

M3 UNLOCK

Reviewed by J.R.CLEVELAND

The utility for converting Multiface 3 programs to stand-alone form *Programmed by TONY SUMMERFIELD*



N the beginning was the rubber-keyed Spectrum, and its software was all on tape, and Uncle Clive saw everything that he had made and behold, it was good, and peace reigned over the earth.

Then along came microdrives and later disc drives, and life started to get "interesting". The games software houses decided they'd really rather we didn't transfer their games to these new-fangled storage media, so they started to "protect" them against transfer. Up popped enterprising individuals, such as Geoff Bobker of ZX Guaranteed, with transfer software packages to circumvent this protection, but the industry replied by deploying increasingly varied and sophisticated protection techniques. This battle still rages on today, with Kobrahsoft and Lerm being the current upholders-aloft of the banner of transfer technology. The problem is that tape-to-disc transfer by these purely "soft" techniques requires a good deal of study, knowledge and skill which few but the most freaked-out hackers have the leisure to acquire.

Suddenly, Romantic Robot invented Multiface 3 (M3), a little black box that plugs into the +3's expansion port and automates the transfer process. As soon as the program you want to transfer has loaded from tape, you press the M3's "magic button" to "freeze" the computer's memory and then proceed to save this "snapshot" to disc. Upon reloading, the memory is automatically restored and the program autostarts from the point at which it was stopped. Wicked? - yes, but not without its own drawbacks -

Well for starters, programs saved with M3 will not reload unless M3 is present and switched on. The M3 manual makes no bones about this - it's to protect copyright and discourage piracy, but that doesn't make it any the less irritating. One of the attractive features of the +3 has always been its simple no-nonsense method of loading disc software, and having to fiddle with M3 detracts from this. Then, what if you've made the mistake of buying an M3 with no "thru-port" only to find that your favourite game has only a Kempston joystick option (as in the older games such as "Maziacs") - how are you going to plug in your Kempston interface at the same time as M3? Then again, what do you do if your M3 gets lost or damaged, or M3 ceases to be available? Another problem arises with some programs which run in "locked" 48K mode, so that however you load them, when the magic button is pressed M3 can only offer a save to tape because its access to the disc drive has been cut off.

Clearly then, there is a need to convert M3 SAVES into stand-alone form, and 1990 has proved to be the year in which two independent solutions to this problem have come up. In the June edition of "Outlet" disczine from Chezron software, James Carroll described a method which involves using the M3 toolkit to POKE a short machine code routine into an unused part of the memory to save the desired program code out to tape as a headerless file. A header is then added and the whole lot loaded back and saved out to disk. The procedure is rather technical, assumes some familiarity with machine code, involves an element of skilled experimentation, and is said not to work with 128K programs or programs which access the ramdisk.

At around about the same time, Tony Summerfield published his "M3 UNLOCK" utility which largely automates the conversion process, works with both 48K and 128K programs, and provides a solution to the problem of "locked" 48K programs. Before describing this in detail, I'd just like to remind you of an M3 feature which is easily overlooked.

Multiface Formats

When it comes to disc SAVEing with M3, there are two main choices (see para. 2.5.3 of the M3 manual). The first, which is the default, is to SAVE in "128K format", in which case M3 saves (in compressed form) the entire 128K memory (blocks 0-7). Alternatively, for 48K programs, you can select "48K format" by pressing "K" after having entered the filename. Then M3 saves only the original Spectrum 48K blocks 52 and 0. Selecting this option reduces the length of the disc files created, and consequently the re-LOADing time is also shortened. In addition, it simplifies makes the conversion process with M3 UNLOCK. Having said that, I have to add that I've come across one or two puzzling instances of 48K games that will not re-LOAD correctly if disked in "48K format" but require the "128K format". As usual, trial and error may be necessary.



The main menu

On loading, M3 UNLOCK puts up its main menu of four options -

- | |
|------------------------|
| 1. M3 UNLOCK PROGRAM |
| 2. M3 UNLOCK 2 PROGRAM |
| 3. DIRECTORY PROGRAM |
| 4. BASIC SETUP PROGRAM |

In the vast majority of cases, only options 1 and 4 are required. Options 2 and 3 are for the few 128K SAVEs which use memory bank 7 - more of that later. Let's start by describing the simplest and most common case -

Converting M3 disc SAVEs in 48K format

On selecting option 1 from the main menu, the next thing you see is the prominent anti-piracy notice (of which more later) which is held on the screen until its timer has wound down to zero. You are then offered the choice of -

TAPE-TO-DISC conversion, or DISC-TO-DISC conversion.

Having selected the latter option and inserted the disc with your M3 program, you are then led through a simple sequence of CATting the disc, selecting and LOADING in the desired program (no need for M3 to be present), and SAVEing out the converted code onto your destination disc. Next you re-LOAD M3 UNLOCK, select option 4 from the main menu and select 48K from the ensuing menu. That gives you a BASIC loader program which you customise by inserting program names as directed by the instructions and SAVE onto your destination disc. That's all there is to it! The process is highly automated and requires no intellectual effort on your part whatsoever.

Now let's consider what we've ended up with, using "Tetris" for illustration. The converted code actually consists of three files TET0, TET1 and TET2. Then there is the BASIC loader which we can call anything we like, but let's stick to "TETRIS". On top of this the process has SAVE'd two files entitled CODE1 and CODE2

48K program	
<u>Before conversion</u>	
TETRIS	1K
TETRISC	<u>30K</u>
	<u>31K</u>
<u>After conversion</u>	
CODE1	1K
CODE2	1K
TET0	4K
TET1	25K
TET2	2K
TETRIS	<u>1K</u>
	<u>34K</u>

which are the same whatever program we are converting. So we've finished up with a total of five CODE files and one BASIC loader (see left panel below) having a total length only 3K longer than the original M3 files. However the larger number of files causes a marked increase in loading time, but I'll describe how that can be overcome later.

Converting M3 tape SAVEs

M3 always allows you the option of SAVEing to tape, but there is only one circumstance where this is a useful - indeed unavoidable - thing to do, namely in the case of programs which run in "locked" 48K mode in which access to the disc drive is cut off. You may come up against these in two ways - firstly, some games will load and run only if 48K BASIC is selected from the LOADER menu, and secondly there are some games which can be loaded from 128K mode or from "unlocked" 48K mode (accessed by the SPECTRUM command) but which drop the computer into "locked" 48K mode. In either event you find the dread word "locked" flashing at you when you press the M3 button and can SAVE only to tape. The manner in which M3 UNLOCK deals with these tape SAVEs is identical to the procedure described above for 48K disc SAVEs except of course that you select the TAPE-TO-DISC option and then load in the M3 program from tape.

Converting M3 128K SAVEs

The procedure is essentially the same as for 48K SAVEs except that there are a couple of extra disc swaps, the 128K BASIC loader takes a little more setting up, and the total number of disc files generated is greater - see the right panel which illustrates the conversion of "Captain Blood". Also, after the main code conversion, it is advisable to CAT the disc and examine the size of the file having a .BK7 extension. If this is more than 2K in length it means that the program uses memory bank 7, so you have to start again using the procedure described in the next section.

128K program	
<u>Before conversion</u>	
BLOOD	1K
BLOODC	<u>84K</u>
	<u>85K</u>
<u>After conversion</u>	
BLO0	7K
BLO1	29K
BLO2	2K
BLO3.BK1	7K
BLO4.BK3	14K
BLO5.BK4	15K
BLO6.BK6	13K
BLO7.BK7	2K
BLOOD	1K
CODE1	1K
CODE2	<u>1K</u>
	<u>92K</u>

Converting 128K/Bank 7 SAVEs

These get special treatment. You select option 3 from the main menu and insert a formatted disc which must be blank, whereupon the program "locks off" a whopping 130K area to be occupied by the converted code. So CATting a standard-format disc at this stage will give you "No files found", "43K free".

Next you select option 2 from the main menu and convert the M3 code very much as before, but because the converted code goes into the "locked off" area it is invisible to CAT. Lastly you select option 4 which generates a 1K BASIC loader plus a 1K file called "CODEJ", leaving only 41K free. I could not find any games requiring this treatment, though I was able to try it out on one piece of "serious" software.

Screen corruption

M3 itself often makes a mess of the screen display during re-LOADing, and then leaves you stuck with its blue border. With M3 UNLOCK programs there is no border problem, but screen corruption occurs in different forms -

On LOADing 48K programs, the screen which was on view at the time you pressed the M3 button soon appears, but as soon as LOADing is complete the top row corrupts. This is rarely a problem though, since with most games the opening screen is soon swept away by a torrent of others.

With 128K programs, there is major corruption of the screen display until LOADing is complete when it clears up completely except for the top row as with 48K programs.

With the only example of a 128K/Bank 7 program I could find, the upper part of the screen became badly corrupted towards the end of LOADing, but cleared on tapping the INV VIDEO key.

LOADing times

The total length of the files generated by M3 UNLOCK generally exceeds that of the original M3 files though not by all that much. What really causes the LOAD time to shoot up though is the number of files which +3DOS has to struggle with - six in the case of 48K SAVEs and up to 11 with 128K SAVEs - in contrast to the original M3 disc files which are invariably only two in number. The most effective thing you can do to bring these times down again is to SAVE your converted files on to discs formatted with

the excellent 203K HIFORMAT utility - item 98 in the +3 PD library. By interleaving the disc sectors in a manner which is much more efficient from the +3DOS point of view, it lops something in the range of 30 - 45% off LOADing times compared to a standard format disc - and that's on top of giving an extra 60K capacity per disc, enabling you to cram more games on - in fact you can now create really useful games compilations to your own specification.

The table below gives some test data for that golden oldie "Maziacs", which has a tape LOADing time of about 2' 29". Although it can be multifaced in the default 128K format, you can see from the data that the 48K format is much more efficient.

Use of the PARAMETERS program - no. 8 in the +3 PD library - shades a second or two off the LOAD times of converted 48K programs, but with 128K conversions it increases the times by 3 - 4 seconds, and the drive can be heard to stop momentarily several times during LOADing!!!

Multiloaders

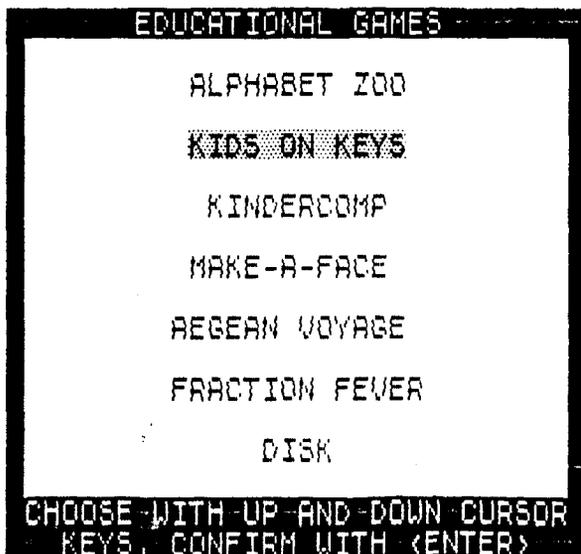
Multiloaders are games which do not load all at once but in several parts, and they are much more common today than they used to be. They come in two flavours depending on whether the different parts are open to random access or only to serial access. A classic example of a random access multiloader is "Super Hang-On" which has four parts, and although there is a progression of skill from the first part to the fourth, there is nothing to stop you playing the parts in any order you like because access to one does not depend on completion of another. In fact it's just like four separate games, so multifacing and conversion present no special problem.

Serial multiloaders on the other hand are a bit of a pain. A well-known example is "Afterburner" where the second part won't load in until the first has been successfully completed, and so on. Paragraph 33 of the M3 manual describes how to overcome this problem, but this procedure is not applicable after conversion with M3 UNLOCK. I would say that M3 UNLOCK is perhaps at its least useful with these serial multiloaders.

"Maziacs"	M3			M3 UNLOCK		
M3 SAVE format	Total files length	173K LOAD time	Total files length	173K LOAD time	203K LOAD time	
48K	27K	20"	30K	31"	22"	
128K	29K	24"	36K	41"	29"	

The big front-end

OK, so you've got your four or more converted games on to one side of a 3" disc, now how about "front-ending" the whole lot with a nice menu program? It's not as if you're starved for choice - for instance there's Garner Designs' "Desktop Executive" or Chezron Software's "CATLOADER" (Outlet no.33) or Brian Gaff's menu utility (no. 3 in the +3PD library), or you could always concoct your own menu. For games, however, my own pet favourite is John Luby's menu utility which appeared in "Outlet" no. 25 (September 1989). It's cursor-operated with BEEP effects, and fully shields the user from +3DOS - in fact it's just perfect for use by children below the age of computer literacy. The illustration below shows a menu for the six Spinnaker Software educational games which came out for the Spectrum in about 1983. (In fact you don't need M3 UNLOCK to disc them because they're not protected.) I often think these six machine-code games are a stack more imaginative, more educational and yes, more "fun", than the limp BASIC-programmed games in "Fun School". These days I see them about less and less often, so if you have kids and see any of these games, perhaps at a computer fair, then snaffle them up quick! As with many programs in "Outlet", the program lines in Luby's BASIC are so shot full of control codes that they throw the 128K screen editor out of kilter, so it's easiest to insert the necessary data with the 48K line editor (accessible via the SPECTRUM command), then return to +3 BASIC with RANDOMIZE USR 23354 and save to disc straight away. It's always a good idea to make "DISK" the final option as shown so that if you decide you don't want this disc after all, you can load another disc without having to reset the +3.

"Serious" uses of M3 UNLOCK

From what I've said so far, you might have come to the conclusion that M3 UNLOCK is really of interest only to games freaks. Not so! Here are a couple of "serious" applications -

1 - Artist II

How many of you mouse-toting Artist II aficionados have pined to have mouse control as the load-up default instead of keyboard control? No doubt there's someone out there who knows how to POKE the code to achieve this desideratum, but until such time as he puts his head over the parapet and lets on to the rest of us, we'll have to resort to cheat methods such as the following procedure which requires a "thru-port" M3 -

1. Plug the mouse interface into the M3's thru-port and plug the M3 into the +3 (while switched off).
2. Load Artist in the usual way then put a blank formatted disc in the drive.
3. Pull down the EXTRAS menu and select mouse control as usual.
4. Pull down the SCREEN menu and select VIEW.
5. Now press the M3 button, select SAVE, type in the filename (say, "ARTIST" or "DISK") and ENTER.
6. At this point press K so that "128K" at the bottom right of the screen changes to "48K".
7. Press D to save to disc.
8. Reset the +3 and re-LOAD the M3 version of Artist to make sure it loads and runs correctly. (Observe the mess M3 makes of the screen display during loading, and also how it bequeathes its blue border once loading is complete.)
9. If all is well so far, convert the M3 program with M3 UNLOCK, remembering to select the 48K version of the BASIC loader.

That's it! Now try loading your converted program, and observe how the Artist loader screen soon appears in the normal way and you keep the black border. You can tell that loading is complete when the top row of the screen corrupts. Lastly, tap either mouse button and the menu bar appears, overwriting the corrupt row. Now you understand the reason for selecting VIEW before pressing the M3 button!

On a 203K format disk, the converted Artist takes 28 seconds to load compared to 21 seconds for the un-multifaced original, but this little extra time is compensated many times over by the convenience of instant mouse control.

What surprises me a trifle about all this is that Artist can be multifaced in 48K format despite the fact that it includes a program written in +3 BASIC. Anyhow, it seems to work, so who wants to argue?

2 - SpecDrum

A few weeks ago I strayed - you know how one does - into Logic Computer Stores at Southgate and was more than tempted by their offer of Cheetah's "SpecDrum" digital drum system, with Afro-kit and Latin-kit cassettes thrown in, all for 5p change out of a tanner. Despite a "128K compatible" sticker on the carton, I could only get it into the +3 in locked 48K mode, so I had to multiface it out to tape, then load it back into M3 UNLOCK for diskimg. I then reloaded the program from disc and loaded in the "songs" on side B of the cassette. On pressing the M3 button, I was surprised to find the computer was no longer in locked mode, so I could now re-SAVE to disc. Fine, but remember that the SpecDrum is one of those pre-Plus 3 peripherals which Amstrad made incompatible by reconfiguring the +3's expansion port. Nevertheless, I did find that a modest sound output could be obtained, although to experience SpecDrum in it's full neighbour-allenating glory you need an MGT "Fixer".

Success Rate

M3 UNLOCK claims to be able to convert 99% of M3 programs, and indeed with the couple of dozen conversions I've tried so far I've been completely successful. The trickiest part of the whole tape-to-disc transfer is actually saving with M3, so

before using M3 UNLOCK it is always advisable to check that the multifaced program will itself LOAD and run correctly. If it does, then conversion with M3 UNLOCK is simple and almost certain to be successful. If it doesn't, then you just have to try multifacing again, perhaps using a different SAVE format, or pressing the M3 button at a different time.

Should you by some misfortune get a zero success rate, then you run the "FAULT" program supplied on the M3 UNLOCK disc and return the disc to be tested. However I can't imagine this happening very often since the software appears to be entirely sound and bug-free.

Piracy

There is nothing in this world which cannot be misused, and gadgets and utilities for backing-up copyright software are notoriously open to abuse. The legal position is more than adequately set out on-screen in M3 UNLOCK (as illustrated below), as well as in its documentation and M3's own documentation. In the last resort though, it comes down to a matter of individual responsibility, and every that gives out it's one more nail in all our coffins.

May I add, as a personal footnote, that since acquiring M3 UNLOCK I have purchased which I would not otherwise have bought.

CONCLUSION

M3 UNLOCK fulfils an urgent and long-felt need. It is well-thought out, its on-screen presentation is excellent, and its documentation is clear and detailed. It's easy to use and, above all, it is very, very useful. At £9.95 inclusive - or £6.95 if you supply your own disc (Amsoft or Maxell only) - it gives full value for money. Obtainable from T. Summerfield (to whom cheques should be made out) at this address -



9:9

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