMNS instead?

Well, it has to do with the way the data is saved from the source spreadsheet. You have the option of saving data in ROWS, when Vectors = Rows and Tuples = Columns, or Vectors = Columns etc when the opposite is the case.

My version of Visicalc (Model I version 1.20z) will not allow the second option, which thankfully saves me a lot of confusion. However, there would probably be cases in which the order of saving would be important; I haven't come across one yet.

For readers who would like more information on Visicalc or DIF files in particular, I would recommend the book "Mastering Visicalc" by Douglas Hergert (SYBEX).

As well as providing a more complex explanation of the DIF file structure, there is also the complete "do it yourself" guide for using DIF files with BASIC programs.

LISTING OF DIF FILE

TABLE	"Mar"	0,331	V
0,1	1,0	V	0,311
""	"Jun"	0,299	V
VECTORS	1,0	V	0,393
0,12	"Jul"	0,298	V
""	1,0	V	0,416
TUPLES	"Aug"	0,227	V
0,3	1,0	V	0,400
""	"Sep"	0,388	V
DATA	1,0	V	0,405
0,0	"Oct"	0,313	V
""	1,0	V	0,422
-1,0	"Nov"	0,320	V
BOT	1,0	V	0,397
1,0	"Dec"	0,339	V
""	-1,0	V	0,412
1,0	BOT	0,256	V
"Month"	1,0	V	0,423
1,0	"WIDGET PR"	-1,0	V
"Jan"	0,1987	BOT	0,376
1,0	V	1,0	V
"Feb"	0,238	"ODUCTION"	1,0
1,0	V	0,1988	EOD

[Visicalc prints /PRT and /DIF files in column format, to save space these have been presented in several columns, therefore read each column from top to bottom, then from left to right.]

TREASURER'S STORRY.

I think that NATGUG once again may be heading for a membership crisis. How much this has to do with our identity, the fact that we try to cover both the old TRS80 and the New MSDOS, I do not know. We had a membership of 353 for the first half of 1989 and 334 for the second half. This year with mid year renewals eliminated, we so far have 253 paid up members. The membership is therefore declining again. Financially however we are sound and therefore able to invest in hunting potential and old members.

I have mailed all members who dropped out in December 1989 and we are now in the process of mailing all Tandy outlets, direct, rather than relying on Tandy themselves to distribute our leaflets. Why do we loose members and which members are we loosing. It is very difficult to be sure which members have what machines, because so many do not send in the membership forms correctly filled out. We, therefore, do find it very difficult to keep an accurate tally of your equipment. My feeling is that we are still mainly TRS80, although of the members who regularly visit Swindon, we are almost totally MSDOS. I think we have done very well in keeping those older members, many have very great loyalty to NATGUG and to them NATGUG is a group of friends who used to use TRS80 machines. Of this group we do have losses, but we have kept many of the regular Swindon attenders. I think one of our problems is to persuade new members to attend Swindon. We are loosing at least 100 members each year mostly new members who join, do nothing, gain nothing and leave. In 1989 we attracted more new members than we lost, in 1990 so far, we are way down. It is very difficult to persuade members to use the Magazine for contacts and problems. If they do not find the answer to their problems in the newsletter, they do not renew. Putting pen to paper, ringing John Kilpatrick or using the newsletter are options that very few take up. It really is very sad.

My six years experience of Model 4's and the fact that I still use them almost exclusively seems to make me the expert. This frightens me witless as I feel my abilities are very amateur. I do not know the first thing about machine code, I am a hopeless programmer and I know very little about electronics. I have now acquired a very basic 286 monochrome with a 20 Meg Hard Drive, one 360K floppy, and 1.5 Meg of extended memory. I have not the faintest idea how to use it and I do not propose to use it too much for the present anyway. I still feel my Fours do everything I need to do except for those times when I need to check something for an

MSDOS machine. I have only just moved on to Hard Drives and the speed now available to me with them and the XL8ers is most impressive. The only advantage of the 286 or 386 is that they will produce these speeds or better in a standard machine whereas mine are hybrids which take quite a bit of setting up and maybe they are less reliable "crash wise".

I have recently acquired two 15 Meg Tandy hard drives, which I have connected up to my two XL8er'd machines. The first drive on the 4P is totally CP/M and used just for databases. It works fairly well but is not totally reliably, files disappear and I have just discovered using "MDIR \$UVS" that they are being transferred to inaccessible User areas. Originally I could find no way, short of re-formatting, of for instance, deleting a file called NU.CMD in user area 68. I have known for some time, that the number of files and the file sizes as shown in the directory, did not add up properly, but I have only just discovered these migrated files. I have now found SPZ.COM (superzap) and with this I have "attacked" the directory entries. Each active directory entry starts with 00H which is an ASC11 ".". I found that some (the faulty files) did not do so and in these I have changed the whole directory entry to E5H, in effect re-formatting the 32 Bytes allotted to that entry. It seems to have worked well, but I do not understand exactly what I have done and I am treating it all with great skepticism. If the directory entry starts with an E5H that seems to denote a deleted file. I now suspect that the directory entry is being moved backwards one byte. The entry ".SNU.CMD" then becomes "SNU.CMD" and appears from DOS to be "NU.CMD".

The second drive is on my gate array 4, I do have a second gate array FOUR which is looking for a GOOD home. These are rare machines and I will only let it go to somebody who will appreciate that it is the best of the desk top FOURS available to us. This is the only Four that runs as fast as a 4P. I have had difficulty setting my gate array Four up with the latest 6.3.1 level F, the power soft western Digital drives and my usual collection of goodies. I need Eramdisk, I like Scredit, SCREEN/FLT (a blanker) DDuty and Lescrypt 2.01. I can get it all to run but I get crashes and I get key stroke losses in Lescrypt. I thought this might be due to DDuty, or have something to do with forcing Eramdisk into High memory. To make room for Dduty in low memory, I must have either the HD driver and/or Eramdisk in high memory. I originally could not find any way to force the HD drivers high, except by installing Dduty first. This then meant that I could not sysgen the resulting set up. Eventually I discovered that I could install Eramdisk (low) then

install the HD drivers one then went low and the second high. Eramdisk can then be reclaimed from low and reinstalled high to leave room for DDuty. I do not sort problems like this out quickly at the best of times, but presently it has not been a good time for me. I hate the hot weather, my job now involves too much travelling and I have lost the nice cushy Billet where I could get things done at work for myself and the club. On top of that my "poor" old Mum, who is 80, has just had a quadruple Heart Bypass operation (at great expense) and she has needed and I hope received the support of her siblings. I finally cured the problem of missed key strokes and crashes by reformatting the booting floppy with PREFORM6. Why this worked or how, I have no idea.

I would now like to say again to all TRS80 Users - WE MUST SUPPORT THE SOFTWARE HOUSES - that we still have working for us. Misosys must be first on the list, the quarterly is the best source of technical information and is an essential. LS-DOS 6.3.1 is a worthwhile update on 6.3 and only costs \$18. As an update to TRSDOS 6.x it is \$39, which is still very cheep. File dating now goes to 2011, you can disable printer time out, specify a 24 hour clock, the library command LIST is now paged a screen at a time (no need to use the space bar pause zap), a very useful memory command which gives the status of the switchable memory banks and a map of resident I/O driver modules,z and a very useful drive swap routine. I use at least five drives and my initialisation JCL always contains a swap routine. SWAP/CMD can be disposed of for System(drive=?,swap=?), which does not abort the JCL, so a complicated drive shuffle is a doddle. System(system=) does not abort tha JCL now, either. The MEMORY command was essential to me in sorting our my problem installing 6.3.1 and the HD drivers.

Double Duty has now been re-worked (version 2.06) to use extended memory banks (XL8er or Supermem) so that you can now have two program areas one of which is the full 128K. I love DDuty it allows so many useful little wheezes. You can work on two visicalc files at the same time; I used to always have Dotwriter and Lescrypt on line together until I started to use my 24 pin printer more. Now I find the most useful facility is partition 3, which allows only DOS commands. In fact I could use a SINGLE DUTY with just partitions one and three. Also how about the ability to exit DDUTY without a re-boot. Go on Roy, I challenge you. Perhaps what I am saying here is that Lescrypt does not have the ability to allow DOS Command, unlike Visicalc. It is no good challenging Anitek they do read this. In any case I have paid out quite enough uprating my original 1.43 Lescrypt.

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MODEL I/III

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Glanmor, Brynna Road, Pencoed, Bridgend, Mid Glamorgan, CR35 6PD

The Model I library list is a hardcopy printout available at a cost of £2 from the Treasurer (address on the front cover).

Program disks are available from librarians only by sending one of your own disks formatted for use on your machine (give the librarian details) for each of the library disks of which you want a copy plus a cheque for the copying charge of £1 per disk plus return postage and a self addressed lable.

The only exception to this should you prefer, is David Sampson, who is willing to supply disks for an extra £1 and mailers for 50p.

If in doubt please talk to the relevant librarian or the Treasurer.

The Model I library contains programs which will run on Model III. Likewise the Model IV library also has relevance to model III.
!!

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