

COMPUTIST

Issue 53

March 1988

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🍏 RDEX Features:

Bill Jetzer's...

- Modify Super IOB to read/write every other track**

William Moolenaar's APT for *Rings Of Zilfin*...

- Turn yourself into a lean, mean fighting Machine**

B. Dudley Brett's Softkeys for...

- M.E.C.C. software (1987)**

Greg Poulos's...

- How to use Electronic Art's RWTS**

Jeff & H.Z. Hurlburt's APT for *Realms Of Darkness*...

- Realms Wrecker character editor**

Marc Batchelor's...

- Putting *Super Boulder Dash* onto a hard disk**

🍏 RDEX Softkeys:

2400 A.D. ◊ Age Of Adventure ◊ Apple's Core II ◊ Arctic Fox ◊ Aztec ◊ Ballblazer ◊ Bard's Tale I/II ◊ California Games
 ◊ Championship Wrestling ◊ Comprehension Skills I,II ◊ Conquering Whole Numbers ◊ Coordinate Math ◊ Countdown
 To Shutdown ◊ Dataquest: The World Community ◊ Destroyer ◊ Dream House ◊ Dream Zone ◊ Earth Orbit Station
 ◊ Equation Math ◊ Forecast: Your At-Home Weather Station ◊ Fraction Concepts Inc ◊ Fraction Munchers ◊ Fraction
 Practice Unlimited ◊ GBA Championship Basketball ◊ Genesis ◊ GFL Football ◊ Ghost Rider ◊ Goonies ◊ Grade Manager
 v2.3 ◊ Great American Cross-country Road Race ◊ Hardball I/II ◊ Ikari Warrior ◊ Jenny's Journeys ◊ Kid Niki Radical
 Ninja ◊ Kung-Fu Master ◊ Learning To Tell Time ◊ Leisure Suit Larry ◊ Let's Learn About Money ◊ Let's Learn About
 The Library ◊ Letters For You ◊ Lords Of Conquest ◊ Magic Spells ◊ Math Blaster ◊ Money Works ◊ Maps & Globes: Latitude
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 ◊ Multiplication Puzzles ◊ Multiscribe v3.0c ◊ Murder On The Mississippi ◊ Music Made Easy ◊ Mystery Sentences
 ◊ Number Munchers ◊ Numbers Count ◊ Odell Lake ◊ Operation Frog ◊ Opposites Attract ◊ Oregon Trail v1.4
 Phonics Prime Time: Blends & Digraphs ◊ Phonics Prime Time: Vowels I, II ◊ Puzzles & Posters ◊ Quotient Quest ◊ Reader
 Rabbit ◊ Reading Style Inventory ◊ Realm Of Impossibility ◊ Sesame Street 'Crayon' series ◊ Shanghai ◊ Sons Of Liberty
 ◊ Space Quest v2.2 ◊ Story Book: Pixelworks ◊ Story Tree ◊ Subtraction Puzzles ◊ Super Huey ◊ Super Wordfind ◊ Tass
 Times In Tonetown ◊ Those Amazing Reading Machines III, IV ◊ Timothy Leary's Mind Mirror ◊ To Preserve, Protect
 and Defend ◊ Tower Of Myraglen ◊ Troll's 'MicroCoarseware' series ◊ Webster: The Word Game ◊ Word Munchers ◊ Words
 At Work: Compound It ◊ Words At Work: Suffix Sense ◊ World Games ◊ World's Greatest Baseball Game ◊ World Karate
 Championship ◊ Writer Rabbit ◊ Zoyon Patrol

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■ Want your address printed in RDEX?

In case you didn't notice, we are printing writer's addresses. There is one requirement for those of you who want your address printed with your letter. You must state in the text of your letter "Print my address". You might also put a few exclamation points or some such to make it very obvious. Some of us habitually delete all address references when we edit.

By the way, I recommend you use a Post Office box and not a street address.

Speaking of addresses, my nimble fingers deleted Larry Newby's address in COMPUTIST #52. Sorry Larry. If you're interested in his Appleworks database of softkeys, send \$2 to:

Larry Newby Rt 1 Box 88-B Cedar Grove, WI 53013

■ COMPUTIST classified ad column!

Due to popular demand, we are going to start a classified section. (As soon as someone around here volunteers to handle the additional work.) It will give everyone an inexpensive way to sell things. It could also be used to contact other like-minded individuals for special interest groups (SIGs). See page 44 for more details.

■ Please send pictures...

One last thing, we need pictures to use on the cover. So when you send your softkey to RDEX, try to capture a neat screen image and send that along too.

BUGS

COMPUTIST #52, page 27

In step 3b, where it reads `BE2A:EA EA EA EA`, it should read `1F2A:EA EA EA EA`. See letter from M.M. McFadden on page 37.

COMPUTIST #52, page 11

Playing tip shown for *Zork*, is actually for *Beyond Zork*.

COMPUTIST #51, page 20

In line 1060 of the *2400 AD* controller, the `POKE 474829` should be `POKE 47829`.

COMPUTIST #51, page 33

The softkey for *Chessmaster 2000* does not have any sector-edits. Delete step 3.

COMPUTIST #50, page 35

In step 4, change `3 1/4"` to `3 1/2"`.

COMPUTIST #50, page 36

In step 10, beginning at "...And warm boot the hard...", replace with "This warm-boots the hard drive again. Enter into the DOS 3.3 partition:". Delete the remainder of Step 10 (PR#5 and PR#6).

COMPUTIST #35, page 25

There is an error in the *Masquerade* crack.

Shown as	Should be
952:A5	952:A5
942:09	942:09
945:09	945:05

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Electronic Art's RWTS.....27

Greg Poulos shows how easy it is to utilize EA's own routines for your own purposes.

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Realm's Wrecker!.....32

Jeff & H.Z. Hurlburt's Character Editor changes your party of wimps into Realms wreckers.

Putting Super Boulder Dash onto a hard disk.....34

Marc Batchelor's step-by-step instructions for both Boulder Dash 1 and 2 is quick and easy.



Readers Data

For serious users of Apple computers: II, II+, //c, //e, IIGS, Macintosh

New COMPUTIST readers using Apple IIs are advised to read this page carefully to avoid frustration when attempting to follow a softkey or entering the programs printed in this issue.

What is a softkey, anyway?

Softkey is a term which we coined to describe a procedure that removes, or at least circumvents, any copy-protection on a particular disk. Once a softkey procedure has been performed, the resulting backup copy can usually be copied by the normal copy programs (for example: COPYA, on their DOS 3.3 System Master disk).

Commands and control keys

In any article appearing in COMPUTIST, commands which a reader is required to perform are set apart by being in boldface and on a separate line. The **RETURN** key must be pressed at the end of every such command unless otherwise specified. Control characters are specially boxed. An example of both is: **6** **P**

Press **6** Next, place one finger on the key and then press **P**. Remember to enter this command line by pressing **RETURN**.

Other special combination keypresses include **RESET** or **RESET**. In the former, press and hold down then press **RESET**. In the latter, press and hold down both and then press **RESET**.

Special requirements

Special prerequisites for COMPUTIST articles, programs and softkeys are usually listed at the start under:

■ Requirements:

Software recommendations

- Applesoft program editor such as *Global Program Line Editor (GPLE)*.
- Sector-editor such as *DiskEdit* (in the *COMPUTIST Starter Kit*) or *ZAP* from *Bag of Tricks*.
- Disk-search utility such as *The Inspector*, the *CIA* or the *Core Disk Searcher* (in the *COMPUTIST Starter Kit*).
- Assembler such as the *S-C Assembler* from S-C software or *Merlin/Big Mac*.
- Bit-copy program such as *Copy II Plus*, *Locksmith* or *Essential Data Duplicator (EDD)*.
- Text-editor (that produces normal sequential text files) such as *Applewriter II*, *Magic Window II* or *Screenwriter II*.
- COPYA*, *FID* and *MUFFIN* from the *DOS 3.3 System Master* disk are also useful.

Super IOB and Controllers

This powerful deprotection utility (in the *COMPUTIST Starter Kit*) and its various Controllers are used in many softkeys. (It is also on each Super IOB Collection disk.)

Reset into the Monitor

Softkeys occasionally require the user to stop the execution of a copy-protected program and directly enter the Apple's system monitor. Check the following list to see what hardware you will need to obtain this ability.

Apple II+, //e, compatibles: 1) Place an Integer BASIC ROM card in one of the Apple slots. 2) Use a non-maskable interrupt (NMI) card such as *Replay* or *Wildcard*.

Apple II+, compatibles: 1) Install an F8 ROM with a modified reset-vector on the computer's motherboard as detailed in the *Modified ROM's* article (*COMPUTIST #6* or *Book Of Softkeys III*) or the *Dual ROM's* article (*COMPUTIST #19*).

Apple //e, //c: Install a modified CD ROM on the computer's motherboard. Cutting Edge Ent. (Box 43234 Ren Cen Station-HC: Detroit, MI 48243) sells a hardware device that will give you this important ability but it will void an Apple //c warranty.

Recommended literature:

- Apple II Reference Manual*
- DOS 3.3 manual*
- Beneath Apple DOS*, by Don Worth and Pieter Lechner, from Quality Software
- Assembly Language For The Applesoft Programmer*, by Roy Meyers and C.W. Finley, from Addison Wesley

Keying in Applesoft programs:

BASIC programs are printed in a format that is designed to minimize errors for readers who key in these programs. If you type:

10HOME:REMCLEAR SCREEN

The LIST will look like:
10 HOME : REM CLEAR SCREEN
...because Applesoft inserts spaces into a program listing before and after every command word or mathematical operator. These spaces usually don't pose a problem except in line numbers which contain **REM** or **DATA** commands. There are two types of spaces: those that have to be keyed and those that don't. Spaces that must be typed appear in COMPUTIST as delta characters (δ). All other spaces are there for easier reading. NOTE: If you want your checksums (See **Computing checksums**) to match up, you must key ONLY the δ spaces after **DATA** statements.

Keying In Hexdumps

Machine language programs are printed in COMPUTIST as hexdumps, sometimes also as source code. Hexdumps are the shortest and easiest format to type in. You must first enter the monitor:

CALL -151

Key in the hexdump exactly as it appears in the magazine, ignoring the four-digit checksum (\$ and four digits) at the end of each line. A beep means you have typed something that the monitor didn't understand and must, therefore, retype that line.

When finished, return to BASIC with:

3D0G

BSAVE the program with the filename, address and length parameters given in the article.

The source code is printed to help explain a program's operation. To key it in, you will need the *S-C Assembler* or you will have to translate pieces of the source code into something your assembler will understand (see table of *S-C Assembler* directives in COMPUTIST #17).

Computing checksums

Checksums are 4-digit hexadecimal numbers which tell if you typed a program exactly as it appears in COMPUTIST.

There are two types of checksums: one created by the *CHECKBIN* program (for machine language programs) and the other created by the *CHECKSOFT* program (for BASIC programs). Both appeared in COMPUTIST #1 and *The Best of Hardcore Computing*. An update to *CHECKSOFT* appeared in COMPUTIST #18.

If the published checksums accompanying program listings and hexdumps do not match those created by your computer, then you typed the program incorrectly. The line where the first checksum differs has an error.

CHECKSOFT instructions:

LOAD filename

BRUN CHECKSOFT

Get the checksums with: **&** and correct the program line where the checksums differ.

CHECKBIN instructions:

CALL -151

BLOAD filename

Install *CHECKBIN* at an out of the way place

BRUN CHECKBIN, A\$6000

Get the checksums by typing the Starting address, a period and the Ending address of the file followed by a **Y**.

SSS.EEE **Y**

Correct the lines at which the checksums differ.
.....RDXed



Readers Data

etc... who want all their software backed up and COPYA-able



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RDEX stands for: Reader's Data EXchange

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Bill Jetzer

Modify Super IOB to Read/Write Every Other Track

■ Requirements

Super IOB v1.5

One of the many frustrating things about deprotecting software is using a utility that either takes too long or doesn't work on the particular piece of software you are trying to crack. Super IOB can deprotect almost all software, but when the protection differs from the odd tracks to the even, Super IOB can be quite time-consuming.

I first thought of the idea of modifying Super IOB to read and write every other track when I was trying to deprotect Blue Powder Grey Smoke by Garde, whose protection differs from the odd tracks to the even.

When I wrote the controller, I made it copy one track at a time, compensating for the different protection each time through. Not only did it take extremely long, but with only one disk drive, I had to switch disks 35 times!

There had to be a better way — and there was.

Entering The Listings

The great thing about Super IOB is that it allows for easy modification. With the addition of 4 lines of Applesoft, you will be able to use Super IOB on the above mentioned protection scheme. To modify your copy of Super IOB, follow these steps:

1 Boot your Super IOB disk and load SUPER IOB.

LOAD SUPER IOB V1.5

2 Add these lines:

```
630 REM R/W EVERY-OTHER-TRACK
640 POKE 904,32: POKE 905,168: POKE 906,3:
    POKE 936,238: POKE 937,14: POKE 938,3:
    POKE 939,238: POKE 940,14: POKE 941,3:
    POKE 942,96: RETURN
650 REM R/W EVERY-TRACK
660 POKE 904,238: POKE 905,14: POKE 906,3:
    RETURN
```

3 Save the whole thing:

SAVE SUPER IOB 1.5

What Does It Do?

From now on, when you GOSUB 640, Super IOB will read and write every other track. To go back to reading and writing every track, just GOSUB 660.

Normally, Super IOB reads and writes every track, so the variable LT is set to the last track plus 1. When reading and writing every other track, LT must be set to the last track plus 2. Also, when using the sector-editor it is common practice to use the statement T1 = TK:TK = PEEK (TRK) - 1: RESTORE just before performing the sector-edits, to get the proper track number for the edits. When reading and writing every other track, the statement becomes T1 = TK:TK = PEEK (TRK) - 2: RESTORE.

How Does It Work?

When a GOSUB 640 is encountered, a small patch is made to IOB.OBJ0. The instruction at \$388 increments the track number. Line 640 changes this instruction to a JSR \$3A8 (somewhat like a GOSUB in BASIC). At \$3A8, another patch is set up to increment the track number twice.

When a GOSUB 660 is encountered, the original instruction is put back at \$388, thus removing the patch.

Examples Of Its Use

Super IOB Softkeys for...

Blue Powder Grey Smoke

Garde

and

Colonial Conquest

SSI

and

Arcade Boot Camp

Penguin

So far, the patch has proved to be very useful, as I have come across three programs which required its use: Blue Powder Grey Smoke (BP) by Garde, Colonial Conquest (CC) by SSI, and Arcade Boot Camp (ABC) by Penguin Software.



To deprotect any of these programs, enter the appropriate controller at the end of this article and save it. Install it into *Super IOB* and RUN it.

The protection schemes used on *Blue Powder* and *Colonial Conquest* are identical. First, they use altered epilogue values, which was compensated for with the first poke in line 1050. Secondly, they use altered address markers on the odd tracks (D4 AA 96 instead of D5 AA 96), which was compensated for by the second poke in line 1050. Note that in line 1020 LT is set to 36, which is the last even track plus 2, and in line 1030 LT is set to 35, which is the last odd track plus 2.

The protection for *Arcade Boot Camp* is very similar to that of *Blue Powder* and *Colonial Conquest* but it required some sector-edits to deprotect. Note that in line 1070, TK is set to PEEK (TRK) - 2.

Study the structure of the two controllers. When you come across a piece of software whose protection differs from the even tracks to the odd tracks, use the them as models for your own controllers. I have found this patch to be very useful, and I hope you find some uses for it yourself.

Controller

```
1000 REM CON. ARCADE BOOT CAMP
1010 ST = 15 : LS = 15 : CD = WR : FAST = 1 : GOSUB 640
1020 TK = 0 : LT = 36 : GOSUB 1050
1030 TK = 1 : LT = 35 : GOSUB 1050
1040 HOME : PRINT "COPYDONE" : END
1050 POKE 47426, 24 : IF TK / 2 > INT (TK / 2) THEN
    POKE 47445, 212
1060 GOSUB 490 : GOSUB 610
1070 GOSUB 230 : GOSUB 490 : T1 = TK : TK = PEEK (TRK)
    - 2 : RESTORE : GOSUB 310 : TK = T1 : GOSUB 610 :
    IF PEEK (TRK) = LT THEN RETURN
1080 TK = PEEK (TRK) : ST = PEEK (SCT) : GOTO 1050
5000 DATA 3*CHANGES
5010 DATA 0, 2, 158, 222
5020 DATA 0, 3, 53, 222
5030 DATA 0, 3, 145, 222
```

Controller Checksums

1000 - \$356B	1070 - \$A9F3
1010 - \$0A5A	1080 - \$1348
1020 - \$CF7E	5000 - \$FFBF
1030 - \$0C52	5010 - \$C05B
1040 - \$E9AB	5020 - \$F8C7
1050 - \$7316	5030 - \$871A
1060 - \$FF6C	

Controller

```
1000 REM CON. COLONIAL CONQUEST/BLUE POWDER
    GREY SMOKE
1010 ST = 15 : LS = 15 : CD = WR : FAST = 1 : GOSUB 640
1020 TK = 0 : LT = 36 : GOSUB 1050
1030 TK = 1 : LT = 35 : GOSUB 1050
```

```
1040 HOME : PRINT "COPYDONE" : END
1050 POKE 47426, 24 : IF TK / 2 > INT (TK / 2) THEN
    POKE 47445, 212
1060 GOSUB 490 : GOSUB 610
1070 GOSUB 230 : GOSUB 490 : GOSUB 610 : IF PEEK
    (TRK) = LT THEN RETURN
1080 TK = PEEK (TRK) : ST = PEEK (SCT) : GOTO 1050
```

Controller Checksums

1000 - \$356B	1050 - \$7316
1010 - \$0A5A	1060 - \$FF6C
1020 - \$CF7E	1070 - \$1C66
1030 - \$0C52	1080 - \$2AF3
1040 - \$E9AB	

Super IOB Softkey for...

Kung-Fu Master

Data East

■ Requirements

- Super IOB v1.5
- Blank disk

Kung-Fu Master is Data East's adaptation of the popular arcade hit. As a master of the art of Kung-Fu, you are called upon to help save a beautiful young woman from her captor. The battle takes place on five floors of a castle with danger on each level.

The protection used on *Kung-Fu Master* is quite popular. The disk is in a semi-normal format, using only altered epilogue bytes as protection. This can be compensated for with a POKE 47426,24. Also, it searches for a certain sequence of bytes between tracks. If, after a certain number of tries, they are found, the loading process continues. If not, it reboots. All that was needed in this case was to clear the carry flag instead of set it after the sequence of bytes wasn't found.

To deprotect *Kung-Fu Master*, type in the controller listing at the end of the article and save it. Install it into *Super IOB 1.5* by your favorite method and RUN it.

Controller

```
1000 REM CON. KUNG-FU MASTER
1010 TK = 0 : LT = 35 : ST = 15 : LS = 15 : CD = WR :
    FAST = 1
1020 POKE 47426, 24 : GOSUB 490 : GOSUB 610
1030 GOSUB 230 : GOSUB 490 : T1 = TK : TK = PEEK (TRK)
    - 1 : RESTORE : GOSUB 310 : TK = T1 : GOSUB 610
1040 IF PEEK (TRK) = LT THEN 1060
1050 TK = PEEK (TRK) : ST = PEEK (SCT) : GOTO 1020
1060 HOME : PRINT "COPYDONE" : END
5000 DATA 1*CHANGES
5010 DATA 0, 5, 157, 24
```

Controller Checksums

1000 - \$356B	1050 - \$1855
1010 - \$2544	1060 - \$D1B0
1020 - \$B5FB	5000 - \$D766
1030 - \$8E11	5010 - \$B9D9
1040 - \$A65D	

SuperIOB Softkey for...

Championship Wrestling

Epyx

■ Requirements

- Super IOB v1.5
- COPYA (or some other whole-disk-copier)
- 2 Blank disk sides

Championship Wrestling (CW) lets you jump into the ring with some of the roughest and rowdiest in wrestling. Take out your frustrations with some vicious moves like airplane spins, body slams, and headlocks. You can even throw your opponent out of the ring!

The protection used on CW is basically the same as on other Epyx games. It uses altered epilogue bytes to prevent a normal disk-copier from reading it, and it reads in a byte from between tracks, and then ANDs it with some hex data to turn it into meaningful code.

Once I found what was happening, all that had to be done was to find the byte and store it at the proper place. To deprotect CW type in the controller at the end of the article and save it. Install it into *Super IOB 1.5* and run it. You only need to use *Super IOB 1.5* on the front side; the back side has no protection. You can use any whole-disk-copier to copy the back side.

An annoying thing about CW is that it grinds all the time. The first time I played it, I thought it was a bad copy and I sent it back. The next copy did the same thing, so I called Epyx to find out what was going on. They explained that it was all part of their elaborate protection scheme, and if your disk drive speed was off even by a little, it would grind!

Controller

```
1000 REM CON. CHAMPIONSHIP WRESTLING
1010 TK = 0 : LT = 35 : ST = 15 : LS = 15 : CD = WR :
    FAST = 1
1020 POKE 47426, 24 : GOSUB 490 : GOSUB 610
1030 GOSUB 230 : GOSUB 490 : T1 = TK : TK = PEEK (TRK)
    - 1 : RESTORE : GOSUB 310 : TK = T1 : GOSUB 610
1040 IF PEEK (TRK) = LT THEN 1060
1050 TK = PEEK (TRK) : ST = PEEK (SCT) : GOTO 1020
1060 HOME : PRINT "COPYDONE" : PRINT "THE
    BACKSIDE HAS NO COPY PROTECTION" : END
```



5000 DATA 6*CHANGES
 5010 DATA 0, 5, 102, 169
 5020 DATA 0, 5, 103, 231
 5030 DATA 0, 5, 104, 133
 5040 DATA 0, 5, 105, 244
 5050 DATA 0, 5, 106, 208
 5060 DATA 0, 5, 107, 14

Controller Checksums

1000	- \$356B	5000	- \$BBAC
1010	- \$2544	5010	- \$B3E9
1020	- \$B5FB	5020	- \$2EA8
1030	- \$8E11	5030	- \$50DC
1040	- \$A65D	5040	- \$DF99
1050	- \$1855	5050	- \$EEC3
1060	- \$9E35	5060	- \$FA8A

Softkey for...

Super Huey
Cosmy Corp.

Requirements

- FID (or other file copier)
- Blank disk

Super Huey (SH) is a helicopter simulator with advanced controls and instruments. It includes an in-flight computer to teach the details of rotary wing aviation. You can fly civilian or combat missions.

The protection used on SH is quite simple. First of all, it uses a file called *CON* that checks to make sure that the disk is not a copy. Secondly, it uses control characters after each letter of the file *CDIINC*.

CON has no other purpose than checking for the protection, so it can be bypassed with no adverse effects. *CDIINC* can also be bypassed, as all it does is **BRUN ICODE**. You can deprotect SH by following these steps:

1 Boot up with a normal disk (preferably with a fast DOS)

2 Clear the Applesoft program pointers and enter the listing.

FP

10 IF PEEK (103) <> 1 OR PEEK (104) <> 64 THEN POKE 103,1: POKE 104,64: POKE 16384,0: PRINT CHR\$(4) "RUN - HELLO"

20 TEXT : HOME : HTAB 16: PRINT "SUPER - HUEY" : PRINT CHR\$(4) "BLOAD - ICODE" : VTAB 12: HTAB 13: PRINT "SKIP - DEMO - (Y/N)? - Y" CHR\$(8):: GET AS\$: PRINT : IF AS\$ <> "Y" AND AS\$ <> "N" AND AS\$ <> CHR\$(13) THEN 20

30 IF AS\$ = "Y" OR AS\$ = CHR\$(13) THEN CALL 2083

40 CALL 2048

Checksums

10	- \$B127	30	- \$9B08
20	- \$80C6	40	- \$2309

3 Insert the blank disk and initialize it: **INIT HELLO**

4 Start up FID and copy the following files from the *Super Huey* original disk to the copy:

- ICODE
- CODE1
- CODE2
- CODE3
- CODE4
- CODE5

That's it.

You now have a deprotected copy of *Super Huey*. I'm sure I'm not alone when I say that the opening 1 minute 15 second demo gets rather boring after a while. For this reason I have written the new *HELLO* program. When it is run, it will ask if you want to skip the demo. Pressing **RETURN** or **Y** will skip it, pressing the **N** key will execute the demo.

Les B. Minaker

? I have a rather unusual technical problem that I am unable to solve on my own. I have an Apple II Plus (gasp!) and when I install my 128K RAM board some rather unusual things occur:

Drive 1 turns on randomly, but it neither reads nor writes, it just turns on!

I also have disk access problems in that the whole process goes screwy when I try to save to Drive 2 while using programs such as *Ultima IV*.

The final problem I seem to have is that the entire system won't boot unless the RAM board is in slot 2.

My system consists of the following components:

- Apple II Plus
- Rolland 1012 printer
- 2 generic disk drives
- generic cooling fan
- 16K language card (Multiflex Tech) in slot 0
- Mighty Press Printer Card (similar to Grappler) in slot 1
- 128K RAM board (generic-similar to Videx) in slot 3
- slots 4 & 5 are empty
- drive controller card in slot 6
- slot 7 in empty
- Applied Engineering's heavy duty power supply

Any help that you can offer with this particular problem would be greatly appreciated.

H Sounds like there might be some contention as to who has control of the address and data bus, but that's only a guess. Hopefully, some of our hardware hacker readers will have some helpful suggestions or solutions. RDEXed

Mike Maginnis

Playing Tips for...

Infiltrator
Mindscape

Safe Landings

The *Infiltrator* manual gives brief, and rather incomplete, instructions on landing procedures. I have experimented with different techniques and this one seems to work for me:

1 Upon takeoff, climb to about 1,000 feet.

2 Once you have reached the base, dive to 500 feet.

3 At 500 feet, engage Whisper Mode.

4 Dive to 200 feet and then begin diving by increments of 10 feet.

5 At 100 feet, dive at increments of 5 feet until you land.

Remember to make horizontal tilt adjustments as necessary.

Paul R. Wilson

Playing Tips for...

Donkey Kong
Atari

Super Mario?

While investigating John Baeuer's APT for *Donkey Kong* ("L" adds an extra life), I stumbled upon a more startling hidden command. "L" may add any number of extra lives, but that isn't much help if you are unable to get through the Elevator Screen due to the very precise timing needed to get by the springs as you climb the last ladder.

Press "2" and Mario becomes a super-Mario, with powers and abilities far beyond those of mortal Marios. He is now invulnerable to barrels, fire-foxes (all they can do now is to make him hop or fall off a ladder), falls of ANY distance, cement vats, Donkey Kong, and even running out of time (he'll just keep right on going).

Press "2" again to make him normal.

Oddly enough, with "2" on, he can't climb the ladder to the umbrella on the elevator screen; he'll just fall right back.



Playing Tips for...

Spy Hunter

Get A New Car and Weapons

"P" does more than give your next car full weaponry (if you're tired of getting your car totaled by a tireslasher or tank car before you get the chance to use your hard-won smoke screen, this is for you!).

Once the timer has run out and vanished, "P" will replace your car as often as it gets totaled, and with maximum weaponry every time!). Now you can get to see the Winter Wonderland and the travel by water sequences.

"P" toggled off restores normal mode and your next car will not be replaced.

Playing Tips for...

Swashbuckler

Datamost

When a rat or snake rushes towards your man, face it and press "M". The vermin will die upon touching the lowered sword.

After the second man, press "L" again. The next brute will be skewered as soon as he appears (provided that you backed the previous opponent to the far left or right). When you are near enough, a metallic clanging will sound if you advance further. Press "L" to stab enemy then "L" again!

Midnight Magic softkey-APT wanted

I have a cracked copy of *Midnight Magic*, but the routine to write to the disk was removed and I couldn't use it to remove the high scores on my original (lowest is about 350,000 points). A program to erase this record and to repair the routine is desired.

Also a softkey for *Midnight Magic*! I am amazed that the best of all Apple pinball simulations has never been on the Most Wanted list! Come on! Someone out there is selfishly holding back the data!

APT for Saracen wanted

☐ You forgot to mention in *Saracen* that the difficulty of levels does not progress evenly upwards. The difficulties are strangely mixed. Levels 16, 37, 41, 42, 50, 77, 80, 83, 87, 93 and 99 are virtually impossible.

I no longer even try to win #33. A very tight cannonball gauntlet at the end has left me too demoralized to try anymore. If you fail, you have to do the whole level all over again, no matter how far you have progressed before getting zapped.

An APT (hidden command, patch or whatever) to *Saracen* to render the cannonballs

harmless will make most of the above impossible levels playable. The author *must* have had one! Some are followed by easy levels (just find the items, pick them up and walk leisurely to victory!).

Fred S. Long

† Softkey for...

Math Blaster

Davidson & Associates Inc.

■ Requirements

- COMPUTIST #39
- Apple II
- Blank Disk
- Super IOB v1.5

After using the softkey for *Speed Reader II* in COMPUTIST #39 with great success, I was interested to see if the same controller work on *Math Blaster*! To my pleasant surprise, it copied it without a miss.

I searched all of the programs on the disk with an editing program (*Escape*) for the string PEEK (40324) and found it only in *HELLO* and *MATH BLASTER* and made the same changes that were called for in the *Speed Reader II* softkey by Tim Beckmann. Thanks, Tim, for your good work.

- 1 Initialize a blank disk.

INIT HELLO

- 2 Install the *Speed Reader II* controller from COMPUTIST #39, page 29, into *Super IOB* and run it to copy the *Math Blaster* disk. (Do not use the Format disk option.)

- 3 Remove the hidden control character in the *HELLO* program.

RENAME H[Z]ELLO, HELLO

- 4 Change the lines in the programs that check for Lock-It-Up-DOS.

LOAD HELLO

POKE 104,32

POKE 33,30

LIST 400

- 5 Make the following changes in line 400: the = to <> and the <> to =. To do this after listing line 400, press [ESC] to put you into the escape mode. Move to the beginning of the line using [I] [J] [K] [M] keys, then hit [ESC] or [SPACE] to get out of the escape mode. Trace over the line using [→], making the necessary changes as the cursor passes over them. Then:

POKE 104,8

SAVE HELLO

LOAD M[Z]ATH BLASTER Do not RENAME

- 6 Make the following line changes using the Escape mode to edit or GPLE if you have it:

LIST 360

Change = to <>

LIST 400

Change = to <> and <> to =

SAVE M[Z]ATH BLASTER

Your copy of *Math Blaster* should now work just like the original, with the exception that you can copy this one.

Dean E. Wyand

Super IOB Softkeys for...

M.E.C.C.'s 1985 Mastering Math series

Multiplication Puzzles

Subtraction Puzzles

Quotient Quest

Using *CIA*, I found that track \$00 has normal address and data headers but on tracks \$01-\$22 the address header was altered from D5 AA 96 to AA D5 96 and that the data header was altered from D5 AA AD to D5 AD AA.

To defeat this protection, I used *Super IOB v1.5* with the controller listed below.

- 1 Boot the MECC disk.

- 2 Reset into the monitor after MECC logo appears.

- 3 Move the RWTS to a safe location.

1900<B800.BFFFM

- 4 Boot a slave disk.

C600G

- 5 Run *Super IOB v1.5* with the controller below installed.

- 6 Install your own DOS on your now unprotected copy.

Controller

1000 REM MULTIPLICATION PUZZLE - SUBTRACTION PUZZLE - QUOTIENT QUEST

1010 TK=3: LT=35: CD=WR: MB=151: ONERR GOTO 550

1020 ST=0:T1=TK: GOSUB 490: RESTORE: GOSUB 190: GOSUB 210: GOSUB 170

1030 GOSUB 430: GOSUB 100: ST=ST+1: IF ST < 16 THEN 1030



```

1040 IF BF THEN 1060
1050 ST = 0:TK = TK + 1: IF TK < LT THEN 1030
1060 GOSUB 230:TK = T1:ST = 0: GOSUB 490
1070 GOSUB 430: GOSUB 100:ST = ST + 1: IF ST < 16
THEN 1070
1080 ST = 0:TK = TK + 1: IF BF = 0 AND TK < LT THEN
1070
1090 IF TK < LT THEN 1020
1100 HOME : VTAB 12: PRINT "COPYDONE" : END
5000 DATA 170, 213, 150, 213, 173, 170, 222, 170,
222, 170

```

Controller Checksums

1000	- \$356B	1060	- \$48B7
1010	- \$5E3F	1070	- \$737D
1020	- \$B92C	1080	- \$D489
1030	- \$E2AA	1090	- \$6ACA
1040	- \$2463	1100	- \$000C
1050	- \$E2BC	5000	- \$EE07

William Moolenaar

A.P.T. for...

Rings of Zilfin

Strategic Simulations Inc.

Turn Yourself Into A Lean & Mean Fighting Machine

In *Rings Of Zilfin*, like many other role-playing adventure games, your character will be in for a slow start.

The first phase, where your character must gain experience, strength, weapons and other vital statistics, can be a repetitive experience. Starvation and monsters are just the beginning of your problems.

However, once your character has evolved into a "lean, mean, fighting machine", the pace of the game picks up.

Here are some edits which can shorten that dreaded first phase.

The maximum value you may enter is always \$63. Anything greater than this number will cause "funny" (inverse/flashing) characters in your stats.

Also remember that for Spell, Armour, Sword, and Bow, you may not just enter any number. Choose **only** from the values listed next to that particular item under **Max Value**. (IE: typing 4016:11 from the monitor will give your character a Grandsword.)

For the other items you may enter any number in the range \$00-\$63. (IE: typing

4004:63 63 will give your character 9999 in gold. Typing 400E:63 25 will give your character a Sword Skill of 9937.)

Don't forget to BSAVE your new stats.

All in all SSI's *Rings of Zilfin* is an addictive game with smooth animation and an original fighting mode, distinguishing it from other popular role-playing adventures as not "just another clone."

All you have to do to enhance your character is:

BLOOD SA, A\$4000

Make your changes using the APT table, then:

BSAVE SA, A\$4000, L\$77

So what are you waiting for?

APT Table

Addr (hex)	Description	Max value (hex)
4000	Strength	63
4001	Day	63
4002-4003	Strength (current)	63-63
4004-4005	Gold	63-63
4006-4007	Endurance	63-63
4008-4009	Food	63-63
400A-400B	Fatigue	63-63
400C-400D	Arrows	63-63
400E-400F	Sword Skill	63-63
4010	Spell	00=none 01=Jazzip 02=Rectar 03=Fagtar 04=Stohle 05=Buzzap 06=Darthl 07=Ekbert 08=Ak-Lin 09=Ilk-Be 0A=Ud-Bar 0B=Warton 0C=Zytrom
4011	unused	
4012-4013	Magic Skill	63-63
4014	Armour	14=Light 15=Medium 16=Heavy
4015	unused	
4016	Sword	00=None 00=Short 0E=Pala 0F=Slicer 10=Slayer 11=Grandsword
4017	Unused	
4018	Bow	00=None 12=Ash 13=Brom
4019	No. of Bows	63

Addr (hex)	Description	Max value (hex)
401A-401B	Yurpin(Mushroom)	63-63
401C-401D	Purlet(Plant)	63-63
401E-401F	Tergin(Mushroom)	63-63
4020-4021	Mift(Plant)	63-63
4022-4023	Parzin(Mushroom)	63-63
4024-4025	Iola(Plant)	63-63
4026-4027	Fuhym(Mushroom)	63-63
4028-4029	Jinn(Plant)	63-63
402A-402D	Don't Mess!	
402E	Boots	63
402F	Torch	63
4030	Match	63
4031	Cloak	63
4032	Nukh	63
4033	Prihny	63
4034	Key	63
4035	Horn	63
4036	Rope	63
4037	Seed	63
4038	Flute	63
4039	Gem	63
403A	Riddle Book	63
403B	Staff	63
403C	Harp	63
403D	Toy	63
403E	Ring	63
403F	Silk	63
4040	Tobacco	63
4041	Amulet	63
4042	Pearl	63
4043	Chewba	63
4044	Spice	63
4045	Elixer	63
4046	Tea	63
4047	Cookie	63

Softkey for...

World's Greatest Baseball Game

Epyx

1 Ignore errors and copy the following disks:

- Gameplay
- 1984 Teams Roster
- 1985 Teams Roster
- Team Trading

POKE 47426,24
Run COPYA

2 Make the following edit on the *Gameplay* disk only.

Trk	Sct	Byte(s)	From	To
\$00	\$01	\$66	D0 F4	EA EA
		\$71	D0 20	EA EA

3 Insert your *Team Trading* disk and catalog it. You will see only one file,



TRADING PROGRAM, a 23-sector Applesoft file. Load this file and save it on one of your DOS 3.3 formatted disks!

Softkey for...

World Games

Epyx

- 1 Boot your DOS 3.3 system disk.
- 2 Tell DOS to ignore checksum and epilogues and run *COPYA* to copy disk.

POKE 47426,24
RUN COPYA

- 3 Make the following sector-edits to the copy you just made.

Trk	Sct	Byte(s)	From	To
\$00	\$0E	\$6F	D0 F4	EA EA
		\$7A	D0 1F	EA EA

Softkey for...

Timothy Leary's Mind Mirror

Electronic Arts

- 1 Copy disks and ignore error on track \$06 of program disk.
- 2 Sector edit the Program disk.

Trk	Sct	Byte(s)	From	To
\$01	\$0C	\$00	4C	60
\$01	\$0F	\$00	4C 69 A0	18 60 DD
		\$6F	4C 69 A0	18 60 DD

Softkey for...

Earth Orbit Stations

Electronic Arts

- 1 Copy disks and ignore error on track \$06 of game disk)
- 2 Sector-edit the game disk.

Trk	Sct	Byte(s)	From	To
\$01	\$0C	\$00	4C	60
\$01	\$0F	\$00	4C 69 A0	18 60 DD
		\$6F	4C 69 A0	18 60 DD

Matthew and John-Paul Ownby

A.P.T. for...

Space Quest IIgs

Sierra Online

Maximize Your Buckazoids

I do this when I don't want to spend a lot of time gambling at the slot machine to get more money. The money is stored on only one byte

so the most buckazoids you can have is 255.

- 1 Boot a block-editor (I use *Copy II Plus v8.1*) and scan the disk for the name of your saved game.
- 2 Once you find this name, skip ahead two blocks. The money byte is byte \$185.
- 3 Change it to anything you want (up to FF).
- 4 Write the change back to the disk.

Playing Tips for...

Space Quest IIgs

- To kill Orat, throw the water container (found in the survival kit in the escape pod) at him. Do this before you get to the hologram.
- To get past the beams, use reflective glass found on the outside of the escape pod.
- After you show the Orat part to the hologram, insert the Astral body cartridge in the slot. You will gain 5 points. If you take it out again, you will get another 5 points.
- When the alien offers 30 buckazoids for the skimmer, say no. Go to a different place. When you come back to the skimmer, he will offer to trade a jet pack for the skimmer. Say yes.
- Use the APT above. Buy the white "sale" droid. Also buy the big space ship, just above Tiny's used space ships.
- After you've loaded the droid, tell him sector HH.
- Wear the jetpack to fly over to the Sarien ship.
- Get into the trunk. After the Sariens take you, get into the laundry machine. You will be transformed into a Sarien.

Leo & Eric Van Der Loo

There is a error in *COMPUTIST #48, J-Bird* is not by Cosmy Corp.; it's by Orion Software.

Softkey for...

Aztec

Data Most

- Requirements
 - Blank disk
 - Super IOB v1.5*
 - Sector-editor

In *COMPUTIST #48*, Jim Hart gave us some APTs for the easily deprotected version of *Aztec*. Unfortunately, I don't have that version. I have tried before to deprotect this

game, got nowhere and gave up on it. I decided to give it another shot and got lucky.

Track \$00 is not protected. Tracks \$1F-\$22 are not initialized and the other tracks (\$01-\$1E), have altered prologues and epilogues.

The address prologue is AA D5 AD with epilogue AA AA and the data prologue is AA D5 9A with epilogue D5 AA 96 etc.

- 1 Initialize disk with *AZTEC* as the greeting program.

INIT AZTEC

- 2 Load *Super IOB* and install the following controller.

Controller

```
1000 REM AZTEC CONTROLLER
1010 TK = 1:LT = 31:CD = WR:MB = 151
1020 ST = 0:T1 = TK:GOSUB 490:RESTORE:GOSUB
190:GOSUB 210:GOSUB 170
1030 GOSUB 430:GOSUB 100:ST = ST + 1:IF ST < 16
THEN 1030
1040 IF BF THEN 1060
1050 ST = 0:TK = TK + 1:IF TK < LT THEN 1030
1060 GOSUB 310:GOSUB 230:TK = T1:ST = 0:GOSUB
490
1070 GOSUB 430:GOSUB 100:ST = ST + 1:IF ST < 16
THEN 1070
1080 ST = 0:TK = TK + 1:IF BF = 0 AND TK < LT THEN
1070
1090 IF TK < LT THEN 1020
1100 HOME:AS = "All DONE":GOSUB 450:END
5000 DATA 170, 213, 173, 170, 213, 154, 170, 170,
213, 170
```

Controller Checksums

1000	- \$356B	1060	- \$7BEE
1010	- \$8FC7	1070	- \$2AFC
1020	- \$DC76	1080	- \$55D2
1030	- \$B87B	1090	- \$5F97
1040	- \$3416	1100	- \$4927
1050	- \$F8F9	5000	- \$344C

- 3 Copy track \$00.

- 4 Boot your sector-editor and make the following changes:

Trk	Sct	Byte(s)	From	To
\$00	\$02	\$53	AA	D5
		\$58	D5	AA
		\$5D	9A	AD
		\$9E	D5	DE
		\$A8	96	EB
		\$E7	AA	D5
		\$F1	D5	AA
		\$FC	9A	AD
\$00	\$03	\$35	D5	DE
		\$91	AA	DE
		\$6A	AD	96
		\$5F	D5	AA
		\$55	AA	D5



Softkey for...

Super Huey

Cosmy Corp.

Super Huey uses normal DOS 3.3 but also uses track \$23. To make a backup of the game, copy tracks \$00-\$23, that's all.

Have fun and keep those softkeys coming.

J Garret

Softkey for...

Age of Adventure

Electronic Arts

■ Requirements

- Apple II with 64K
- Six blank disk sides
- Locksmith Fastcopy or COPYA
- Sector-editor

Age of Adventure is one of Electronic Art's latest releases and fortunately for us, they have not changed their protection scheme. This game can be easily copied by using the following steps:

1 Copy the boot side of the disk with Locksmith Fastcopy or use COPYA as follows:

RUN COPYA

ⓐ at prompt

POKE 929,24

RUN 80

2 Run your favorite sector-editor and make the following changes:

Trk	Sct	Byte(s)	From	To
\$01	\$0F	\$00-02	4C 69 A0	18 60 DD
		\$6F-72	4C 69 A0	18 60 DD
\$01	\$0C	\$00-02	4C 69 05	18 60 42
		\$6F-72	4C 69 05	18 60 42

3 Copy the other three sides normally. Now, follow this same procedure for **both** sides of *Age of Adventure*.

Bob Cappello

Softkey for...

The Apple's Core Part II

The Professor

■ Requirements

- Blank disk
- Non-Maskable Interrupt
- COPYB
- Fast DOS (optional)

One thing I dislike is seeing a program hang

around on the Most Wanted list seemingly forever. So when I saw *The Apple's Core: Part II, (The Seed)* at my local software store I picked it up, hoping to learn some programming techniques and to try to crack this Most Wanted fugitive.

The Apple's Core is a three-part course in Apple programming. (Parts I, II and III are sold separately).

Part II (*The Seed*) contains 13 lessons or "modules" explaining such topics as using variables, hi-res and lo-res graphics, paddles and sound routines. The lessons are paced very well and you can even change and 'run' them to get a better understanding of the material. (Lesson 14 is simply a message from The Professor to Practice! Practice! Practice!)

The Protection

Resetting out of this program is impossible without some kind of non-maskable interrupt.

Track \$00 can easily be read but on all other tracks the standard sync field bytes (usually sync FF's) were changed to D5 AB D5 AB etc. This gives sector-editors the fits because they cannot find where the data for each track starts, causing an 'IO' or 'UNABLE TO READ' error.

The author of this copy-protection scheme is so proud of his work he put his name on the disk around \$B700 in memory.

Getting the disk into a normal DOS 3.3 format is definitely the first step. The program I like to use for this is COPYB (a modified version of COPYA which uses the protected disks RWTS moved to \$8000 to read the tracks and DOS 3.3 to write the tracks out to an initialized disk).

I booted up the copied disk and everything seemed great, until the drive head moved to a certain track and just sat there spinning. This is usually a sign of a 'nibble count' or where a disk routine will do one or more 'byte checks' to see if the disk is an original.

I used the *Senior Prom*'s non-maskable interrupt to check the Stack (the area of memory which holds the program counter value after an interrupt) and saw where the program hung up.

I listed the HELLO program and saw that lines 1 and 2 loaded and ran PHONE BILLS at \$6000 which is the same area that contained the nibble count and also changed the reset vectors.

Replacing these lines with REM statements we can bypass PHONE BILLS and have a completely unprotected copy.

1 Initialize a blank disk (fast DOS recommended).

INIT HELLO
DELETE HELLO

2 BOOT *The Apple's Core* and enter the monitor with a non-maskable interrupt (normal reset will not work).

3 Move the protected RWTS to \$8000.

8000<B700.BFFFFM

4 Boot a slave disk with no hello.

C600G

5 Insert the disk with COPYB and run it. Answer prompts with \$03 as the first track to copy and \$20 as the last.

RUN COPYB

6 Insert your copied disk, load HELLO and replace those first two offending lines.

LOAD HELLO

1 REM

2 REM

SAVE HELLO

That's it! Now put the original away and practice! practice! practice!

Walter J. Scott

† Softkey for...

2400 A.D.

Origin Systems Inc.

This program is one of the latest games by Origin Systems. The game is quite good, but like most programs, it is copy-protected.

I know that most companies use the same copy-protection methods in different games they publish. In fact Origin uses the same protection for *Ultima IV, Moebius* and *Autoduel*.

So I tried the softkey for *Ogre* (COMPUTIST #43) and it worked!

One more thing, you must format the disk (the one you want to copy 2400 A.D. onto) in ProDOS for the softkey to work. It does not matter what name you format the disk under.

Playing Tips for...

2400 A.D.

Origin Systems Inc.

■ Looking for help from the underground? Ask Eddie about Spider.

■ If you get caught and are thrown in the cell at the rehabilitation center, don't worry. You can escape from the cell by a secret tunnel behind the bed.

■ Looking for the plasma rifle? Find Wes, he may give it to you if he likes you. Once you get the rifle from Wes, you must find someone who knows how to fix it.

■ You need the a field disperser. It lets you walk across the force fields. It's also the most powerful energy shield, making it the heaviest armor.



Jack R. Nissel

Softkey for...

Murder on the Mississippi

Activision

1 Use any fast copy program to copy both sides of the disk.

2 Using your sector editor search side 1 for the string that begins A9 56 85.

3 Look ahead until you find the string 38 2A 25 FC.

4 Starting with the A9 that you found in step 2, change all the bytes to EA up to, but not including the bytes 25 FC that you found in step 3.

5 Change the 25 FC to A9 FF

6 Write the sector back to the disk.

Super IOB Softkey for...

Jenny's Journeys

MECC

The softkey in COMPUTIST #50 did not work for my copy so I wrote the following controller.

1 Initialize a disk with HELLO.

2 Install the controller listed below into Super IOB and copy the original to the disk that you initialized.

3 When asked, press N, so as not to format the disk while running the controller.

Controller

1000 REM JENNEY'S JOURNEYS

1010 TK = 3 : LT = 35 : ST = 15 : LS = 15 : CD = WR :
FAST = 1

1020 RESTORE : GOSUB 190 : GOSUB 210

1025 GOSUB 490 : GOSUB 610

1030 GOSUB 230 : GOSUB 490 : GOSUB 610

1035 IF PEEK (TRK) = LT THEN 1050

1040 TK = PEEK (TRK) : ST = PEEK (SCT) : GOTO 1020

1050 HOME : PRINT "COPY DONE" : END

5000 DATA 170, 213, 173, 213, 150, 170

Controller Checksums

1000	-	\$356B	1035	-	\$FDDB
1010	-	\$2445	1040	-	\$F69F
1020	-	\$288C	1050	-	\$7098
1025	-	\$F0C7	5000	-	\$E673
1030	-	\$6686			

This controller may work on other MECC software.

Softkey for...

Movie Monster

Epyx

1 Boot your DOS 3.3 System Master disk.

2 Tell DOS to ignore checksums and epilogues and run COPYA.

POKE 47426,24

RUN COPYA

3 Copy both sides then sector-edit side one of the copy you just made.

Trk	Sct	Byte(s)	From	To
\$00	\$05	\$43-44	D0 F4	EA EA
		\$4C-4D	D0 4A	EA EA
		\$55-56	D0 41	EA EA
		\$68-	?	EA EA EA EA EA EA A9 FC
				85 F0 85 F3 A9 EE 85 F1
				85 F2

Softkey for...

Kid Niki Radical Ninja

Data East

1 Boot your DOS 3.3 System Master disk.

2 Tell DOS to ignore checksums and epilogues and run COPYA.

POKE 47426,24

RUN COPYA

3 Copy both sides then sector edit side one of the copy you just made.

Trk	Sct	Byte(s)	From	To
\$00	\$0E	\$6F-70	D0 F4	EA EA
		\$7A-7B	D0 1F	EA EA

If you don't have it by now, I suggest you get the new version, (8.1), of Copy II Plus. The 3 1/2"-parm list contains quite a few titles that according to the instructions will completely deprotect the copy it makes.

I am glad to see all of the support that is being given to COMPUTIST by its readers. As long as we continue to do this, we will all benefit from it.

If anyone wants to get in touch with me you can write to me at:

Jack R. Nissel
P.O. Box 16928
Philadelphia, PA 19142

or if you log on to the Cutting Edge BBS, (313)349-2954, you can leave E-Mail for me.

You can also reach me at 215-365-7730 any evening except Thursday evening between 8:00 P.M. and 11:30 P.M. EST.

Scott M. Simon

Softkey for...

Ikari Warrior

Data East

Requirements

- 64K Apple II and up
- COPYA
- Blank disk
- Sector-editor
- Disk-search utility

This is an excellent sequel for dedicated fans of Commando. The krack for this program is almost the same as for most Data East releases. I should add that you need to copy both sides, but only sector-edit the front side.

1 Boot your DOS 3.3 system disk.

2 Tell DOS to ignore checksum and epilogues and use COPYA to copy both sides.

POKE 47426,24

RUN COPYA

3 Make the following sector-edits to side one of the copy you just made.

Trk	Sct	Byte(s)	From	To
\$00	\$06	\$00-01	A0 00	18 60

And A.P.T. for...

Ikari Warrior

Data East

Unlimited Armament

The first sector-edit is for unlimited men, the second for unlimited grenades, and the third for unlimited bullets.

Trk	Sct	Byte(s)	From	To
\$19	\$09	\$6E-6F	E9 01	EA EA
		\$93-94	E9 01	EA EA
		\$BD-BE	E9 01	EA EA

Softkey for...

Arctic Fox

Electronic Arts

Requirements

- Apple II with 64K
- COPYA
- Blank disk
- Sector-editor
- Disk-search utility

After trying every softkey for Arctic Fox for the last year, I was just about to give up.

I had spent many hours trying to figure out how to get my odd version cracked. I recently re-read Brian A. Troha's article in COMPUTIST #49.

My hat's off to Brian. I followed his article, searched my disk thoroughly and found some eleven jumps to a wipe routine located at \$6000.

After a lot of painstaking work, I finally got my *Arctic Fox* cracked. Credit should be given to detailed articles like Brian's. I still would have been out in left field without it.

I would like to encourage everyone who writes to the RDEX to please explain their cracks as thoroughly as possible. I realize that it takes up more space, but there are a lot of readers who are not experts.

Anyway here's how I got my odd version cracked.

- 1 Boot your DOS 3.3 system disk.
- 2 Tell DOS to ignore checksum and epilogues and run *COPYA*.

POKE 47426,24
RUN COPYA

- 3 Make the following sector-edits to the copy you just made.

Trk	Sct	Byte(s)	From	To
\$00	\$0B	\$05-07	20 00 60	EA EA EA
\$0D	\$09	\$FA-FC	20 00 60	EA EA EA
\$09	\$03	\$F8-FA	4C 00 60	EA EA EA
\$01	\$0F	\$00-02	4C 69 A0	18 60 DD
		\$69-6B	4C 69 A0	18 60 DD
\$01	\$0C	\$00-02	4C 69 05	18 60 42
		\$69-6B	4C 69 05	18 60 42
\$01	\$0E	\$4C-4E	20 03 A0	18 60 4B
		\$0B \$4C-4E	20 03 05	18 60 B0
\$17	\$01	\$BA-BC	20 00 60	EA EA EA
\$17	\$01	\$D8	20 86 6E C9 52	EA EA EA EA EA
			D0 DB	EA EA
\$18	\$06	\$7C	20 C2 6C C9 84	EA EA EA EA EA
			F0 03 4C 00 60	EA EA EA EA EA
\$19	\$01	\$80	20 61 76 C9 CA	EA EA EA EA EA
			F0 03 4C 00 60	EA EA EA EA EA
\$19	\$0B	\$CB	20 C4 6C C9 76	EA EA EA EA EA
			D0 0D	EA EA
\$19	\$0B	\$DF-E1	20 00 60	EA EA EA
\$1D	\$09	\$B0	20 84 6E A5 11	A9 52 85 11 EA
			69 52 F0 03 20	EA EA EA EA EA
			00 60	EA EA

Brian Troha

Playing Tip for...

Thexder

Sierra Online

Joystick Control

The next time you play *Thexder*, press **J** when the game begins and you will have joystick control.

Different positions on the joystick control movement and transformation in and out of the jet mode.

Use button 0 to fire and button 1 to activate the shields.

Remember: any game that uses the joystick, when running at fast speed, becomes a challenge.

By the way, the joystick seems to "center" to the lower right-hand corner.

If you followed my article on softkeying *Thexder* and you use the "J" command, you eliminate both problems I spoke of.

Sierra forgot to mention in the documentation that joystick control is optional. Other useful key commands are:

- J** Toggle joystick control
- M** Toggle music
- S** Toggle sound
- Q** Quit to ProDOS 16

Upgrading to the 2.0 IIgs ROMs?

The Downside

Three of the newer IIgs programs that I know of, that **DO NOT** work with the new 2.0 ROM upgrades are *Hacker2* and *The Music Studio* (both by Activision) and *The Bard's Tale IIgs* (by Electronic Arts). I have heard that all three programs have been updated, but there are stores still selling the old non-working versions.

The Upside

The upgrades (video ROM and monitor ROM) are **free** if you need them! And best of all, from the monitor pressing **#** will put two new Classic Desk Accessories (CDA) on the control panel.

Memory Peeker is a CDA that allows you to see the used, purged, and free memory of your IIgs.

And **Visit Monitor** is a quick way into the monitor from a program that does not disable the control panel.

You can easily get back to the control panel by typing **(-Y)**.

Someone at Apple must be listening to us (the users)!

On a different note

Activision has dropped its copy protection on *Paintworks Plus*, *Draw Plus*, *Writer's Choice Elite* and *The Music Studio*.

Datapak Software Inc. has dropped its copy protection on *Graphicwriter* version 2.0. Styleware has **added** copy-protection to the

latest versions of *Multiscribe* (both for the IIgs and the 128K II series).

If you own an Apple IIgs I would suggest buying *Copy II Plus v8*. The latest version has a 3 1/2"-bitcopy program that looks and works like the 5 1/4"-bitcopy program. Using Auto Copy and a "(HD 1)" parm (hard disk patch file) allows you to unprotect the disk as you copy it.

Many of the edits that have been printed in COMPUTIST have found their way into the parm file.

Both the utilities file and the 3 1/2"-bitcopy files have memory manager, which allows you to use all available memory in your IIgs. The best disk utility package ever, just got better!

Softkey for...

Genesis
Datasoft

Requirements

- Apple II with 48K
- Color monitor
- A way into the monitor
- Blank slave disk with no *HELLO*

Genesis seems to be a simple game of shoot-em-up with a twist or two. It's not a bad game, although you can sit in one place the whole game and just fire.

The real challenge is to score high, and that is no easy task unless you play these type of games a lot. The game lets you choose between paddles or a joystick for the controllers. The default is joystick. If you want paddles you must type "P" at the beginning of each game.

I prefer the paddle control "mode" even when using the joystick, so included with the softkey of this game is a patch for the paddles to become the default controllers, which means that to use the joystick control mode with the patch, simply type "J" when the game begins.

One good argument for softkeys is: The original *Genesis* disk will not run on an Apple with a 65C02 CPU, while the softkeyed version works fine on **any** Apple or compatible.

Also, please keep in mind, this crack can be done on any Apple as long as you enter the monitor when the drive stops.

Using a hi-res disk scan, it is easy to tell that *Genesis* uses tracks \$00 through \$0C. As such it is more likely to use a loader type program rather than a DOS.

There are two forms of protection being used. First are the modified address and data marks plus the unformatted tracks. Second, the game makes some kind of disk-check which comes at the end of each level.

On my original the disk drive kicks in like it performs a nibble-count, but the check would always pass even if no disk is present in the drive.



At \$8089—\$8091 in memory there is the following code:

```
8089-20 BF 82 JSR $82BF Unscramble the code
808C-20 F5 82 JSR $82F5 Do the disk routine
808F-20 BF 82 JSR $82BF Rescramble the code
```

If you NOP the above code, *Genesis* will no longer check for the original disk.

To crack *Genesis*, you must stop the program from setting up the zero page and running the demo. If it does, and you use this process, *Genesis* will start up with lines running across the screen and then hang. So you will need a way into the monitor as soon as the drive stops. Any method of entering the monitor will work, including use of the 64K 80-column card on any of the 128K Apples (see COMPUTIST #16, Secret weapon: RAMcard).

Instead of using a full disk for a backup, this process will create a single file to run with all title pages. The end product should be a 125-sector game that you can modify as you see fit. Here are the required steps in "Cookbook" fashion:

1 Boot *Genesis* and enter the monitor when the drive stops.

2 Change the jump at \$900 to the memory move and eliminate the disk routine.

900:4C 60 55

8089:EA EA EA EA EA EA EA EA EA

Optional: To have the paddles as the default controllers.

92D:85 AD A9 FF

3 Enter the following to move high memory down and add the code to restore memory and start the game.

5600<8300.8CFFM

5560:A0 00 B9 00 56 99 00 83

5568:C8 D0 F7 EE 64 55 EE 67

5570:55 AE 67 55 E0 8D D0 E8

5578:A9 09 A0 80 8D 01 09 8C

5580:02 09 4C C1 80

4 Boot a slave disk with no *HELLO* program.

C600G

5 Save the game to the disk.

BSAVE GENESIS, A\$900, L\$7B00

Softkey for...

Shanghai

Activision

After checking a second *Shanghai* disk, I found that Activision has changed and moved the protection routines.

Now \$5D0F (instead of \$5D09) must hold a value of \$0001, so I searched the disk for any reference to \$5D0F and found both parts of the protection.

These edits set the flag to pass and then ignore the flag altogether.

Block	Byte(s)	From	To
\$243	\$52	00	01
	\$54	22	AF
	\$58	8D	8C
\$267	\$148	F0	80

Iigs Softkey for...

Space Quest v2.2

Sierra On Line

■ Requirements

- 512K Apple Iigs
- 3½" disk-copier
- 3½" disk block-editor

Space Quest is a 3-D adventure by Sierra and is a lot like the *King's Quest* series (which Sierra has upgraded for the Iigs) for 128K Apple IIs. The program comes on two 3½" disks, with **both** disks having an error over block \$634. I was able to make an unprotected copy of both disks. The actual disk-check is located at 01/ B370 and is called from 03/ 7C7A.

One thing you should remember is: If you upload the programs to a hard disk you still need a disk called *SQL* online (the unprotected disk will work fine).

I tried to track this down and changed it, but when I booted the copy it bombed with a "Fatal tool error" message. If you want to try and track it down yourself, here is the trick I used:

First I made a copy of the boot disk, then I searched it for A9 34 06. This is LDA #\$634 (the bad block to search for) and I found it twice on block \$73. Then I traced the routine backwards, and when I found the start I replaced it with 68 FA 00 which is PLA, PLX, BRK. I wrote these bytes back to disk and booted it.

When the program crashed into the monitor the Accumulator held the Address called from and the X-register (lo byte) held the memory block number.

Example: A=7C77 and X=nn03, then the call was made from 03/ 7C7x (where x is the value less the length of the instruction). From there you will have to trace the code and see what it does.

I used the above trick three times to find the correct edit. Once you find the calls, you will have to search the disk for them. The problem is all calls on the disk are in the form of 22 00 00 00.

I think that the check for *SQL* and the bad block is called from 02/ E8FE and is located on block \$88, byte \$9A.

? If you can successfully change the

disk volume (eliminating the need for a key disk) please let us know how you did it.

Either way, to make unprotected backups do the following:

1 Make copies of both disks (ignore errors on block \$634)

2 Use a block-editor and change:

Block	Byte(s)	From	To
\$9E	\$177	22	AF

Iigs Softkey for...

GBA Championship Basketball

Activision

■ Requirements

- 512K Apple Iigs
- 3½" disk-copier
- 3.5" disk block editor

GBA Basketball is a great arcade style program that features two players on each team. You can have 2 players play the computer by having one player use the joystick and the other use the keyboard. When you are alone you can control one player and have the computer control the other 3 players.

The program runs under ProDOS 8 and uses nibble-counting on tracks \$20 and \$21 of side one (this appears to be a popular protection scheme now). Here is how I tracked the protection down.

First I made a copy and booted it. I was rewarded with a message saying "Illegal copy". Thank Activision for giving us somewhere to start.

So I loaded most of the GBA file into memory with **BLOAD GBA, A\$1800, E\$7000**. I searched memory for the illegal copy message using the **P** command from the Iigs monitor. I found the message-print routine started at \$5B55.

So I searched for a reference to \$5B55 and found the following at \$309D:

```
9C 8C 5E STZ $5E8C
08 PHP
C2 30 REP #30
AF 87 29 02 LDA 022987
C9 40 1F CMP #1F40
90 15 BCC ILLEGAL COPY
C9 09 20 CMP #2009
90 10 BCC ILLEGAL COPY
AF 89 29 02 LDA 022989
C9 B0 1D CMP #1DB0
90 07 BCC ILLEGAL COPY
C9 79 1E CMP #1E79
90 02 BCC ILLEGAL COPY
28 PLP
60 RTS
E2 30 SEP #30
4C 55 5B JMP 5B55 Print 'Illegal copy'
```



So if you NOP all the conditional branches you will have an unprotected version. After thinking about it, I decided to look for a call to \$309D and I found one. When checking this code out I saw a reference to \$5E8C then a branch over the protection call. It would seem that the only thing needed was the STZ \$5E8C command. I then changed the JSR \$309D to a STZ \$5E8C and had a different working version.

So I made a list of both edits, just in case I missed something.

Block	Byte(s)	From	To
\$240	\$13F	20 9D 30	9C 8C 5E
\$24B	\$AA	90 15	EA EA
	\$AF	90 10	EA EA
	\$B8	90 07	EA EA
	\$BD	90 02	EA EA

Iigs Softkey for...

World Games

Epyx

■ Requirements

- 512K Apple Iigs
- 3½"disk-copier
- 3½"disk block-editor

World Games from Epyx has been released for the Apple Iigs with improved graphics and great sound. As you might guess the program is copy-protected. I think that Epyx uses a nibble count on tracks \$20 and \$21 on side 1 of the 3½"disk. The disk check starts out by storing a pass value (\$72) in memory (\$E1/2AF3), then doing the nibble-count. If the nibble-count fails, a different value is stored in the flag.

The actual subroutine does not return any special value, so I overwrote the call and the disk ran just fine.

I then searched the disk for instructions that checked the flag and disabled that to. Here is what the disassembly would look like on the disk:

```
A9 72 00 LDA #0072
8F F3 2A E1 STA E12AF3
20 5D 00 JSR 005D
22 D5 03 00 JSL 0003D5
```

On a different block the check looks like:

```
E2 30 SEP #30
AF F3 2A E1 LDA E12AF3
C9 72 CMP #72
D0 FC BNE -4 (an endless loop)
```

If you change the JSR \$005D to LDA \$005D you have an unprotected version without the disk-check.

I also added an edit to ignore the flag pass or fail, but this is optional as the first edit bypasses the protection by itself.

If you would like to check the protection routines out on your own they start at byte \$A2 of block \$7 and are part of the file *WG.SYS16*. The edits are:

Block	Byte(s)	From	To
\$007	\$65	20	AD

Optional:

Block	Byte(s)	From	To
\$3E	\$1D	AF F3 2A E1 C9 72 D0 FC	A9 72 8F F3 2A E1 EA EA

Chris Wood

Softkey for...

California Games

Epyx

■ Requirements

- Apple IIe, IIc, or like with 128K
- COPYA* from DOS 3.3 System Master
- A sector-editor (*Copy II Plus v7.4*)
- Original *California Games* disk
- Some extra typing time

This game is incredibly good. It uses double hi-res for all the events and the title page, which by the way, is also pretty good. Unfortunately, the copy-protection is also pretty well written.

Essentially, it's a nibble-count, but there's more going on than in past Epyx schemes. It zeros out some zero-page locations, jumps to a nibble-count routine, which either sets or clears the carry flag before returning, then does a second(?) nibble-count which loads a couple of bytes necessary for EORing some scrambled code.

After that mess, it finally does an indirect jump through \$8FD to \$B700 that was just decoded, and loads the program. Whew!

If the count fails, it simply increments the reboot vector then exits via indirect jump through \$FFFC (the Reset vector). I just booted the disk, waited until I thought the first couple of sectors had been loaded in, and hopped into the monitor.

Sitting at \$801 was BOOT1, which is where I usually start my investigations. All seemed normal except for a jump to SBB00 followed by a BRK. Hmmm.

A look at SBB00 shows a nice meaty nibble-count just waiting to reboot at the first sign of falsehood.

I swear I must have sat and poked away at that ugly monster for hours until I just gave up and booted the disk again, broke into the Monitor, and looked at locations \$F0-\$FF which seemed to have some sort of bearing on the outcome. I came up with the following Hexdump:

```
F0- FC EE EE FC E7 EE FC E7
F8- 00 BB 00 FE 0A 79 00 00
```

I then did what any other hacker would at 12 midnight; I wrote a routine at the beginning of the nibble-count to load those values into those places and jump to the decoding section of the routine.

To my amazed and weary eyes, it worked, but I still don't know why.

1 Boot your DOS 3.3 System Master, tell DOS to ignore checksums and epilogues and use *COPYA* to copy both sides of the disk.

POKE 47426,24
RUN COPYA

2 Use your sector-editor to make the following edits.

Trk	Sct	Byte(s)	From	To
\$00	\$05	\$00	?	A9 FC 85 F0 85 F3 85 F6 A9 EE 85 F1 85 F2 85 F5 A9 E7 85 F4 85 F7 A9 00 85 F8 85 FA 85 FE 85 FF A9 BB 85 F9 A9 FE 85 FB A9 0A 85 FC A9 79 85 FD 4C 7A BB

I realize that this is a heck of a lot of typing for your usual softkey, but it works. That's the main point, right?

If anyone out there has never seen a working nibble-count routine, I highly recommend looking at track \$00, sector \$05 before you place the sector-edits there. This contains the entire nibble-count. Just remember that it is written to be confusing.

Also, if if you look at it from a sector-editor, all locations should start with \$BB instead of the high-byte of the sector buffer. For example, in *Copy II Plus*, the sector buffer for their sector-editor is at \$E00. A BNE SBB98 instruction would appear as BNE SE98 because it is a two-byte instruction. However, a JMP (\$FFFC) would appear as is because the opcode specifies the high order byte. I hope that clears that up.

One more note, if anyone out can figure out how to speed up the lathargic loading routine this game uses, please tell us. This is the kind of thing that makes Commodore look good.

Tom Kepka

Softkey for...

Sesame Street's
Electric Crayon series
Polarware/Penguin Software



Softkey for...

Numbers Count

Opposites Attract

Letters For You

■ Requirements

- Apple IIe
- COPYA or disk-copier
- Sector-editor

Using Jack Moravetz's softkey in COMPUTIST #50, page 25, I deprotected the Electric Crayon ABC's.

Next, I tried the same softkey on Electric Crayon *Fun On The Farm* and Electric Crayon *This Is Your Land*. Both worked successfully and I was pleased that I could stop worrying about my five-year-old killing these disks!

Having just purchased the Sesame Street Crayon Series for my son, I thought it would be terrific if the same softkey would work on this similar series.

No such luck! Somehow the protection was changed to also keep you from looking at the catalog and not recognizing any command regarding the file SHAPES that was the key to the Electric Crayon series.

With the knowledge I had gained from Jack Moravetz's softkey, I decided to try my first softkey.

I got my sector-editor and search the disk for a directory. I found one on tracks \$00 & \$01. There was indeed a file named SHAPES listed there.

I tried to disable it by reading track \$12 sector \$0D and changing byte \$00 from A9 to 18. This appears to do the trick. I now now have COPYA-able backups of all three of the Sesame Street series: *Numbers Count*, *Opposites Attract*, and *Letters For You*

Being a novice, I can't explain exactly what all the protection does or how, but this softkey seems to circumvent it. I hope it will be of help to other worried parents, whose children enjoy these programs as much as my children do.

1 Copy your original disk with COPYA or other disk-copier.

2 Use a sector-editor to make the following change:

Trk	Sct	Byte(s)	From	To
\$12	\$0D	\$00	AD	18

Stephen Lau

I have several things that I would like to talk about. First of all, as Peter Wilding in

COMPUTIST #50 has said, the new COMPUTIST is great! It is better to have a lot of softkeys than just 5 or 6.

Secondly, I would like all of the COMPUTIST volunteer writers to carefully check their softkeys before submitting them. Software publishers are becoming trickier, and one cannot say that a program is completely deprotected just because it boots.

Attn: James E. Mueller...

For example, in responding to James E. Mueller's letter in COMPUTIST #48, I am submitting a softkey for *Goonies*.

Super IOB Softkey for...

Goonies

Datasoft Inc.

■ Requirements

- 64K Apple II and up
- Super IOB v1.5
- Blank diskette

Yes, Clay Harrel's softkey is incomplete. The program checks the disk after you finish level one. If it doesn't like what it finds it hangs and the computer goes to never-never land.

I scanned the program and defeated the check. Then, you know what, it REBOOTS!

After a lifetime of boot-code-tracing I found a memory test. When it fails, it does a JMP (\$00D0) and reboots.

After defeating this one, the program works but then reboots at level 3. This time I searched the disk for 6CD0 00 and found it in three other places. I changed them and finally the program works!

I'm quite sure there are no other checks since I completed the game.

Following is the controller:

Controller

```

1000 REM GOONIES CONTROLLER
1010 TK = 1: LT = 33: ST = 15: LS = 15: CD = WR:
      FAST = 1
1020 GOSUB 360: GOSUB 490: GOSUB 610
1022 IF TK = 1 THEN GOSUB 5000
1024 IF TK = 8 THEN GOSUB 5010
1026 IF TK = 15 THEN GOSUB 5020
1030 GOSUB 360: GOSUB 490: GOSUB 610: IF PEEK
      (TRK) = LT THEN 1050
1040 TK = PEEK (TRK): ST = PEEK (SCT): GOTO 1020
1050 TK = 0: LT = 1: ST = 15: LS = 15: CD = WR: FAST = 1
1060 GOSUB 490: GOSUB 610: GOSUB 5030: GOSUB
      490: GOSUB 610
1070 TEXT : HOME : PRINT "ALL DONE." : END
5000 AS = "7BA3:EA*EA*EA*N*7BAA:EA*EA" : GOTO
      5040
5010 AS = "8CA3:EA*EA*EA*N*8CAA:EA*EA" : GOTO
      5040

```

```

5020 AS = "7B31:EA*EA*EA" : GOTO 5040
5030 AS = "3133:D5*D5*D5*N*3423:AB*N*342D:55*
      N*3438:5B*N*3491:AB*N*349B:55*N*34A6:2D"
5040 AS = AS + "N*D9C6G" : FOR A = 1 TO LEN (AS) :
      POKE 511 + A, ASC ( MID$ (AS,A,1)) + 128
5050 NEXT : POKE 72,0: CALL - 144: RETURN

```

Controller Checksums

1000	- \$356B	1060	- \$19DC
1010	- \$1A23	1070	- \$17E8
1020	- \$F76E	5000	- \$97C5
1022	- \$6E2B	5010	- \$AA22
1024	- \$A717	5020	- \$5674
1026	- \$25AB	5030	- \$335B
1030	- \$173F	5040	- \$DA37
1040	- \$72F5	5050	- \$CD46
1050	- \$C832		

You can then make the following sector-edits to the disk using Clay Harrel's method to yield a completely deprotected copy:

Trk	Sct	Byte(s)	From	To
\$00	\$05	\$33	40 B9 0C	D5 D5 D5
\$06	\$0B	\$A3	6C D0 00	EA EA EA
\$06	\$0B	\$AA	B0 F7	EA EA
\$0E	\$0A	\$A3	6C D0 00	EA EA EA
\$0E	\$0A	\$AA	B0 F7	EA EA
\$14	\$0B	\$31	6C D0 00	EA EA EA

Some tips on cracking

Microprose software

Attn: A.L. Head...

I have something to help A.L.Head in cracking *Silent Service*. There are three stages of protection on *Silent Service*.

In fact, there are at least two stages on every Microprose game such as *F-15 Strike Eagle*, *Crusade in Europe*, *Conflict in Vietnam*, etc.

Don't think you have cracked one when you don't see the "Hardware Failure" message!

You can test your backup of *F-15 Strike Eagle* by landing at an airport and relaunching. Suddenly you are greeted by the infamous "Software Pirate!" message.

You can also play demo on *Crusade in Europe* and suddenly "Fatal System error#xx" occurs.

You are diving in *Silent Service* and then you see "You ran into an enemy mine!". If you are really sharp, such as A.L.Head and defeat the secondary protection (if you even know that there is a secondary protection), **you find all the ships in the convoy change into destroyers.**

Thank Microprose for a challenging protection scheme.



I have not completely deprotected *Silent Service*, though I have found the offending code that A.L. Head missed.

While the message "Loading Silent Service..." appears, you can hear a sudden seek of the drive head and then a quick successive movement. (Just before the appearance of the map.) Actually it is checking for synchronized tracks from track 11 to 22, not the quarter tracks again.

The code resides on page 3 and looks like this:

```

348-A2 FF    LDX #FF
34A-86 04    STX $04
34C-E8       INX
34D-86 01    STX $01
34F-86 03    STX $03
351-A2 11    LDX #11
353-8E EE 03 STX $3EE
356-A9 01    LDA #01
358-8D F6 03 STA $3F6
35B-A9 00    LDA #00
35D-8D EF 03 STA $3EF
360-20 E3 3  JSR $3E3    seek track to $11
363-EE EE 3  INC $3EE
366-A9 00    LDA #00
368-8D F6 03 STA $3F6
36B-20 E3 03 JSR $3E3    sector $00
36E-A9 44    LDA #44
370-20 A8 FC JSR $FCA8    delay
373-AE F8 05 LDX $5F8
376-9D 89 C0 STA $C089 X drive on then find
3A4-BD 8C C0 LDA $C08C X the first D5 AA 96
3A7-10 FB    BPL $3A4
3A9-25 02    AND $02
3AB-88       DEY
3AC-10 EE    BPL $39C    all sectors found
3AE-C9 07    CMP #07    should be sctr $07
3B0-F0 04    BEQ $3B6    the header must be
3B2-A2 FF    LDX #FF    found in 20 nibbles
3B4-86 01    STX $01

```

Actually it seeks the track through IOB to track \$11, then reads in nibbles. It has to find D5 AA 96 within 20 nibbles. Then it will seek to the next track (\$12), find D5 AA 96 in 20 nibbles again, making sure it is sector \$07. It repeats the whole process until it reaches track \$22.

To make a sad story short, I cannot find the code on disk, and thus cannot sector-edit it so that it will not set FF in byte \$01.

It will work if you have some kind of NMI and change the code at the right moment together with the sector edits A.L. Head has given. In fact, this code is more severely encrypted than the secondary protection that A.L. Head discussed before.

I hope, using this information, he can give us a complete softkey in future issues. All in all, I enjoyed his softkey very much.

The same thing happens to *Bard's Tale* for the Iigs by J.Slate & Phillip Doherty (it does not work). The disk appears to work. It boots into the main menu and even allows a player

to enter the city. (The harddisk patch parameter in *Copy II Plus v8.1* won't allow you to enter the city because it doesn't deprotect thoroughly.) But the player won't be able to buy wine in the bar (which is needed to enter the wine cellar) and you will face 99 wimps, ancient ancestors, etc... even if you say the correct name of the Mad Lord in the temple.

Iigs Softkey for...

Bard's Tale

Electronic Arts

■ Requirements

- Apple Iigs
- System disk or sector-editor
- Blank disk

For those who don't have a 3 1/2" sector-editor using ProDOS, the BLOAD & BSAVE command is the only alternative.

First copy *Bard's Tale*, then launch into *BASIC.SYSTEM* and insert the backup disk.

PREFIX,\$5

BLOAD BURGER,\$2000

CALL-151

2009:3D was 1D

2026:18 was 38

C

BSAVE BURGER,\$2000,L715

That's it! The problem fixed is the checksum which lets the program run before but now allows you to complete the game. (Hey! This is a EA game. How can you forget to balance the checksum like you did everytime on their 5 1/4" games?)

If the bytes found are different, use the command `\E9 1D 90 1A \<2000.20FFP` and `\E9 20 90 01 38 \<2000.20FFP` to locate the correct address to make the patch then follow the steps left.

For those who have 3 1/2" sector-editors, here is the patch:

Block	Byte(s)	From	To
\$1E3	\$08	E9 1D 90 1A	E9 3D 90 1A
\$1E3	\$22	E9 20 90 01 38	E9 20 90 01 18

Iigs Softkey for...

Tower of Myraglen

PBI Software Inc.

■ Requirements

- Apple Iigs
- System disk

This is a great game! With *Super Sonic* it's unbeatable! The softkey is easy. Copy the disk. Ignore the error on block 7. Boot into *BASIC.SYSTEM*.

PREFIX,\$5

BLOAD TOWER.SYS16, A\$1000, L\$500, T\$B3, B\$8000

CALL - 151

1088:A9 0B 00 80 03 was C9 0B 00 F0 03

C

BSAVE TOWER.SYS16, A\$1000, L\$500, T\$B3, B\$8000

If the bytes found are different, use the monitor's search command to find the correct address (`\C9 0B 00 F0 03 \<1000.1500P`) then finish the softkey.

Those with sector-editors can make the following patches:

Block	Byte(s)	From	To
\$58C	\$88	C9 0B 00 F0 03	A9 0B 00 80 03

Iigs Softkey for...

Leisure Suit Larry

Sierra On Line

■ Requirements

- Apple Iigs
- System disk
- Blank disk

Leisure Suit Larry is an adult game (actually an animated color version of the old Sierra On Line game *Softporn Adventure*) that is fun to play with.

The protection is similar to *Thexder* with its bad block at block \$634. You can easily find the code by dropping into the monitor (I used *DiversiHack*) and searching for 22 A8 00 E1 22. I found something similar to the code on *Thexder*; however, I didn't change the branch.

Instead, I found the call to this routine as Brian A. Troha has noted in *COMPUTIST* #50.

Make a copy of *Leisure suit Larry*. Disk two doesn't need any sector-edits. Boot into *BASIC.SYSTEM* and insert disk 1.

PREFIX,\$5

BLOAD LL.SYS16, A\$1000, L\$1000, B\$13000, T\$B3

CALL - 151

1B59:AF

C

BSAVE LL.SYS16, A\$1000, L\$1000, B\$13000, T\$B3

For those who can't locate the code, search for `\22 00 00 00 22 00 00 00 AE 00 00 \<1000.2000P` and change the second 22 00 00 00 to AF 00 00 00.

You can also use a block-editors.

Block	Byte(s)	From	To
SA5	\$155	22 00 00 00 22 22 00 00 00 AF 00 00 00 AE 00 00 00 00	00 00 00 AE 00 00 00 00 AE 00 00



Iigs Softkey for...

Dream Zone

Baudville Inc.

■ Requirements

- Apple Iigs
- System disk
- Blank disk

Dream Zone is an adventure with great graphics (super-hires), sound and animation, that suffers from a bad parser. It is a good game nevertheless.

Make a backup copy of *Dream Zone*. Side 2 doesn't need any sector-edits. Boot into *BASIC.SYSTEM* and insert side 1.

PREFIX,S5

BLOAD DREAM.SYS16, A\$1000, L\$2000, T\$B3 CALL - 151

16A9:AF

16DF:AF

20F6:AF

212C:AF they were all 22

C

BSAVE DREAM.SYS16, A\$1000, L\$2000, T\$B3

If the bytes to be changed aren't 22, search for `\22 DB C4 00 <1000.3000P` and change all of them to `AF DB C4 00` and then continue.

Or use a block-editor to make the changes.

Block	Byte(s)	From	To
\$1B7	SA9	22 DB C4 00	AF DB C4 00
	SDF	22 DB C4 00	AF DB C4 00
\$1BC	SF6	22 DB C4 00	AF DB C4 00
	S12C	22 DB C4 00	AF DB C4 00

Iigs Softkey for...

Marble Madness

Electronics Arts

■ Requirements

- Apple Iigs
- System disk
- Blank disk

Well, at least we have games that look like those on the Amiga! This one is a true conversion from the arcade one. The sound is a bit dull compared to other Iigs programs but the graphics are great!

Make a copy of *Marble Madness*. Boot into *BASIC* and insert the copy and

PREFIX,S5

BLOAD DOS8.SYSTEM, A\$2000, T\$YS CALL - 151

20F6:90 was B0

C

BSAVE DOS8.SYSTEM, A\$2000, L7054, T\$YS

If the code was moved, search for `20 00 37 B0 0C` and change the `B0` to `90`.

The block-editor patches are as follows:

Block	Byte(s)	From	To
\$381	\$F3	20 00 37 B0 0C	20 00 37 90 0C

Many thanks to Michael A. Horton for the entrance to the secret level, it also works on the Iigs version.

About The B Parameter

Personally, I don't use sector- (or block-) editors to search for bytes since they are so slow.

I always use the `bload` command to load the suspect system file into memory and search for the bytes. This is much faster.

For example, you can search file *XXX* by typing:

BLOAD XXX, A\$1000, L\$8000, T\$XX

If you can't find the string, then use the **B** parameter:

BLOAD XXX,A\$1000,L\$8000,T\$XX,B\$8000

Keep increasing **B** until you find the string. People don't know the **B** parameter at first because there is no need to specify the number of bytes you want to pass to read a file.

Have you seen a file that has `300` blocks? This occurs with *ProDOS 16*. Many files (most importantly, *SYS16* files) are too large to fit into just one bank.

What makes it worse is that there are not many $3\frac{1}{2}$ " sector-editors in the market, let alone $3\frac{1}{2}$ " editors with search functions. So how are you going to edit a file even though you know the code is changed?

Moving a file to a $5\frac{1}{4}$ " diskette and using a $5\frac{1}{4}$ " editor to make changes is one way, but doesn't always work. Some system files are larger than the size of a $5\frac{1}{4}$ " disk!

I suggest the **B** parameter, which is handy, fast and convenient.

a note on Sierra software

For the sake of fun, you can make an almost identical copy of all Sierra On Line products.

Make a copy and using a sector-editor, write to block \$634 (the content is not important). **While the drive is spinning, press [RESET]. This will create a bad block that fools the protection code into thinking this is a master disk.** Have fun.

By the way, I think every reader ought to submit their comments to *COMPUTIST*. Think about it, if you're feeling tired or in too much of a hurry to write, how many thousands of others are using that same excuse and think how much richer the magazine material would be

if all of you contributed just a little. I (if not we) learn a lot from *COMPUTIST*, and letting such a great magazine languish is really a disgrace.

Trust me, all of these softkeys are complete. And special thanks to my friend P. Danny for the many hints on deprotecting Iigs software. Happy cracking.

Sandford Eubanks

Softkey for...

Lords Of Conquest

Electronic Arts

■ Requirements

- Blank disk
- Sector-editor
- A copy program that ignores errors
- Lords of Conquest* original disk

Electronic Arts has another winner. *Lords of Conquest* is a wonderful simulation of conquest and strategy, similar to the board game *Risk* but more detailed and involved. Additionally, when none of your friends are around to compete for global domination there's the challenge of playing against the computer.

Multiple levels as well as nine difficulty scales combined with twenty game boards (or you can make your own) leave a lot of worlds to be conquered.

It seems that the disk protection is quite involved as well.

Attempting to copy the disk with a fast disk copy program gave an error on track \$06. Having read a number of softkeys on Electronic Arts releases, I suspected it was used only for a disk check and contained no useful data.

I also hoped that it would be as easily softkeyed as *The Bard's Tale*. Unfortunately, the clues that have worked so well for those past releases were all absent.

For those of you unfamiliar with EA protection schemes, you can usually look for jumps to `SA069` or `S0569` somewhere on track \$1, sectors `S0B`—`S0F` in the first three bytes of the sector. There were no jumps to `SA069` (`4C 69 A0`) on tracks `S00`—`S02` or anywhere on the disk, for that matter.

I used the *Senior Prom's* search utility for any jumps to `$xx69` (`4C 69 xx`). Either the jumps had been changed, or were encoded or both.

Taking a different approach, I looked at my *Bard's Tale* disk to see what bytes the jumps to the copy scheme called. After locating the routine in memory, I noted down the bytes in the vicinity and then searched for the same sequence on *Lords of Conquest* (`LOQ`).

Lo and behold, I found the same sequence



on track \$03, sector \$09, though the location that the subroutine went to was different. The three bytes on LOQ were 20 E2 00 (JSR \$0D2E).

If this was the call to the disk-check, how best to disable it? Usually, you can clear the carry flag which when set is an indicator of an error with DOS (and therefore with the disk-check) and return to the caller to avoid many protection schemes. Such is the case with Electronic Arts.

Balancing Checksums

Electronic Arts is well known for running checksums on their code, so any changes to the disk had to be balanced.

$\$20 + \$E2 + \$0D = \$0F$ with the carry set on addition.

$\$18$ and $\$60$, the op codes we need to disable the check, added together give $\$78$.

$\$0F - \$78 = \$97$, the balance we need to satisfy the checksum.

So I used a sector-editor to replace 20 E2 00 with 18 60 97 (CLC, RTS and the balance).

Booting the copied disk with the changed bytes skipped the first disk-check, which occurs just after the EA logo appears, and progressed up to the game title.

My hopes were dashed when I heard the familiar half-track toggle of the disk drive. There was another check scheme somewhere yet to be found. Sure enough, the boot proceeded to the point where you are asked to choose a map for game play, then after getting the board, the game died.

I tried searching the disk for the first few bytes of the disk-check scheme that were called by the JSR to \$0DE2. Those bytes were A2 0F B5 50. But they were nowhere to be found, other than the call I had already disabled.

Since the disk check was active, it had to be encoded somewhere. Finding it was the first order of business.

My plan was to locate the bytes in memory while the program was in progress and track down the calling routine along with some nearby bytes, and then find the same bytes on disk, hoping not everything was encoded.

After booting the disk and interrupting the boot process with the *Senior Prom* (if you don't have it, you should get it) many times unsuccessfully in a search of the elusive bytes, I finally located them in memory at \$BECB.

This was strange because the bytes in pages SBC, \$BD, and \$BE were **entirely different than the dozen or so other times I looked at them during earlier interruptions.**

Decode, Activated, Erased in millisecs

It could only mean that the protection code was encoded elsewhere and decoded for momentary execution, then changed back to original form.

It must happen in milliseconds because I've only been able to find it twice in the countless times that I've tried.

At any rate, tracking backwards, I discovered that the code at \$BECB was called from \$BD69 - that's EA's trademark, remember - and doing more backtracking (this took me hours and many pages of printed code) I discovered that the call to the protection code on page SBD was at \$4ECC in the form of a jump, 4C 00 00.

Since I had no idea where the protection code originated, it seemed reasonable to kill the call to it, if I could find it. So I printed the page of code at \$4E00 hoping to find some of the same bytes that would match on the disk.

Running a disk-check yielded a match at track \$16, sector \$00. There was a catch, however.

Comparing encoded and decoded code

There were \$11 (17 decimal) bytes on the disk sector that did not match the memory page. I could not find a jump to \$BD00, so I assumed these bytes were among those that were encoded.

Not really any big feat to figure out the scheme, as I had the encoded bytes (disk printout) and the decoded bytes (memory printout).

From an earlier issue of *COMPUTIST*, I recall reading that EA had used an increasing value to EOR (logical Exclusive OR) encoded to decoded values.

EORing the two values present gave me the values I needed. The bytes on the disk are EORED starting with a value of \$72 and the value increases \$0D each time. The routine, when decoded, stored a few values in memory and went to a couple of different subroutines before jumping out to \$BD00.

I decided to place an 18 60 at the start of the routine, hoping to bypass the entire mess.

Coming up with two values that would decode to \$18 60 was the easy part.

Checksums even for encoded code

Remember, EA checksums their code. Further, I found that they checksum it both in encoded and decoded form.

So instead of changing just two or three bytes, I found I had to change ten bytes so it would balance both encoded (on disk) and decoded (in memory).

Normally, it's best to change as few bytes as possible when bypassing protection code. But since the first two bytes I inserted would return to the caller, changing eight more to satisfy the checksum would not matter as long as no other routines were changed.

That turned out to be the case.

After changing the bytes, the disk booted cleanly, with no disk-check, and I played

through two games just to ensure it did not hang up somewhere down the line.

At last, I could enjoy the program without fear of damaging the original.

1 Make a copy of the original using a copy program that ignores errors or can skip track \$06.

I used *Senior Prom* copy function, but *Copy II Plus* disk copy, *Locksmith Fast Copy* or even *Super IOB* will work. You'll have to write the controller for *Super IOB* to skip track \$06.

Don't forget to copy the back side of the original disk, as that's where the game boards are located. There is no protection on that side.

2 Make the following track/sector edits. If you don't find the bytes in the same location, use a disk-search utility to locate them, then change to the values shown.

Trk	Sct	Byte(s)	From	To
\$03	\$09	\$EF-F1	20 E2 00	18 60 97
\$16	\$00	\$C2-CB	FF 48 D8 33 A6 89 FD E2 44 38	6A 1D FF EC A1 80 DB E3 51 3A

With a little luck, a lot of persistence, a good hardware device, and most important - the sharing of information, the walls of copy-protection are slowly crumbling. Enjoy your unprotected *Lords of Conquest*.

Michael Plett

I like your new format. Please continue publishing the "ancient" softkeys. I have a lot of "ancient" software that is still locked up: *Mask of the Sun* by Ultrasoft, and *Lancaster* by SVS

William S. Hughes

I like the number of softkeys in the new format. I usually just type the IOB controllers, but recently I decided to learn to use *Super IOB*.

Most of the controllers I can follow somewhat, however, some of the poke locations are confusing.

? For example, in *COMPUTIST* #48 there is a softkey for *Chess 7.0*. What does each do? And in which line should I put them? I have been unsuccessful in copying my disk.

Perhaps Mr. Alexander would be willing to convert his softkey into the step-by-step format for beginners.

Thanks to Jim S. Hart for the *Paul Whitehead Teaches Chess* softkey. I had purchased that program just one week before the magazine came.

? Some programs use the language card for their RWTS, how can you capture it to use it the Swap Controller?



Gary A. Thompson

Softkey for...

Reader Rabbit

Learning Company

Requirements

- DOS 3.3 & COPYA
- Sector-editor, such as *Copy II Plus*
- Blank disk

1 Boot from your DOS 3.3 system master, then disable error checking and use *COPYA* to copy the disk.

POKE 47426,24
RUN COPYA

2 Put your original disk away. Boot up your sector-editor and scan the disk for 4C 00 C6. I found it on track \$00, sector \$0E and track \$13, sector \$0D. Replace these bytes with EA EA EA in both locations.

3 Boot up your copy and delete line 7 from *HELLO*.

LOAD HELLO
7

SAVE HELLO

Enjoy your unprotected disk.

Darryl Higga

A.P.T. for...

Kung Fu Master

DataEast

The number of men is stored at byte \$F8 on track \$12, sector \$0C.

Softkeys for...

California Games

Movie Monster Game

Epyx

After reading Willem Moolenaar's softkey on *Street Sports Baseball* by Epyx in *COMPUTIST #50*, I decided to try it out on *California Games* and the *Movie Monster Game* also by Epyx. It worked!

1 Disable DOS checksum and epilogue checks and use *COPYA* to copy the disk.

POKE 47426,24
RUN COPYA

2 Make the following changes with your sector editor.

Trk	Sct	Byte(s)	From	To
\$00	\$05	\$43-	D0 F4	EA EA
		\$4C-	D0 4A	EA EA
		\$55-	D0 41	EA EA
		\$68-	?	EA EA EA EA EA EA A9
				FC 85 F0 85 F3 A9 EE
				85 F1 85 F2

A.P.T. for...

Buck Rogers

Sega Enterprises

The number of ships is stored at byte \$AA on track \$0A, sector \$04.

The Loch

Kudos to Mr. Nicholson and Mr. Rando (*COMPUTIST #46*). More Activision unlocked with similar protection in different locations on the following:

Softkey for...

Tass Times In Tonetown

Activision

1 Copy *Tass Times in Tone Town* using *COPYA* or *Locksmith Fast Copy*.

2 Make the following edits:

Trk	Sct	Byte(s)	From	To
\$01	\$0A	\$62-A1	?	EA
		\$A2	25	A9
		\$A3	FC	FF

Softkey for...

Countdown To Shutdown

Activision

1 Copy *Countdown to Shutdown* using *COPYA* or *Locksmith Fast Copy*.

2 Make the following edits:

Trk	Sct	Byte(s)	From	To
\$00	\$0A	\$DD-FF	?	EA
\$00	\$0B	\$00-1A	?	EA
		\$1B-1C	25 FC	A9 FF

Softkey for...

Earth Station Orbit

Electronic Arts

1 Copy *Earth Station Orbit* using a program that will ignore errors such as *Locksmith Fast Copy* or *Copy II Plus*.

2 Make the following edits.

Trk	Sct	Byte(s)	From	To
\$01	\$0F	\$00	4C	60
		\$6F-71	46 69 A0	18 60 DD

Softkey for...

Super Huey

Cosmi

1 Copy *Super Huey* using a program that will ignore errors such as *Locksmith Fast Copy* or *Copy II Plus*.

2 Boot disk and break out of program using **C** as soon as the Applesoft prompt I appears at the bottom of the screen:

C

LOAD ENTR A

10 PRINT CHR\$(4) "BRUNICODE"

20

50

SAVE ENTR A

Enjoy an unprotected version of a pretty good helicopter simulator. Thanks for producing a great mag. We at the Loch love the new format.

Tim Snyder

Softkey for...

Troll Micro Courseware

Let's Learn About the Library

Maps & Globes: Latitude & Longitude

Learning to Tell Time

Let's Learn About Money

Requirements

- Troll Micro Courseware disk
- Super IOB v1.5*
- Blank disk

Troll Associates are starting to produce some very fine educational programs for children age K-8.

All programs are hi-res with animation and fun sound effects. They are designed to help students master important concepts in reading



math, social studies, and library science. More importantly, there is a lifetime guarantee for teachers that will provide free replacements for any reason. The programs are also sold on a 30-day approval.

So much for the background, now on to the deprotection. I was recently approached by a friend who desperately needed these programs backed-up. I was informed, at the time, that nibble-copies were impossible and I accepted the challenge.

My first attempt at a copy with *COPYA* proved to be nothing more than a drive noise maker. I used *Disk Muncher* to see which tracks were giving me problems. To my surprise, the even numbered tracks copied fine but the odd numbered tracks (tracks \$01, \$03, \$05, etc.) returned read-errors.

Because the disk booted with an Applesoft prompt, I knew it was close to normal DOS and that maybe it was a simple change of headers or trailers (prologues and epilogues).

I got out my trusty nibble-editor and soon discovered that the odd tracks had altered address headers, namely D4 AA 96, instead of the normal D5 AA 96. Also, the address trailers were different for each track, but everything else seemed normal.

Well being the slightly less-than-ambitious person I am, I asked myself, "Is there a way out of writing a controller for *Super IOB*?" I sat down, perused my back issues and sure enough there was a softkey in *COMPUTIST #30*, page 28 for *Dragonworld* that fit the bill.

All I did was load up *Super IOB* with the *Dragonworld* controller installed and it produced deprotected copies of all of the Troll programs I tried.

1 Format a disk with DOS 3.3.

INIT HELLO

2 Install the Troll (*Dragonworld*) controller into *Super IOB*. This is the same controller that appeared in *COMPUTIST #30* written by Tim Strelchun.

3 Run *Super IOB* and make your backup copies of Troll Courseware programs.

Controller

```
1000 REM TROLL COURSEWARE
1010 TK = 0:ST = 0:LT = 35:CD = WR
1020 POKE 47507,0:POKE 47517,0
1030 T1 = TK:GOSUB 490
1040 POKE 47445,213
1050 IF TK < > (INT (TK / 2)) * 2 THEN POKE
47445,212
1060 GOSUB 430:GOSUB 100:ST = ST + 1:IF ST < DOS
THEN 1060
1070 IF BF THEN 1090
1080 ST = 0:TK = TK + 1:IF TK < LT THEN 1040
1090 GOSUB 490:POKE 47445,213:TK = T1:ST = 0
```

```
1100 GOSUB 430:GOSUB 100:ST = ST + 1:IF ST < DOS
THEN 1100
1110 ST = 0:TK = TK + 1:IF BF = 0 AND TK < LT THEN
1100
1120 IF TK < LT THEN 1030
1130 POKE 47507,174:POKE 47517,164:POKE
47445,213
1140 HOME:PRINT:PRINT "DONE":END
```

Controller Checksums

1000 - \$356B	1080 - \$0507
1010 - \$3266	1090 - \$A256
1020 - \$5917	1100 - \$9356
1030 - \$0A12	1110 - \$F70D
1040 - \$AFB3	1120 - \$9811
1050 - \$26A1	1130 - \$BC98
1060 - \$29A5	1140 - \$92D3
1070 - \$077B	

James Kirsch

I must thank you for all the hints on so many of the games that I love. Here's some hints in return.

Playing Tips for...

Ultima II

Sierra On Line

- **How to get the ring:** Planet X is at 999. At planet X get the prayer from Father Antos (or whatever) and return to Earth. Now, go to San Antonio. At the top is an armor shop. Go through both locked doors into a place where there is a old man. Bribe him and he will give you the ring.
- **How To get the Quicksword:** Go to San Antonio. A fighter in prison has it. Bribe him 500 gold and he gives to you the sword.
- The rocketship is in 2100 A.D. in a place called the Pirates Harbor.

Peter Green

Bug in the Softkey for...

Bards Tale IIgs

Electronic Arts

The softkey for *Bard's Tale IIgs* by J. Slate and Philip Doherty (*COMPUTIST #50*, page 23), produces a copy of the game that is incomplete!

Using such a copy, a player will find upon visiting a certain tavern for some liquid refreshment specific to that tavern, that it is NOT on the menu! As this item is essential, he would have problems!

The softkey, apparently, bypasses the code relating to this item. A slight modification

avoids this problem. Not being an expert in machine code, I cannot guarantee that it does not introduce other problems!

The modification involves Step 6 of the published softkey:

Do not alter byte \$26, instead change byte \$1D from 90 to B0.

B. Dudley Brett

More Softkeys for...

MECC software (1987)

Minnesota Educational Computing Corp

The deluge of recent softkeys of MECC software almost prevents me from once again throwing my hat in with the crowd. However, the new releases have brought about some slight alterations (and in the case of the ProDOS disks, drastic alterations) in copy protection. Besides, there is an even simpler way to normalize most MECC software.

Copying MECC software involves a full disk copy with normalization of epilogue and prologue bytes, and finally sector edits in the MECC DOS to replace the "funny" bytes with normal ones. The trick involves first using a nibble-editor to recognize the strange bytes, then devising a copy procedure to "read" the disk and "write" normally to a copy. Previous published softkeys use a special *Super IOB* controller, or a captured RWTS and a swap controller. Early releases (pre-1984) may be copied with *DEMUFFIN PLUS*, using the MECC RWTS.

I believe there is a much simpler way, not requiring any special controller or the need for MECC's RWTS.

Why not just turn off the error traps in DOS 3.3 first, so that COPYA can do its job? For this method please give credit to Gregory Moore (*COMPUTIST #41*, page 9) and Jim S. Hart (*COMPUTIST #43*, page 23).

Since there are many 1987 releases, I shall group them as to their similarity of protection (and deprotection!).

Group A

These 11 disks all have data prologues altered to D5 AD AA and some data trailers on some sectors cannot be easily read.

To copy group A, modify DOS and use *COPYA*.

RUN COPYA

C

CALL-151

B8F3:00 turn off 2nd Data Header byte

B8FE:00 turn off 3rd DH byte

B925:18 60 turn off Data trailer

C

RUN 80



Softkey for...

Conquering Whole Numbers

Phonics Prime Time - Vowels I

Phonics P. T. - Vowels II

Sector edit:

Trk	Sct	Byte(s)	From	To
\$00	\$07	\$86	AD	AA
		\$8B	AA	AD
\$00	\$08	\$1F	AD	AA
		\$2A	AA	AD

Softkeys for...

Phonics P.T. -Blends & Digraphs

Those Amazing Reading Machines III

Those Amazing Reading Machines IV

Words At Work - Compound It

Words At Work - Suffix Sense

Sector edit:

Trk	Sct	Byte(s)	From	To
\$00	\$06	\$86	AD	AA
		\$8B	AA	AD
\$00	\$07	\$1F	AD	AA
		\$2A	AA	AD

Softkey for...

Odell Lake

Zoyon Patrol

Fraction Munchers

Sector edit:

Trk	Sct	Byte(s)	From	To
\$00	\$0B	\$99	AD	AA
		\$A3	AA	AD
\$00	\$0C	\$82	AD	AA
		\$87	AA	AD

Group B

These 6 disks seem to carry the 1985-86 protection, with altered address and data prologues changed to AA D5 AD and D5 96 AA

respectively. They can either be normalized with a captured RWTS and a swap controller (COMPUTIST #47, pp 25,26) or with COPYA (after turning off error-checking).

The latter method seems to work okay, but as 5 of the prologue bytes are bypassed, maybe this may be an unreliable approach. I will show you it for interest.

But in either approach, sector-edits will be necessary after the copy is made, in order to normalize the read bytes in MECC DOS.

RUN COPYA

☐C

CALL - 151

B954:29 00

B95E:29 00

B969:29 00

B8F3:00

B8FE:00

☐C

RUN 80

Softkey for...

Dataquest the World Community

Word Munchers v1.3

Number Munchers v1.2

Sector edit:

Trk	Sct	Byte(s)	From	To
\$00	\$0B	\$08	AD	AA
		\$12	D5	AA
		\$1D	AD	96
		\$99	96	AA
		\$A3	AA	AD
\$00	\$0C	\$82	96	AA
		\$87	AA	AD

Softkey for...

Grade Manager v2.3

Puzzles and Posters v1.6

Sector edit:

Trk	Sct	Byte(s)	From	To
\$00	\$02	\$58	96	AA
		\$5D	AA	AD
		\$F1	96	AA
		\$FC	AA	AD
\$00	\$03	\$55	AA	D5
		\$5F	D5	AA
		\$6A	AD	96
\$00	\$06	\$7A	AA	D5
		\$7F	D5	AA
		\$84	AD	96

Softkey for...

Oregon Trail v1.4

Sector edit:

Trk	Sct	Byte(s)	From	To
\$00	\$07	\$86	96	AA
		\$8B	AA	AD
\$00	\$08	\$1F	96	AA
		\$2A	AA	AD
		\$83	AA	D5
		\$8D	D5	AA
		\$98	AD	96

Group C

Softkey for...

Ghost Rider

This program is ProDOS-based and involves a single-byte change for the copy of each side. However, it is a different byte for each side of the disk.

The 64K version side has a changed data prologue 3rd byte (D5 AA 96), and can be copied easily with COPYA with B8FE:00 as the sole modification.

POKE 47358,0

RUN COPYA

Sector edit:

Trk	Sct	Byte(s)	From	To
\$00	\$02	\$5D	96	AD
		\$FC	96	AD

The 128K version side has an altered 1st data trailer byte (96 AA) and can likewise be copied with COPYA using B925:18 60.

POKE 47397,24

POKE47398,96

RUN COPYA

Sector edit:

Trk	Sct	Byte(s)	From	To
\$04	\$0B	\$C8	96	DE

Group D

Six ProDOS disks all initially seem to have minimal protection, with only the 1st data trailer byte altered (97 AA). These all may be initially copied with COPYA and the modification of B925:18 60. A single-byte sector-edit for each disk will correct the altered data epilogue.

Now for the really hard part. This not a complete softkey. I found that each of the 6 disks will now initially boot, reveal the MECC title page, continue loading, then the drive shuts off, the screen clears and the message "Please insert another diskette - Press SPACE BAR to continue" appears. How annoying!



After snooping a bit (in *Fraction Concepts Inc*), I found this message on track \$18, sector \$0A at bytes \$84-\$BD, and at \$5984 in the ProDOS System file at \$5984 on. Likely, the other 5 disks will have this routine at the same place in ProDOS, but not necessarily at the same place on the disk.

Strangely, booting the copied disk shows that page \$59 is relocated on page \$10.

The snooping further found a JMP \$1000 (4C 00 10) at \$4E22 in the ProDOS file and on track \$17, sector \$05, byte \$22-\$24. At this point I was becoming worried, but fortunately *Beneath Apple ProDOS* by Worth & Lechner as well as a well-written article by Sandy Mossberg in *Nibble* Sept 1987 upon the ProDOS Quit Code came to the rescue.

These references convinced me that the MECC disk abort was contained in a modified ProDOS Quit Code, and that it could be accessed by a JSR to the Machine Language Interface (JSR \$BF00 - 20 00 BF) followed by a code byte (\$65) to access the Quit code.

I now searched each for the sequence 20 00 BF 65 and decided which of the 3 calls to this routine per disk was responsible.

The start of this code can be recognized about 55 bytes prior to the MLI call, and consists of a few 00 bytes followed by the sequence 8D 00 C0.

Using a search sector-editor (CIA), I then snooped out the JMP to the least significant byte of the start of the routine (4C 51 in the case of *Fraction Concepts Inc*).

Finding this sequence, I noted that the JMP was immediately preceded by a branch over the JMP to an RTS. The code looks like this:

```
D3- 90 03    BCC $D8
D5- 4C 51 9F  JMP $9F51
D8- 60      RTS
```

I tried replacing the sequence with a carry clear (CLC) and four NOP bytes to make the sequence look like this:

```
D3- 18      CLC
D4- EA      NOP
D5- EA      NOP
D6- EA      NOP
D7- EA      NOP
D8- 60      RTS
```

It worked! The boot of the disk showed the ProDOS message, then the MECC Logo, and finally the menu.

Copy the disks using *COPYA* then make the necessary sector-edits for each.

POKE 47397,24
POKE47398,96
RUN COPYA

Softkey for...

Equation Math

Trk	Sct	Byte(s)	From	To
\$07	\$02	\$D3-D7	90 03 4C	18 EA EA EA EA
\$08	\$05	\$C0	97	DE

Softkey for...

To Preserve, Protect and Defend

Trk	Sct	Byte(s)	From	To
\$01	\$0E	\$D3-D7	90 03 4C	18 EA EA EA EA
\$16	\$09	\$C8	97	DE

Softkey for...

Fraction Practice Unlimited

Trk	Sct	Byte(s)	From	To
\$01	\$0A	\$D3-D7	90 03 4C	18 EA EA EA EA
\$13	\$07	\$C8	97	DE

Softkey for...

Coordinate Math

Trk	Sct	Byte(s)	From	To
\$09	\$0C	\$D3-D7	90 03 4C	18 EA EA EA EA
\$1B	\$09	\$C8	97	DE

Softkey for...

Fraction Concepts Inc

Trk	Sct	Byte(s)	From	To
\$01	\$0A	\$D3-D7	90 03 4C	18 EA EA EA EA
\$18	\$0D	\$C8	97	DE

Softkey for...

Money Works

Trk	Sct	Byte(s)	From	To
\$09	\$0C	\$D3-D7	90 03 4C	18 EA EA EA EA
\$0F	\$05	\$C8	97	DE

Perhaps the MECC saga can rest for a while, at least until the day when they decide to change it again!

Softkey for...

Story Tree Scholastic

Upon trying Stanley Planton's softkey for *Story Tree* (COMPUTIST #37, page 8), it was quickly apparent that not all Scholastic disks are protected the same way. A journey through the

disk with *CIA* showed me that there was a modified DOS 3.3 and a normal catalog. So, the first approach was to *DEMUFFIN* the files onto a normal DOS 3.3 disk (this has worked before with some Scholastic disks).

Then I found that the *Story Tree* disk boot first loaded information into lower memory, showed the logo, and then ran the first Applesoft program *TITLE* at \$4000. In *TITLE* and two other programs, there were also calls to subroutines in DOS 3.3 to switch read bytes in order to read and write to a normal DOS 3.3 disk. This is a procedure very much like that used in the *Microzine* series.

These calls are: CALL 54915 (clears the stack), CALL 46784 (turns on normal DOS3.3), and CALL 46788 (turns on S.Tree DOS3.3).

There are also calls to routines lower in memory from page \$08 to \$1FFF. However, as these routines are not loaded from the catalog, they must be captured separately. Here then is the softkey:

1 Init both sides of a disk (preferable with a fast DOS).

FP
INIT HELLO

2 Trap and BSAVE the RWTS of side 1 of *Story Tree* by your favourite method. Do this immediately when the logo appears.

3 Boot a normal DOS 3.3. Then:

BLOAD DEMUFFIN PLUS
BLOAD RWTS.STORY TREE,A\$6800
CALL - 151
B800<6800.6FFF move RWTS into DOS.
803G

4 Follow the prompts and transfer all *Story Tree* files to the two sides of your initialized disk.

5 Reboot the Master *Story Tree* disk and reset into the monitor by your own method (I use a modified F8 ROM).

6 Move page \$08 out of the way for reboot.

2800<800.8FFF

7 Boot a DOS 3.3 disk with no *HELLO* (Your side 1 copy will do!)

8 Enter the monitor and restore page 8.

CALL - 151
800<2800.28FFF
BSAVE MOD.1, A\$800, L\$1800 On side 1 of your copy.

9 Reboot the Master *Story Tree* disk again, and reset into the monitor when the Wizware logo appears, but before the *Story Tree* title appears.

10 Boot your side 1 copy disk again and save the logo.



BSAVE LOGO, A\$2000, L\$2000

[1] Enter this *HELLO* program and save it to side 1 of your copy. Then make some changes to programs on your copy.

NEW
10 TEXT: HOME: PRINT CHR\$(4) "BLOOD LOGO"
20 POKE - 16304,0: POKE - 16302,0: POKE - 16300,0: POKE - 16297,0
30 POKE 16384,0: POKE 103,1: POKE 104,64: PRINT CHR\$(4) "RUN TITLE"
SAVE HELLO

LOAD TITLE
UNLOCK TITLE
10 PRINT CHR\$(4) "BLOOD MOD.1"
130 Take out unnecessary CALLs.
1000

SAVE TITLE
LOCK TITLE

LOAD WARM START
UNLOCK WARM START
10

1000
SAVE WARM START
LOCK WARM START

LOAD STORY TREE
UNLOCK STORY TREE
9000

13310
14050
14900
60110
60150

SAVE STORY TREE
LOCK STORY TREE

You should now have a *COPYA*-able disk.

Softkey for...

Super Wordfind

Hartley

The trailer bytes have been altered from DE AA to DA AA as the only real protection.

INIT HELLO
CALL-151
B942:18
B925:18 60
[C]
BRUN FID

Copy all the files to your initialized disk.

Softkey for...

Music Made Easy

Electronic Courseware Systems Inc.

[1] Initialize a disk with a null greeting program.

INIT HELLO DELETE HELLO

[2] Trap and BSAVE the *Music Made Easy* RWTS.

[3] Boot with DOS 3.3 and use *DEMUFFIN PLUS* to copy. Follow the prompts and transfer all files to the initialized disk.

BLOAD DEMUFFIN PLUS
BLOAD RWTS.MUSIC,A\$6800
CALL - 151
B800<6800.6FFFM
803G

Softkey for...

Story Book -Pixelworks

Mindscape

[1] Initialize side 1 of a blank disk.

INIT SETUP DELETE SETUP

[2] Initialize side 2.

INIT HELLO DELETE HELLO

[3] Ignore epilogues and checksums and use *FID* to copy files.

POKE 47426,24
BRUN FID

Softkey for...

Dream House

CBS

[1] Initialize both sides of a disk with hello and delete hello.

INIT HELLO DELETE HELLO

[2] Ignore epilogues and checksums and use *FID* to copy files.

POKE 47426,24
BRUN FID

Don Westcott

Softkeys for Cytron and Fortress wanted

⊗ Does anybody know of a patch, fix, crack or anything to get SSI's *Cytron Masters* to run on an enhanced IIC?

⊗ Does anybody have a crack for SSI's *Fortress*. Usually when it asks me to reboot for the tenth time, I give up! I suspect copy-protection is the problem.

Lenny Schmidt

More on the IIC...

Booting Drive 2 on older IIC

To boot the second drive on an older Apple IIC, just type:

PR#7

Be sure to put the colon in front of the PR#7 so that Applesoft will interpret it as an Applesoft command and not as a DOS command. If you have the newer ROMS, then when you do an **[C] RESET** the computer should scan drive two if there is no disk in drive one.

How do you know if you have the old ROMS or the new ROMS? Just press:

[C] [A] RESET

Warning — be sure to keep all disks out of the disk drives when you do this.

If, after a few seconds, you see a hi-res-like display of constantly changing lines, you have the older version of ROMS. If you see a low-res or a mixed low-res and text display, then you have the newer ROMS. By the way, this puts your IIC through a self-test of sorts.

Enhanced or not?

You can also check your IIC and see if it is enhanced (with MouseText) or unenhanced (without MouseText) by pressing the previously mentioned keys.

If the screen turns into a screen full of low-res or low-res and mixed text display, then you have the enhanced IIC.

If your IIC whines and shows you the hi-res page turning black and white, then you have the unenhanced version of the IIC.

For the older versions, if you don't like the noise, just press **[A] RESET** and it will perform the test silently.

No IIC, and still boot from Drive 2?

Now for those of you who don't have a IIC or the newer cards that scan all the drives for bootable disks, and you want to boot from drive 2, this is what you do.

[1] Get into BASIC.

[2] Then enter the monitor.

CALL -151

[3] You should see an asterisk prompt. Move the machine language program that boots the disk from the disk controller card ROM into RAM so it can be modified.

8600<C600.C6FFM

[4] Change the part of the program that specifies the drive to access drive 2. This location (**\$8603**) is normally **\$00**, indicating drive one.



8603:1

5 Now we tell it to boot, so insert your disk in drive 2.

8600G

Your second disk light should now light up and the disk will boot. If you want to boot from a different slot, just replace step three with:

8 x 00 < C600.C6FF

where x is the slot you want to boot and don't do step 4 unless you want to boot the second drive of that slot.

Note that DOS 3.3 will NOT boot up on drive 2. ProDOS and Apple Pascal v1.1 and later will boot up on drive 2.

If you're feeling adventurous, you might want to do a PR#44 on an unenhanced Apple IIc without any DOS loaded. Many-a-different thing will happen (remember not to have any disks in the drive when you do this!).

Greg Poulos

Softkey for...

Sons of Liberty

SSI

This two-sided disk is RDOS-based with portions written in BASIC. While there is no real protection on this ware, it does perform a documentation check, requiring you to have the manual to play the game. It is very annoying to have to type a word from the manual each time you boot the disk. Here's how you defeat the documentation check.

1 Copy your original with *Locksmith* Fast Copy, or equivalent.

2 Boot side 1 of your copy. When it asks for the word from the manual, press:

RESET

3 Load in the BASIC program that does the check, then delete line 4 and save it back to disk.

&LOAD"VECTOR4"

4

&DEL"VECTOR4"

&SAVE"VECTOR4"

Iigs Softkey for...

Marble Madness

Electronic Arts

1 Copy your original disk.

2 Boot into ProDOS BASIC.

3 Insert your copy of *Marble Madness* and type the following:

BLOAD DOS8.SYSTEM,TSYS,A\$2000

CALL-151

20F3:38 EA EA

3D0G

BSAVE DOS8.SYSTEM,TSYS,A\$2000

A.P.T. for...

Marble Madness Iigs

Electronic Arts

Electronic Arts got very lazy with the Iigs conversion for this ware. The code is exactly the same as on the Iie version, only locations have been changed.

In a past issue of COMPUTIST there appeared a cheat for *Marble Madness Iie*. Since the code is the same, this same cheat should work on the Iigs version.

The first thing to do was find out which byte was used to store the current time on the clock. Since, when you enter the water maze, the clock is reset to 99 regardless, I scanned the disk for an LDA #\$99. I found only two of these. A quick check revealed that after the first one, an STA SBA15,X was performed. In COMPUTIST #50, you must search for BD 77 60 F0 08 A9 02. This disassembles to:

LDA \$6077,X

BEQ \$YYYY

LDA #\$02

A quick substitution of the Iigs time byte and we get: BD 15 BA F0 08 A9 02. Only two bytes were changed. I later located this code in the file called *CODE*.

1 Boot into ProDOS BASIC.

2 Insert your *Marble Madness Iigs* disk and type the following:

BLOAD CODE,A\$2000,L\$01,B\$C95A

POKE 8192,0

BSAVE CODE,A\$2000,L\$01,B\$C95A

If you want to turn the cheat off, use POKE 8192,8 instead of POKE 8192,0.

Note: Since the file is very long, it can't be loaded into memory from BASIC at once, so I used the BS parameter. Because I set the L\$ parm to read only one byte, the file loads and saves very quickly since only one byte (SC95A) is being worked with.

A.P.T. for...

Leisure Suit Larry Iigs

Sierra On Line

Here's how to get \$255.00 in *Leisure Suit Larry*. Your character is saved in a binary file on the disk. To use this cheat, you MUST first save your game.

1 Boot into ProDOS BASIC.

2 Insert the disk with your saved game.

BLOAD *your.game*, A\$4C4C

CALL-151

4FAF:FF amount of money

3D0G

BSAVE *your.game*, A\$4C4C

A.P.T. for...

Space Quest Iigs

Sierra On Line

Your character is saved in the same way in this game. You must first have at least one coin in the game and must save your game for this cheat to be effective.

1 Boot into ProDOS BASIC.

2 Insert the disk with your saved game.

BLOAD *your.game*, A\$5153

CALL - 151

54D8:FF amount of money

3D0G

BSAVE *your.game*, A\$5153

Softkey for...

Ballblazer

Epyx/Lucasfilm

I noticed this on your Most Wanted List. All it does is JSR to \$B41 where it stores some needed bytes.

1 Copy the disk with any fast copy program that ignores errors.

2 Sector-edit the following:

Trk	Sct	Byte(s)	From	To
\$00	\$00	\$F8-FA	4C BE 0B	20 41 0B
\$00	\$06	\$41	?	A9 D7 8D F0 03 A9
				F9 8D F1 03 60

How to Use the Electronic Arts RWTS

The RWTS on almost every Electronic Arts disk is incredibly easy to use. Only this simple code is needed.

```
A9 xx LDA #$xx xx = load to page#
85 3E STA $3E
A9 yy LDA #$yy yy = load from track#
20 00 0C JSR $C00 Read subroutine
```

Special note about "yy": The EA RWTS reads sectors backwards (i.e. track \$22, sector \$0F is read before track \$22, sector \$0E). So you must find an empty sector \$0F and place your program there (at sector \$0F) for it to be read to the page you specified.



With almost every EA ware, track \$00 has the same format. Most of the code there is needed, but some of it you can blow away to make room for your own JSR that loads in your program. Get out a sector-editor (I use *Copy II Plus*), and read in track \$00, sector \$00, from an EA ware like *Arcticfox* or *Movie Maker*. If you list it (the L command with *Copy II Plus*), you should see something like this:

```
05 4C   ORA $4C
04 08   TSB $08  differs on non-65C02
A9 00   LDA #$00  machines
8D F2 03 STA $03F2
A9 C6   LDA #$C6
8D F3 03 STA $03F3
49 A5   EOR #$A5
8D F4 03 STA $03F4
A9 00   LDA #$00
8D C7 09 STA $09C7
AD E9 C0 LDA $C0E9 Turn drive on
```

After this is the code that starts loading the EA ware, and you don't want to mess with that. You can blow away lines 3 to 8 (from LDA #\$00 to STA \$03F4), but don't do anything unnecessary because everything will just fit perfectly. Here is the raw format you must follow. Starting with the third line (A9 00 LDA #\$00), enter the following code:

```
2C E9 C0 BIT $C0E9
A9 xx   LDA #$xx
85 3E   STA $3E
A9 yy   LDA #$yy
20 00 0C JSR $0C00
20 00 xx JSR $xx00
```

"xx" is the memory page number to load too. "yy" is the track number to load from.

The JSR will jump to SubRoutine to your program that was just loaded in with the JSR to \$C00. At the end of your program, you must put an RTS (60) so that when your program is finished, it will return control to the code on track \$00 so that the EA ware may continue loading. Don't forget to put your program on sector \$0F! That little chunk of code above should just about do it.

For those of you who are still confused, here's an example for Electronic Art's *Movie Maker*.

Trk	Sct	Byte(s)	From	To
\$09	\$0F	\$00	?	A9 20 85 E6 A9 D5 85 1C 20 F6 F3 8D 54 C0 8D 57 C0 8D 50 C0 2C E8 C0 20 35 FD 2C E9 C0 60

All this does is clear and display the hi-res page to color 6, turn off the drive, wait for a keypress, turn the drive back on, and then return control to track \$00 so the ware continues to load. Don't forget to write the sector back. Now let's patch track \$00, sector \$00.

Trk	Sct	Byte(s)	From	To
\$00	\$00	\$04	?	2C E9 C0 A9 18 85 3E A9 09 20 00 0C 20 00 18

All this does is turn on the drive, specify page number \$18, stores this value (18) in byte \$3E, specify track \$09, JSR to the routine that loads in track \$09 onto page \$18, and then, finally, JSR to page \$18, where your program was loaded to, and where it is executed.

On to bigger and better

Now that you know how to work with simple little programs, let's move on to loading in full hi-res pictures. To do this, though, two empty tracks are required as well as an additional sector for you to write a loading routine.

First, find two empty tracks. They must be next to each other, or in order (i.e. track \$08 and \$09, or \$0C and \$0D). Next, you must write a hi-res picture to these two tracks. This can be accomplished with the following Applesoft Program:

```
10 REM WRITE HI-RES PICTURE
20 POKE 768,32: POKE 769,227: POKE 770,3: POKE
771,76: POKE 772,217: POKE 773,3: POKE
47083,0: POKE 47088,0: POKE 47090,0: POKE
47091,0: POKE 47092,2
30 HOME : INPUT "TRACK#:" : X: INPUT
"#OF SECTORS:" : Y: PRINT : PRINT : PRINT
"INSERT DISK..." : GET PPS
40 TI = X: TF = Y: SI = 15: MI = 32: MF = 2 * Y - 1: T
= TI: S = SI: M = MI: GOSUB 110
50 S = S - 1: IF S < 0 THEN 80
60 M = M + 1: IF M > MF THEN END
70 GOSUB 110: GOTO 50
80 T = T + 1: S = 15: IF T > Y THEN 100
90 GOTO 60
100 PRINT "-ERROR-": END
110 POKE 47089,M: POKE 47084,T: POKE 47085,S:
CALL 768: RETURN
```

Checksums

10	- \$BADD	70	- \$B0C5
20	- \$4BF2	80	- \$58FB
30	- \$F544	90	- \$0704
40	- \$03D9	100	- \$9C15
50	- \$9A6A	110	- \$F858
60	- \$3C9A		

Note: When using this program, all values must be in DECIMAL. When you are asked for the number of sectors, this is simply the number of sectors the file on your disk has. For a hi-res picture, the number of sectors is 33 or 34. In this case, we want the hi-res picture on page 1, so the number of sectors is 34. There are more possibilities with this program that will be explained later on.

Keep in mind, when entering the track, to enter the first of the two empty tracks since EA RWTS reads tracks forward, while it reads sectors backward (i.e. Load your picture to page \$20. Then if your empty tracks are \$08 and \$09, you would enter track \$08 when asked for a track in the above program, and then it will write for you. But you must first convert all hex values to decimal for use with the write program above).

Once the problem of saving your picture on disk is solved, we can proceed.

Next, you'll have to find an empty sector \$0F somewhere on the disk. It doesn't have to be completely empty, but it must have enough room for the routine you are about to write.

Starting with byte \$00 of your empty sector \$0F, enter the following code. Only enter the code portion, the rest of the listing is for your information only.

```
A9 20   LDA #$20  Page $20 - 1st half of
85 3E   STA $3E   hi-res picture
A9 xx   LDA #$xx  xx = 1st track of pic
20 00 0C JSR $0C00 Read track xx to pg $20
A9 30   LDA #$30  Page $30 - 2nd half of
85 3E   STA $3E   hi-res picture
A9 yy   LDA #$yy  yy = 2nd track of pic
20 00 0C JSR $0C00 Read track yy to pg $30
2C E8 C0 BIT $C0E8 Turn the drive off
8D 54 C0 STA $C054 Display page 1
8D 57 C0 STA $C057 Set hi-res mode
8D 50 C0 STA $C050 Display graphics
20 35 FD JSR $FD35 Get a keypress
2C E9 C0 BIT $C0E9 Turn the drive back on
60     RTS      Rtn control to trk $00
```

You should be able to follow this program without any trouble especially with all the comments.

Now all that needs to be done is to patch track \$00, sector \$00 of your EA disk. Starting with byte \$04, enter the following routine that will load and execute the previous program:

```
2C E9 C0 BIT $C0E9 Turn on the drive
A9 18   LDA #$18  $18 is the page number
we'll use for the prog.
85 3E   STA $3E   Store $18 in byte $3E
A9 xx   LDA #$xx  xx = trk where we saved
the previous routine on
sector $F.
20 00 0C JSR $0C00 Load program from track
xx to page $18
20 00 18 JSR $1800 Execute the program that
loads in the hi-res pic
```

You are now finished. Now boot the EA disk, sit back, and watch your hi-res picture be displayed.

To improve upon this, you may wish to add a small routine before displaying the picture. This can be any number of things; a sound routine, a flip-the-page-upside-down routine, or whatever you can think of.



Even larger programs

Now you should be comfortable enough with the EA RWTS to move on to loading in programs that take up more than one track and that have starting locations that don't just happen to end in \$00 so that you can just JSR to a page number.

Let's say you write some incredible routine and it takes up about 25 sectors. Obviously, this isn't going to fit on just one track. Two tracks will be needed. When modifying EA wares, two tracks are the most that you'll really need, most of the time.

Keep in mind these guidelines when loading in a program that's on two different tracks:

Let's say, for example, you have a program that you want to load into page \$7F, but it's stored on tracks \$21 and \$22. What you have to do is first load track \$21 onto page \$7F and then track \$22 onto page \$8F. Your program will now be in memory and you can JSR to it.

The above example is very simple. But what if your program starts at location \$7F7D and not at \$7F00? Well, all you have to do is this:

From DOS, BLOAD your program. Enter the monitor and look at locations \$AA72 and \$AA73. The starting address of your program is found at those locations in lo/hi-byte form (if \$AA72=xx and \$AA73=yy, then your starting address would be yxxx).

Write down these values, and then, once again, BLOAD your program, but this time, BLOAD it at location \$20xx (where xx is the byte you wrote down from location \$AA72). Then, run the Applesoft program outlined earlier in this article that writes data to disk for you. Write the program that you loaded into \$20xx to disk.

Now run a sector editor and find an empty sector \$0F of a track on your EA disk. Write a routine in this format:

```

A9 yy LDA #yy yy = the byte from
      location $AA73
85 3E STA #3E
A9 tt LDA #tt tt = the 1st track your
      program is on
20 00 0C JSR $0C00
A9 zz LDA #zz zz = yy + $10
85 3E STA #3E
A9 nn LDA #nn nn = the 2nd track your
      program is on
20 00 0C JSR $0C00
20 xx yy JSR $yxxx The location of your
      program

```

If the program you saved and loaded uses the hi-res pages, then after the instruction JSR \$yxxx above, you must make sure that page 1 is being shown before returning control to track \$0. This is necessary because if page 1 is NOT shown, the nice "EOA" logo will not appear and the hi-res pages will fill with garbage. You

may want to first clear page 1 to black or white or your favorite color, because if you don't, whatever was last on page 1 will be displayed and this is usually garbage.

Then, you must finish off the routine that loads in your program with a 2C E9 C0 to turn the drive back on and then a 60 (RTS) to return control to track \$0, sector \$0, where loading of the EA ware resumes.

One More Step Further

A neat thing about the EA RWTS: it only requires a few sectors off of track \$00 for it to work (specifically, sectors \$00, \$05, \$06, \$0D, and \$0E). Actually, sector \$00 isn't really needed.

If you've ever wanted to make an incredibly fast-loading slide show disk or speed up the loading of a long file, then you can use the EA RWTS for just this!

First, you'll need to get a blank disk and format each track so that they all have ZERO data on them. Formatting from BASIC can be done, but I suggest using the Format Tracks option from *Locksmith*.

Next, copy just track \$00 from any EA ware onto your formatted disk. A good place to store a routine for loading programs is on track \$22, sector \$0F.

So, as earlier in this article, modify track \$00, sector \$00, starting with byte \$04, to load in track \$22. I suggest that you load it to a high page like \$97 or maybe even higher.

The correct page depends on what pages the program you are going to load uses. If it uses pages \$37-\$87, then page \$97 is a good page to use since the program doesn't need it.

After track \$22 is loaded, do a JSR or JMP (you won't have to return control to track \$0 this time) to the page number where the code on track \$22 is residing.

Let's say that you have a 137-sector binary file that takes all day to load.

To write it to your disk, simply run the Applesoft Program (earlier in this article) and enter the number of sectors of your file you want to write to the disk (137 in this case). For 137 sectors, it will write on seven and a half tracks.

After writing a long file, always check the tracks to see how many it took up. For a hi-res picture, this is always two tracks.

Next, you must write a routine at track \$22, sector \$F (which should be loaded into page xx from track \$00, sector \$00) that loads in all the tracks containing data.

If you remember, earlier, when we loaded in a 25 sector program, you had to check locations \$AA72 and \$AA73 to find the starting address. And then BLOAD the program at location \$20xx where xx is the value in \$AA72.

You have to do the same thing for the longer programs also.

When loading in the already-written programs from your EA RWTS disk, you must start with page yy, where yy is the value from \$AA73. Then for each track, increment yy by \$10.

Once the program is loaded, you may do a JSR or a JMP to \$yxxx. And your program should be executed.

For example, I put a cracked *Ms. Pacman* on a disk with the EA RWTS. It took up seven and a half tracks (a 137 sector file) and once I loaded in all the tracks I executed it. The disk booted very fast, and the program loaded quickly.

I also experimented with *Draw Poker* (a 45 sector file). But the loading time from DOS (David-DOS) and directly with the EA RWTS was about the same. Try different programs.

Try It With Hi-res Pictures!

Another thing I did was save 16 hi-res pictures on a disk with the EA RWTS. I then wrote a routine that loaded each one in, waited for a keypress, and loaded the next one in.

If you want an excellent example of how fast the EA RWTS is, store 16 pictures on a disk (with the EA RWTS) and write a routine that loads each one, but don't wait for a keypress.

After the last picture is loaded, loop back to the beginning so it starts over. The result is a string of pictures loading at an incredible speed.

You can't even see each picture perfectly clearly because they load so fast.

Malcolm Todd



I just bought a new IIgs. Do you plan to offer disks in the new size, Either library disks or new blank disks?



We're checking to see who has the best price on 3.5 inch disks but until we actually get a IIgs or a 3.5 inch drive, we can't supply library disks in that format. RDEXed

Prybar



I have been attempting to purchase a copy of *CIA Files* by Golden Delicious Software, 7 Sloane Ave., London SW3, but it would seem to be no longer available from any regular source.

Can any one tell me where I might obtain this program, or failing that, is there anyone out there who wants to sell their copy, complete with manual?

P.O. Box 528
Houlton, ME 04730



Ron Powers

First, let me say that I love your magazine. The new format is just what I wanted. However, I'm too selfish to give any of my precious pages to those "off brand" computers.

Softkey for...

Forecast: Your At-Home Weather Station

Webster: The Word Game

CBS Software

- 1 Boot your DOS 3.3 system disk.
- 2 Tell DOS to ignore checksum and epilogues and run COPYA.

POKE 47426,24
RUN COPYA

† Softkey for...

Operation Frog

Scholastic Software

My copy was softkeyed by using Phil Pattengale's softkey of *Microzine 7-9* from COMPUTIST #27, page 12.

† Softkey for...

Mystery Sentences

Scholastic Software

My copy was softkeyed by using Eric Ondler's *Microzines* softkey from COMPUTIST #27, page 15.

☐ The softkey for Springboard's *Graphic Expander* in COMPUTIST #43 wouldn't work for me. Track \$0C seems quite offensive. Are there any other softkeys out there?

UNK from Erie

Softkey for...

Magic Spells

The Learning Co.

■ Requirements

- Senior PROM
- Blank disk

Magic Spells is a program that "Builds spelling skills, Ages 6-10".

- 1 Use COPYA to copy the original.
- 2 Boot up the copy and wait for the program to freeze at the main menu.
- 3 Use the interrupt switch on your *Senior Prom* and press "5" to move main memory to aux. It took me about 4 months after I had the *Senior Prom* to realize that you must hit the "5" key immediately. I kept wondering why the program under investigation always disassembled to 00s and FFs.
- 4 Press the "D" key to disassemble the place where the program is running. You discover that it is doing a BEQ instruction back one byte and is locked up in a loop.
- 5 Write down the hex code for BEQ and a couple of bytes before and after. In my case it was 98 F0 FE F9.
- 6 Use your favorite sector-editor. Scan your copy for 98 F0 FE F9. I found it on track \$14, sector \$00, byte \$B0.
- 7 Change FE F9 to EA EA and write the changes back to disk.
- 8 Write-protect your copy so it looks like the original.

Write down the hex code for BEQ and a couple of bytes before and after. In my case it was 98 F0 FE F9.

Use your favorite sector-editor. Scan your copy for 98 F0 FE F9. I found it on track \$14, sector \$00, byte \$B0.

Change FE F9 to EA EA and write the changes back to disk.

Write-protect your copy so it looks like the original.

Roger Stenbridge

☐ My first attempt at de-protecting a program was last night and again today with a failed outcome. I am trying to copy *Locksmith 6.0* Fastcopy onto a separate disk for use with the other tools of de-protection.

I used Jerry Lewis's procedure from COMPUTIST #43 as it was listed and again with modifications offered by Ann Onymous in COMPUTIST #49, with both attempts a failure.

In all attempts when I finished the procedure and attempted booting the new disk. I received an error message of syntax error with break in line 210. All of my efforts to understand and correct the problem have been to no avail.

Is there any help available?

📧 We've been receiving a lot of letters like this one. It seems we need another softkey for *Locksmith Fast Copy*. Anyone out there got one?.....RDEXed

David G. Alexander

Great timing! I acquired an IBM PC clone recently and am looking forward to the IBM Rdex section. In the meantime, here is a quick patch which eliminates an unnecessary nuisance.

Modification for...

Copy II Plus Bitcopy System

Central Point Software

This is for version 7.2 (ProDOS). The disk is unprotected. This is a patch to prevent loading the copyright act screen and the prompting for the slot number.

**BLOAD BITCOPY.SYSTEM, A\$2000, TSYS
CALL - 151
208A:4C A2 20 Skip copyright screen
2103:A9 B6 4C 23 21 Set slot 6
2165:EA EA EA Skip printing slot number
BSAVE BITCOPY.SYSTEM, A\$2000, L\$6DFC,
TSYS**

Carl D. Purdy

☐ I tried the routine for unlocking *Microzine #17*. As printed, my copy of *Microzine* is already as the changes suggested. As I am new at this I don't know where to go from here. I did try the routines with some minor modifications on other copies of *Microzine*: issues 18 to 23.

Softkey for...

Microzine 18,19,20,21,22,23

Scholastic

POKE 47426,24
RUN COPYA

Sector edit:

Trk	Sct	Byte(s)	From	To
\$0	\$D	\$42	34	06

Then on track \$09, change the hello program from whatever it is to HELLO.

Softkey for...

Morning Star Math

For anyone using *Morning Star Math*, addition, subtraction, multiplication or division, just:

POKE 47426,24
RUN COPYA

No further changes are necessary.

† Softkey for...

Writer Rabbit

Learning Co.

The routine for *Reader Rabbit* works for *Writer Rabbit* as well.



POKE 47426,24 RUN COPYA

Use the *Core Disk Searcher* to find all occurrences of the sequence BC8C00. There are about four. Change BC to 60.

Hans Lehermeier

Softkey for...

The Mist Mindscape

1 Tell DOS to ignore all epilogue and checksum errors.

POKE 47426,24

2 Use COPYA to copy the entire disk.

RUN COPYA

3 Make the following sector edits.

Trk	Sct	Byte(s)	From	To
\$00	\$0C	\$94-96	4C 00 C6	EA EA 60

Robert Ashton

I just received my issue of COMPUTIST #51 and was sorry to read that you are adding an IBM Section. It had to happen sooner or later and I actually thought that it would of happened a lot sooner.

Since I am not a fan of IBM I would like to keep my bookshelf space for Apple only. I have a small recommendation for your magazine that should keep everyone happy. Publish the IBM Section in the middle so that Apple-only subscribers could pull out the IBM Section and discard it. The IBM subscribers could do the same, thus keeping things nice and neat.

Your magazine is the best on the market and the only one that I subscribe to.

Jim Aufderheide

Softkey for...

Reading Style Inventory Learning Research Associates

Requirements

- Means of capturing RWTS
- Super IOB 1.5

If you are an educator, you are probably familiar with *Reading Style Inventory*, a reading analysis program by Learning Research Associates. There are two disks in the set, a group and an individual disk. Teachers who use

this disk should feel concern because it is protected, and subject to crashes.

A boot of the disks revealed an Applesoft prompt, and the familiar sound of a normal DOS boot. I used CIA and found markers of AA D5 AB:DE AB:AA D5 EB:ED AA. With crystal clarity, I realized that a swap controller was the ticket. Use the following cookbook steps:

1 Boot the original and break into the monitor by your favorite method (can anyone out there in COMPUTIST land really beat the *Senior Prom* for monitor breakage?). Move the RWTS to a safe place.

1900<B800.BFFF

2 Boot a slave disk and save the RWTS on your Super IOB disk.

BSAVE RWTS.LRA, A\$1900, L\$800

3 Initialize two disks with a fast DOS.

4 Install the controller and run Super IOB. The controller will deprotect both disks.

You now have completely deprotected *Reading Style Inventory*, and can use your disks without fear of Murphy (who dwells in original copy-protected disks.)

Controller

```
1000 REM LEARNING RESEARCH ASSOCIATES
1010 TK = 3: LT = 35: ST = 15: LS = 15: CD = WR:
      FAST = 1
1020 GOSUB 360: GOSUB 490: GOSUB 610
1030 GOSUB 360: GOSUB 490: GOSUB 610: IF PEEK
      (TRK) = LT THEN 1050
1040 TK = PEEK (TRK): ST = PEEK (SCT): GOTO 1020
1050 HOME: PRINT "COPY'DONE": END
10010 PRINT CHR$(4) "BLOAD"RWTS.LRA, A$1900"
```

Controller Checksums

1000	- \$356B	1040	- \$0D4F
1010	- \$2445	1050	- \$C7BE
1020	- \$C908	10010	- \$08D3
1030	- \$FB9C		

Softkey for...

Comprehension Skills I & II Amidon

Amidon's *Comprehension Skills I and II* can also be deprotected using the same method from above.

The only change would be in step 2. Listen to the drive and let the boot go past the catalog track (let it start loading the first program) before you break into the monitor. Move the RWTS. Then in step 2 save the captured RWTS with:

BSAVE RWTS.AMIDON, A\$1900, L\$800

Use the following swap controller. The other steps are identical with the Learning

Research Associates softkey describe earlier.

Controller

```
1000 REM AMIDON CONTROLLER
1010 TK = 3: LT = 35: ST = 15: LS = 15: CD = WR:
      FAST = 1
1020 GOSUB 360: GOSUB 490: GOSUB 610
1030 GOSUB 360: GOSUB 490: GOSUB 610: IF PEEK
      (TRK) = LT THEN 1050
1040 TK = PEEK (TRK): ST = PEEK (SCT): GOTO 1020
1050 HOME: PRINT "COPY'DONE": END
10010 PRINT CHR$(4) "BLOAD"RWTS.AMIDON,
      A$1900"
```

Controller Checksums

1000	- \$356B	1040	- \$0D4F
1010	- \$2445	1050	- \$C7BE
1020	- \$C908	10010	- \$7F36
1030	- \$FB9C		

Finally, I need help. I still use the DOS version of *Applewriter*. *Applewriter IIe*. With my now enhanced IIe, the inverse information bar at the top is all mouse text. Anyone out there know of a patch to eliminate the mouse text, and allow reading of the inverse information bar?

T.P.K.

Igs Softkey for...

Multiscribe 3.0c StyleWare

This softkey is for version 3.0c but I don't doubt that this will also work with other versions. *Multiscribe 3.0* (MS), by Kevin Harvey, Bob Hearn, Mike Hibbetts, Tom Hoke, and Syd Polk, is about the best word processor for the Igs that I have seen. It has a built in dictionary and thesaurus and dozens of new features that the older version didn't have.

Oddly enough, when put it on a hard drive, this program worked without any problem, but when I tried to make a backup onto a 3 1/2" disk, even though there were no "bad blocks," the screen read "Please insert original disk".

I was annoyed at this, since it implied that only people with hard drives are entitled to a backup. I set out to deprotect it, and let everyone know how to do it.

This is my very first crack, and I don't know too much about machine language programming.

Looking through my other copies of COMPUTIST's, I found Alexes Gehrt's softkey for *Top Draw*, also made by StyleWare. In Gehrt's softkey, he said that *Top Draw* worked on a hard drive without any problem at all,



so I thought there was a good chance that MS used the exact same copy-protection.

I looked for D0 1D at Block \$394 Byte \$1E2, and, as I expected, it wasn't there. I tried searching the entire disk and found them about 30 times or so in different locations.

I wish I had more than two bytes to work with, but since I don't have *Top Draw*, I had no way to find more bytes to search for.

I then went through the long task of changing all the D0 1D's in the program to 80 1A's (as in Gehrt's softkey), then testing out the program, until I hit the one that made it work.

I found it, then I repaired all the other blocks that I changed. Here is the block edit.

Block	Byte(s)	From	To
\$538	\$1CE	\$D0 \$1D	\$80 \$1A

I would like to thank Alexis Gehrt, without whom, this softkey would not have been possible. I use *COMPUTIST* often, and I am proud that I am finally able to contribute to it with my very first crack.

If this doesn't work with your version of *Multiscribe 3.0*, try searching for bytes D0 1D AD 22 01, and change the D0 1D to 80 1A.

Andrew Swartz

Brief Review of Copy II Plus v8.1

As a registered owner I recently upgraded to *Copy II Plus v8.1*. I did this mainly because I needed support for the Apple 3 1/2" drive on my IIGs. I would like to tell everyone about the many new enhancements.

1. Fully supported 3 1/2" disk utilities (block editor, nibble editor, hi-res disk scan).

2. Bit Copy and Sector Copy support for 3 1/2" drive(s) including Central Points own 3 1/2" disk drive.

3. Parameters to back up and **deprotect** the newest IIGs software! Many parameter files deprotect disks after the copy process so they can run on a Hard Disk. Another reason why the people at Central Point Software did this was because of the problems with their own 3 1/2" drive and copy-protected software.

4. The use of the Memory Manager with the Utilities and the 3 1/2" bit copy to use extra memory in the copying process to reduce disk-swapping. This feature is great if you have an extra 800K so you can copy a 3 1/2" disk in one-pass. It also is useful in the 3 1/2" bit copier because it will greatly cut down on disk swapping. (With a basic 256K IIGs it only reads about 4 tracks at a time).

5. *Copy II Plus* now has the ability to make multiple copies of one original in the Utilities mode. If you have enough memory to read a whole 3 1/2" disk, the program will prompt you

if you want anymore copies. All the user has to do is to insert another blank 3 1/2" disk.

6. In the Utilities the user can now format 3 1/2" as part of the copy process. No longer does a person have to format a 3 1/2" disk first then go to the disk copy mode.

7. You can also copy Macintosh disks with the 3 1/2" bit copier. (Either 400K or 800K disks)

I highly recommend *Copy II Plus v8.1* to any one who owns a 3 1/2" disk drive and at least 128K (3 1/2" bit-copier requires that much just to operate, but the 5 1/4" bit-copier only requires 64K). It should definitely be a part of their software libraries.

Copy II Plus v8.1 can be ordered for (\$39.95 + \$3 s/h) from:

Central Point Software, Inc.
9700 S.W. Capitol Hwy. #100
Portland, OR 97219
TEL: (503) 244-5782

Registered *Copy II Plus* owners can upgrade for \$15 + \$3 shipping/handling.

IIGs Softkey for...

Hardball

Accolade

Requirements

- A block-editor (I use *Copy II Plus v8.1*)
- A 3 1/2" disk-copier

These edits were taken from *Copy II Plus's* 3 1/2" bit-copy parameters.

- 1** Copy original with any disk-copier.
- 2** Make the following edits.

Block	Byte(s)	From	To
\$31D	\$009-	20 5D 6B B0	2C 5D 6B 24
\$31D	\$014-	20 5D 6B B0	2C 5D 6B 24
\$31E	\$054	48	60
\$321	\$1A3-	20 CD	08 60
\$329	\$07D	48	60
\$32C	\$1EE-	C2 20	18 60
\$32F	\$0FF-	DA C2	18 60
\$335	\$1DE	48	60
\$339	\$067	48	60
\$33D	\$109	00??	04

? I am looking for a public domain communication software called *FreeTerm GS*, if any one has this please drop me a line. The folks at *Computist* will forward the letter to me.

Print Shop GS Trick

When exiting *Print Shop IIGs* from the main menu, hold down the open-apple key. You should find yourself in La La Land, where you can meet up with the designers of the program.

Use your mouse and put it on the person and his or her name will appear!

Jeff Hurlburt & H.Z. Hurlburt

A.P.T. for...

Realms Of Darkness
SSI

Realms Wrecker

Character Editor for...
Realms of Darkness

Tired of having sand kicked in your face by big, mean, arrogant dungeon dwellers? Well, if the slow and steady approach to character development in SSI's *Realms of Darkness* just isn't your thing, then the thing to do is change your party of wimps into realms wreckers!

Realms Wrecker is an editor running under DOS 3.3 that allows you to change major attributes of any of the first sixteen characters in your roster.Parms included are Wisdom, Intelligence, Agility, Strength, Vitality, Luck, Hitpoints (current and base), Level, money, Experience, and name.

The first step is to boot DOS and type-in the BASIC program and:

SAVE REALMS WRECKER

Then enter the binary routines and:

BSAVE REALMS.BIN, A\$300, L\$33

The program makes changes to a "character backup" disk on track 3.

If you haven't already done so, boot the game and follow directions for producing the backup disk.

To do editing, just:

RUN REALMS WRECKER

Follow the prompts.

For instance, you are first prompted to insert your backup disk. A list of characters next appears with status ("OK" or "NOT OK") indicated for each.

Selecting a character produces an individual parms display plus options. Mods are simply a matter of choosing a parm and entering the desired value.

Note that changing "Level" produces a corresponding change in "Experience"—to just a few points below the next level change. ("Level" max is arbitrarily set at 23, far beyond the point where level advances greatly enhance performance.)



Changing "Experience" does not affect "Level", in case you want to experiment with unusual setups.

Mods for a character do not become permanent until the "Save" option is executed; and, of course, you must do a game "Restore Backup" to get your improved characters back into action.

Unlike most editors, *Realms Wrecker* performs functions not easily duplicated using sector editors, such as the one included with *Copy II Plus*. This is because the game calculates a checksum (from current name, attributes, and possessions data) before writing a character sector.

Directly boosting parms without adjusting the checksum (byte \$DE) results in a character who looks great, except for being "Asleep", permanently!

When *Realms Wrecker* does a "Save" it calculates the checksum and also repairs critical status indicators.

Wrecking Hints

Finally, here are a few hints to get your wrecking off on the right foot.

Each of the first four quests is winnable in one of the nearby multi-level dungeons. In order, these are "the Ruins" (northeast), and dungeons in the west, southwest, and southeast respectively.

The latter is the gateway to a whole new land—and remember, the three-headed dog isn't satisfied with just one bone!

REALMS WRECKER

```

100 REM REALMS WRECKER
110 REM BY JEFF HURLBURT &
120 REM H. Z. HURLBURT
130 TEXT : HOME
140 PRINT CHR$(4); "BLOODREALMS.BIN, A$300"
150 LOMEM: 10240
160 HOME : PRINT "REALMS^OF^DARKNESS^CHARACTER
^EDITOR" : FOR I = 0 TO 39 : PRINT " _ " : NEXT
I : POKE 34,3
170 DIM P$(16), P(16), M(16), C$(16), A(16),
E(23)
180 Z = 47080:BF = 8192:BD = 32:RW = 768:CK =
785:TK = 3
190 H0 = 256:H1 = 65536
200 E(1) = 998: FOR I = 2 TO 4:E(I) = E(I - 1) *
2: NEXT I: FOR I = 5 TO 23:E(I) = (I - 3) *
8000 - 10: NEXT I
210 N = 9: FOR I = 0 TO N: READ P$(I),M(I): NEXT I
220 HOME : PRINT "INSERT^CHAR^DISK^AND^PRESS^
A^KEY^>" : GET Q$: PRINT Q$
230 HOME : PRINT "READING^CHARACTERS"
240 F = 1: FOR S = 0 TO 15: GOSUB 570
250 Q$ = "" : A(S) = 0
260 FOR K = 1 TO 15:Q = PEEK (BF + K) : IF Q > 64
THEN Q$ = Q$ + CHR$(Q)

```

```

270 NEXT K
280 C$(S) = Q$
290 NEXT S
300 GOSUB 750: PRINT
310 PRINT "A<<^SELECT^CHARACTER^(/^EXITS)" : ;
HTAB 2: INPUT "":Q$: HOME: IF Q$ = "" THEN
300
320 IF Q$ = "/" THEN HOME : PRINT "EXIT" : PRINT
: END
330 Q = VAL (Q$) : IF Q < 0 OR Q > 15 THEN 300
340 IF C$(Q) = "" THEN 300
350 HOME : S = Q: PRINT "READING^":C$(S) : "DATA"
:F = 1: GOSUB 570
360 GOSUB 670:CT$ = C$(S)
370 PRINT : PRINT "OPTIONS" : PRINT : PRINT "<#>
^ENTER^#^OF^PARM^TO^CHANGE" : PRINT "<N>
^CHANGE^NAME" : PRINT "<S>^SAVE^(ALSO^
RESTORES^NOT^OK^CHAR)" : PRINT "<X>
^EXIT^TO^CHAR^LIST"
380 PRINT "<>^SELECT" : ; HTAB 2: GET Q$:
PRINT Q$
390 IF Q$ = "" THEN 360
400 IF Q$ = "X" THEN 300
410 IF Q$ = "S" THEN CALL CK:F = 2: GOSUB 540:
PRINT "WRITING^":C$(S) : GOSUB 570:A(S) =
1:C$(S) = CT$: GOTO 300
420 IF Q$ < > "N" THEN 460
430 GOSUB 540: INPUT "NAME^(MAX^15^LETTERS):^"
:Q$: IF Q$ = "" THEN 360
440 L = LEN (Q$) : IF L > 15 THEN 360
450 FOR I = 1 TO 15: POKE BF + I,0: NEXT I: FOR I
= 1 TO L: POKE BF + I, ASC (MID$(Q$,I,1)) :
NEXT I:CT$ = Q$: GOTO 360
460 PC = VAL (Q$) : IF PC < 0 OR PC > N THEN 360
470 GOSUB 540: PRINT "NEW^":P$(PC) : ; INPUT
"VALUE^>>^" :Q$: IF Q$ = "" THEN 360
480 PV = INT (ABS (VAL (Q$))) : IF PV > M(PC)
THEN 360
490 IF PC < 6 THEN POKE BF + 16 + PC,PV: GOTO 360
500 IF PC = 6 THEN POKE BF + 28,PV: POKE BF +
29,PV: GOTO 360
510 IF PC = 7 THEN PV = (PV > 0) * PV + (PV < 1) :
POKE BF + 30,PV:PV = E(PV): GOTO 530
520 IF PC = 8 THEN NH = INT (PV / H0) : POKE BF +
35,NH: POKE BF + 34,PV - H0 * NH: GOTO 360
530 NB = INT (PV / H1):NH = INT ((PV - H1 * NB)
/ H0) : POKE BF + 37,NB: POKE BF + 38,NH: POKE
BF + 39,PV - NB * H1 - NH * H0: GOTO 360
540 VTAB 17: CALL - 958: RETURN
550 END
560 REM RWTS
570 POKE Z + 4,TK: POKE Z + 5,S: POKE Z + 8,0: POKE
Z + 9,BD: POKE Z + 2,1: POKE Z + 3,0: POKE Z
+ 12,F: CALL RW
580 IF PEEK (255) THEN PRINT "ERROR/^SECTOR=^"
:S: STOP
590 RETURN
600 REM READ PARMS
610 FOR I = 0 TO 5:P(I) = PEEK (BF + 16 + I) : NEXT I
620 P(6) = PEEK (BF + 28)
630 P(7) = PEEK (BF + 30)

```

```

640 P(8) = PEEK (BF + 34) + H0 * PEEK (BF +
35) :P(9) = PEEK (BF + 37) * H1 + PEEK (BF
+ 38) * H0 + PEEK (BF + 39) :P(10) = ( PEEK
(BF) = 1)
650 RETURN
660 REM DISP CHAR DATA
670 GOSUB 610: HOME : PRINT C$(S) : ; GOSUB 710:
PRINT
680 FOR I = 0 TO N: PRINT "<" ; I ; ">^" :P$(I) :
":^" :P(I) : ; HTAB 19: PRINT "-MAX^I^S^"
:M(I) : NEXT I
690 RETURN
700 REM STATUS
710 S$ = "" : IF PEEK (BF) < > 1 THEN S$ = "NOT"
720 A$ = "" : IF A(S) THEN A$ = "-MODS^MADE"
730 HTAB 20: PRINT "(" ; S$ ; "OK)^" : A$ : RETURN
740 REM DISP CHAR NAMES
750 HOME : PRINT "CHARACTERS" : PRINT : FOR S =
0 TO 15: IF C$(S) < > "" THEN PRINT "<" :
SPC(S < 10);S; ">^" :C$(S) : ; GOSUB 710
760 NEXT S: PRINT : RETURN
770 DATA WIS, 255, INT, 255, AGL, 255, STR, 255,
VIT, 255, LCK, 255, HPT, 255, LVL, 23, $$$,
65535, EXP, 1677215

```

Checksums

100	- \$0236	440	- \$6D16
110	- \$F454	450	- \$668B
120	- \$F699	460	- \$B81B
130	- \$38F4	470	- \$E9B6
140	- \$6F3C	480	- \$37D7
150	- \$C179	490	- \$1E6D
160	- \$F4D5	500	- \$83A1
170	- \$BD96	510	- \$00F2
180	- \$0B2E	520	- \$1493
190	- \$E6CB	530	- \$C354
200	- \$04C0	540	- \$8ADA
210	- \$079A	550	- \$FF0B
220	- \$8ED4	560	- \$A8B6
230	- \$0B4A	570	- \$2109
240	- \$5ED6	580	- \$EEFE
250	- \$F6E9	590	- \$FA4B
260	- \$8A87	600	- \$60C3
270	- \$5A56	610	- \$3519
280	- \$732A	620	- \$6D15
290	- \$893B	630	- \$6570
300	- \$2CDC	640	- \$825B
310	- \$2F87	650	- \$BB37
320	- \$EC7A	660	- \$D480
330	- \$BCAE	670	- \$B9EF
340	- \$6517	680	- \$5822
350	- \$2FA2	690	- \$161B
360	- \$2875	700	- \$8085
370	- \$210F	710	- \$EB6F
380	- \$0E5A	720	- \$CE9C
390	- \$C0A3	730	- \$E690
400	- \$15C1	740	- \$C73F
410	- \$584D	750	- \$35ED
420	- \$2251	760	- \$6638
430	- \$D384	770	- \$9A3B



REALMS.BIN

0300:	20 E3 03 20 D9 03 A9 00	\$0D5C
0308:	85 48 90 02 A9 FF 85 FF	\$1372
0310:	60 A2 01 8E 00 20 CA 86	\$E8B4
0318:	F9 BD 00 20 18 65 F9 85	\$47CA
0320:	F9 E8 E0 DE D0 F3 9D 00	\$748E
0328:	20 A9 00 E8 9D 00 20 E8	\$3B1D
0330:	D0 FA 60 00 00 00 00 00	\$9380

Marc Batchelor

Putting...

Super Boulder Dash on a hard disk

Requirements

- Apple II+, IIe, IIc, or clone.
- Deprotected *Super Boulder Dash* from COMPUTIST #38
- Slave disk with no *HELLO* program
- Blank disk
- COPYA*

If you want to skip the details of how I accomplished this, zip down to the step-by-step section.

The first thing I did was to boot-code-trace the disk to find out exactly where the jump to the start of the game was. To do this, I used Steve and Rod Smiths article on Electronic Arts software in COMPUTIST #24.

To boot-code trace EA software, use the following procedure:

CALL-151

9600<C600.C6FFM Move boot ROM to RAM

96F8:4C 59 FF Jump to the monitor

9600G Partially boot disk

C0E8 Turn off drive after the beep

83D:4C 59 FF Another jump to monitor

9659:28 Load boot1 to page \$28

96F8:4C 01 08 Jump to our modified code

9600G Boot disk a little further

A946:5A 26 Another jump to monitor

A806G Load EA logo+code & enter monitor

Now, from here it depends on whether you are tracing *Boulder Dash 1* (the front side) or *Boulder Dash 2* (the back side).

I will go on with the procedure assuming that you are tracing side one, and will give details at the end for side 2. This is both easier (for me) and less confusing (for both of us). From this point, the code will continue at \$4000.

Listing through the code contained there, we eventually find a jump to \$800. At \$832, we will find a jump to \$14DD. So, I replaced

the code at \$832 with a jump to the monitor, and typed **4000G**.

The program loaded in the title page and immediately dropped into the monitor. Good.

Now, I turned on the hi-res screen, and typed **14DDG**. The program started up and functioned normally. Now comes the task of getting the program into memory again (I don't want to boot-code trace this thing again), then deciding what needs to be saved (\$800 to where) and lastly, will I have to write any memory move routines?

For those without Senior Prom

The solution is simple for the first problem if you happen to have an easy way into the monitor at will. However, for those of you who don't, there is a solution. Either buy the *Senior Prom* from Cutting Edge Enterprises (I did), or use the method I have provided here.

First, copy your deprotected *Boulder Dash* disk using *COPYA*.

Next, search the front side of the disk for the bytes 4C DD 14 (4C 53 16 for the back).

Change them to 4C 59 FF. Now you're in business.

The solution to the next problem is solved by writing a test pattern into memory. The *Senior Prom* does this for you, or you can do it yourself. I prefer to use the \$11 since it is fairly unique. Use the monitors move command to copy this number into memory from \$800 to \$BFFF by typing **800:11 N 801<800.BFFFFM**

Now boot the front side of the altered disk. If the program does not fall into the monitor then you did something wrong, and should try the above procedure again. Now let me save you some time by telling you I've already found that the program uses memory \$0800—B3FF.

Gez wiz, isn't part of that where DOS lives? The answer is yes, DOS lives from \$9600—BFFF. We need to boot a slave disk around this code so we can save it into one big happy file.

The big question is where to move the memory that will be over-written by DOS (\$9600—\$B3FF). Since both hi-res pages are used for title screens and Q&A screens, the best place to move the memory is to page 2. The reason I chose this page is because it is just a title page, and is expendable. Now all we have to do is move the code from \$9600—\$B3FF to \$4100, (**4100<9600.B3FFM**) and move \$800 to \$5F00 (**5F00<800.900M**). Once this is done, a slave disk can be booted and then we can write a memory move routine, and set the proper entry point to the start of the program.

To move the code from \$4100 to \$9600—\$B3FF, the routine would be as follows:

```

4000-A2 00 LDX #S00
4002-BD 00 41 LDA $4100,X
4005-9D 00 96 STA $9600,X

```

```

4008-E8 INX
4009-D0 F7 BNE $4002
400B-EE 04 40 INC $4004
400E-EE 07 40 INC $4007
4010-AD 07 40 LDA $4007
4013-C9 B4 CMP #SB4
4015-D0 E8 BNE $4000

```

This routine is straight off page 15 of the *Senior Prom's* deprotection methods manual. We will be incorporating this routine into the softkey at location \$4000. First however, move the code stored at \$5F00 to where it belongs at \$800 with **800<5F00.5FFFM**. Next, change a couple of locations to only display page one, remove all disk access, and then start the game up. After all this is over, save the file and relax. The work is done!!

Boulder Dash I

1 Create a slave disk with no *HELLO* program. Put it aside for now.

INIT HELLO
DELETE HELLO

2 Copy the deprotected *Super Boulder Dash* disk (COMPUTIST #38) to a new disk.

3 Search the disk for the bytes 4C DD 14 and change them to 4C 59 FF.

4 Boot the disk.

5 When the drive stops, move memory from \$9600—\$9FFF down to \$4100 and \$800 up to \$5000.

4100<9600.B3FFM
5F00<800.900M

6 Boot the slave disk created in step 1.
6[P]

7 Enter the monitor and add the memory move routine.

CALL-151
4000:A2 00 BD 00 41 9D 00 96
4008:E8 D0 F7 EE 04 40 EE 07
4010:40 AD 07 40 C9 B4 D0 E8
4018:AD 50 C0 AD 57 C0 AD 52
4020:C0

8 Add the jump to the start of program.
4021:4C DD 14

9 Display page 1 only.
1522:54

10 Add jump to memory move routine.
7FD:4C 00 40

11 Poke DOS to allow extra large binary file.
A964:FF

12 Move \$800 code back.
800<5F00.5FFFM



13 Enter the following code to clear score and set flags.

```
1FDC:A9 4C 8D 1E 15 A9 BB 8D 1F 15 A9 15 8D
20 15
1FEC:4C DD 14
```

14 Make the following changes to memory to prevent re-loading of title screen.

```
1709:DC 1F
1827:DC 1F
189F:DC 1F
```

15 Save the file.

```
BSAVE BOULDER DASH1 ,A$7FD ,L$8E03
```

Boulder Dash II

For *Boulder Dash II*, make the following changes to the above procedure.

3 Search the disk for the bytes 4C 53 16 and change them to 4C 59 FF.

8 Add the jump to the start of program.

```
4021:4C 53 16
```

9 Display page 1 only.

```
16A5:54
```

13 Enter the following code to clear score and set flags.

```
1FDC:A9 4C 8D A1 16 A9 3E 8D A2 16 A9 17 8D
A3 16
1FEC:4C 53 16
```

14 Make the following changes to memory to prevent re-loading of title screen.

```
18C8:DC 1F
19E6:DC 1F
1A5E:DC 1F
```

15 Save the file.

```
BSAVE BOULDER DASH2,A$7FD,L$8E03
```

That's it

You should now have 2 files. The game can be up-loaded to any hard-disk, and run from there. Keep your originals hidden.

Warnings and problems

There are a couple of minor differences between the original disk and the back-up. First, there is no disk access while running the program. No sweat.

However, there is one minor flaw in the new version. **If you let the demo run, you will be locked out of the program (both versions).** The solution to this is to not let the demo run (simple huh?).

A.P.T. for...

Super Boulder Dash

Electronic Arts

The number of men you have is stored in \$14E4 for *BOULDER DASH1*, and in \$165A for *BOULDER DASH2*.

There is also room at the end of the memory move routine (\$4064) for another routine that asks you how many men you want to start out with. I know because I added the routing myself and it functions quite well.

Beware however to not let that value exceed \$09 because the routine interprets \$10 as "A" and on up the line. Why? I don't know.

This is also compatible with the APT routines presented in *COMPUTIST #50*.

Senior Prom 3.0 lauded

I also whole-heartedly recommend the *Senior Prom 3.0*. All the problems mentioned in the critique of the product were solved by this version. Only \$79.99 for peace of mind. Now that's a bargain.

Softkey for...

Realm of Impossibility

Electronic Arts

1 Copy the disk with any copier that can ignore errors (*Locksmith* Fastcopy, etc.).

2 Use your sector-editor and make the following changes:

Trk	Sct	Byte(s)	From	To
\$01	\$0F	\$00	4C 69 A0	18 60 DD
\$01	\$0B	\$E0	A2 0F B5 50 48	AD E8 C0 68 68
				18 60 0A

Bill Jetzer

Softkey for...

World Karate Championship

Epyx

Requirements

- Super IOB v1.5*
- Blank disk

World Karate Championship features 14 true to life karate moves with some of the most impressive graphics I have seen. You fight in eight international settings, including Sydney, Australia; Athens, New York; and Mt. Fuji, Japan.

The protection used is basically the same as on other Epyx games. It uses altered epilogue bytes, and it searches the disk for a certain sequence of bytes between the tracks.

All that was needed to deprotect *World Karate Championship* was to get around the altered epilogue bytes and change a branch instruction in track \$00, sector \$0E to bypass

rebooting when the sequence of bytes wasn't found. Type the controller and save it. Install the controller into *Super IOB 1.5* and run it to make your copy.

Controller

```
1000 REM WORLD KARATE CHAMPIONSHIP
1010 TK = 0: LT = 35: ST = 15: LS = 15: CD = WR:
FAST = 1
1020 POKE 47426,24: GOSUB 490: GOSUB 610
1030 POKE 47426,56: GOSUB 490:T1 = TK:TK = PEEK
(TRK) - 1: RESTORE : GOSUB 310:TK = T1:
GOSUB 610
1040 IF PEEK (TRK) = LT THEN 1060
1050 TK = PEEK (TRK):ST = PEEK (SCT):GOTO 1020
1060 HOME : PRINT "COPY DONE" : END
5000 DATA 1*CHANGES
5010 DATA 0,14,158,224
```

Controller Checksums

1000	- \$356B	1050	- \$9114
1010	- \$2544	1060	- \$FEE3
1020	- \$B5FB	5000	- \$DC31
1030	- \$BB1C	5010	- \$738A
1040	- \$C168		

Softkey for...

Destroyer

Epyx

Requirements

- Super IOB v1.5*
- Blank disk

Destroyer features double hi-res graphics and incredible realism. You're the captain of a fully armed, Fletcher Class U.S. Naval Destroyer during WWII. You're in command of every station: Anti-aircraft guns, Torpedoes, Radar, Navigation, and six other outposts. You can seek and sink subs, be a convoy escort, respond to a rescue call, or help invade a strategic island.

The protection uses altered epilogue bytes, and reads a byte from between the tracks and EORs it with some hex data, converting it to meaningful code.

All that had to be done to deprotect *Destroyer* was to change a branch instruction, load the proper byte, and let the existing code do its job. Type the controller and save it. Install it into *Super IOB v1.5* and run it to make your copy.

Controller

```
1000 REM DESTROYER CONTROLLER
1010 TK = 0: LT = 35: ST = 15: LS = 15: CD = WR:
FAST = 1
1020 POKE 47426,24: GOSUB 490: GOSUB 610
```

```
1030 GOSUB 230: GOSUB 490: T1 = TK: TK = PEEK (TRK)
- 1: RESTORE: GOSUB 310: TK = T1: GOSUB 610
1040 IF PEEK (TRK) = LT THEN 1060
1050 TK = PEEK (TRK): ST = PEEK (SCT): GOTO 1020
1060 HOME: PRINT "COPY'DONE": END
5000 DATA 3*CHANGES
5010 DATA 0, 10, 54, 67
5020 DATA 0, 10, 124, 169
5030 DATA 0, 10, 125, 231
```

Controller Checksums

1000 - \$356B	1060 - \$D1B0
1010 - \$2544	5000 - \$F537
1020 - \$B5FB	5010 - \$1254
1030 - \$8E11	5020 - \$4523
1040 - \$A65D	5030 - \$2A89
1050 - \$1855	

Softkey for...

GFL Football

Gamestar

■ Requirements

- Super IOB v1.5
- Blank disk

GFL Football is a realistic football game from Gamestar. You experience the action on the field, all padded-up, helmet on and ready to go.

On offense, you select from 22 pass patterns and 13 running plays.

On defense, you select from 12 formations.

The only protection used lies on track \$1B, sector \$00. It reads a byte from between tracks and stores it in memory. Later it is ANDed with a section of hex data, turning it into useful code.

All that was needed to deprotect *GFL Football* was to put an LDA #55 (the byte it needed was a \$55) two bytes before the STA command and let the rest of the code do its job. Type the controller and save it. Install it into *Super IOB v1.5* and run it to make your copy.

Controller

```
1000 REM GFL FOOTBALL CONTROLLER
1010 TK = 0: LT = 35: ST = 15: LS = 15: CD = WR:
FAST = 1
1020 GOSUB 490: GOSUB 610
1030 GOSUB 490: T1 = TK: TK = PEEK (TRK) - 1:
RESTORE: GOSUB 310: TK = T1: GOSUB 610
1040 IF PEEK (TRK) = LT THEN 1060
1050 TK = PEEK (TRK): ST = PEEK (SCT): GOTO 1020
1060 HOME: PRINT "COPY'DONE": END
5000 DATA 2*CHANGES
5010 DATA 27, 0, 150, 169
5020 DATA 27, 0, 151, 85
```

Controller Checksums

1000 - \$356B	1050 - \$8AC6
1010 - \$2544	1060 - \$2D07
1020 - \$08CD	5000 - \$104C
1030 - \$EC5E	5010 - \$4401
1040 - \$2D3F	5020 - \$C995

Softkey for...

The Great American Cross-Country Road Race

Activision

■ Requirements

- Super IOB v1.5
- Blank disk

This game lets you ride across the country in a race against time and other opponents. You must be careful not to run into cars as you pass, and if your radar detector goes off, you'd better stop before you get stopped! You must also keep a close watch on your fuel guage or you'll have to push your car to the nearest gas pump.

The protection is rather simple. It reads a byte from between tracks and uses it in some later calculations.

All that is needed is to load the proper byte with an LDA and jump over some other code. Type the controller and save it. Install it into *Super IOB 1.5* and run it.

Controller

```
1000 REM THE GREAT AMERICAN CROSS COUNTRY ROAD
RACE
1010 TK = 0: LT = 35: ST = 15: LS = 15: CD = WR: FAST
= 1
1020 GOSUB 490: GOSUB 610
1030 GOSUB 490: T1 = TK: TK = PEEK (TRK) - 1:
RESTORE: GOSUB 310: TK = T1: GOSUB 610
1040 IF PEEK (TRK) = LT THEN 1060
1050 TK = PEEK (TRK): ST = PEEK (SCT): GOTO 1020
1060 HOME: PRINT "COPY'DONE": END
5000 DATA 4*CHANGES
5010 DATA 0, 10, 191, 169
5020 DATA 0, 10, 192, 255
5030 DATA 0, 10, 193, 208
5040 DATA 0, 10, 194, 65
```

Controller Checksums

1000 - \$356B	1060 - \$2D07
1010 - \$2544	5000 - \$76BF
1020 - \$08CD	5010 - \$C80B
1030 - \$EC5E	5020 - \$4DC5
1040 - \$2D3F	5030 - \$93CA
1050 - \$8AC6	5040 - \$2585

Bob Wilson

Softkey for...

Earth Orbit Station

Electronic Arts

■ Requirements

- APPLE II Plus or IIe
- Super IOB v1.5
- 3 blank disks

Since buying *Earth Orbit Station* (EOS) last September, I have been sporadically trying to get a working copy with only limited success.

I was able to get the disk to boot by replacing the 4C 69 A0 at track \$01, sector \$0F, bytes \$00-\$02 with 18 60 DD. After booting, however, the program would die. Something was missing.

I tried everything I knew and was ready to give up when I saw Scott Simon's softkey for *Super Boulder Dash* by Electronic Arts (COMPUTIST #51, page 16). There it was! The missing piece.

Well, at least it was a lock by EA that I hadn't tried. On track \$01, sector \$0A, bytes \$52-\$54 was a 6C 54 00. A search of track \$01 showed that same sequence at the same location (and a few other places too) on the EOS disk.

I made a fresh copy of EOS on a newly formatted disk with *Locksmith's* Fast Copy and applied Mr. Simon's softkey with *DiskEdit*. Bingo! A working copy of EOS.

Since *Locksmith* had ignored EA's well known unreadable and useless track \$06, track \$06 was left blank, formatted, readable and the copy was COPYA-able.

The Starter Kit's FAST.CON

This controller is simply the *FAST.CON* from the Starter Kit disk with a few changes. These differences are:

In line 1010, add **MB=55**. This sets the Read/Write buffer size to copy only one track at a time so that track \$01 can be singled out for sector editing and track \$06 can be skipped.

In line 1020 add **IF TK = 1 THEN T1 = TK: TK = PEEK(TRK): GOSUB 310: TK = T1**. This checks for track 1 and when found saves the current track number, GOSUBs to the sector editor, and restores the track number.

In line 1040 add **IF TK = 6 THEN TK = 7: MB = 151**. This skips the unreadable track \$06 and restores the Read/Write buffer size to copy seven tracks at a time.

Add **1045 GOTO 1020**. This GOTO statement was removed from the end of line 1040 of *FAST.CON* and placed here so we could add the IF-THEN statement to line 1040.

Lines 5000 to 5060 are six edits to be made on track \$01.

Controller

```
1000 REM EARTH ORBIT STATION
1010 TK = 0:LT = 35:ST = 15:LS = 15:CD = WR:FAST
    = 1:MB = 55
1020 GOSUB 490:GOSUB 610:IF TK = 1 THEN T1 =
    TK:TK = PEEK (TRK):GOSUB 310:TK = T1
1030 GOSUB 490:GOSUB 610:IF PEEK (TRK) = LT
    THEN 1050
1040 TK = PEEK (TRK):ST = PEEK (SCT):IF TK = 6
    THEN TK = 7:MB = 151
1045 GOTO 1020
1050 HOME:PRINT "COPYDONE":END
5000 DATA 6*CHANGES
5010 DATA 1,10,82,24
5020 DATA 1,10,83,96
5030 DATA 1,10,84,72
5040 DATA 1,15,0,24
5050 DATA 1,15,1,96
5060 DATA 1,15,2,221
```

Controller Checksums

1000	- \$356B	5000	- \$3661
1010	- \$99DD	5010	- \$5711
1020	- \$17C5	5020	- \$3260
1030	- \$5B83	5030	- \$5F61
1040	- \$24C3	5040	- \$0AEA
1045	- \$A200	5050	- \$5B72
1050	- \$9FA4	5060	- \$C15F

Step-by-step

1 Merge the controller into *Super IOB v1.5* and copy the program disk.

2 Copy the Archive Disk and the Mission Disk with *COPYA*. These disks are unprotected. That's all there is to it.

Convert Applesoft controller into a Text file

Here is a quick way to save a controller as an EXEC-able file.

1 Clear memory then type the controller and save it to disk.

2 Type this additional line and run it.
0 D\$ = CHR\$(4): INPUT "USE WHAT NAME?":
A\$: PRINT D\$ "OPEN" A\$: PRINT D\$
"WRITE" A\$: LIST 1: PRINT "RUN":
PRINT D\$ "CLOSE": END

This simple program opens a file using the name you give it. (Be sure to write the text file to the same disk that your *Super IOB* program is on.) Then it lists the Applesoft program in memory which causes the program to be written to the file. Finally it prints a **RUN** command and closes the file. When you want to merge this controller, load *Super IOB* and type the DOS EXEC command (**EXEC filename**) and the lines

will be merged with whatever is in memory. The **RUN** command written at the end of line 0 will run the program after the last line is merged.

M.M. McFadden

BUGs in my RDOS article...

In *COMPUTIST* #52, on page 27, there is an error in the third column under "Entering TRANSFER". Instead of **BF2A:EA EA EA EA**, it should be **1F2A:EA EA EA EA**.

As it stands, the modification will mess up the DOS in memory, not the relocated code. This is not only wrong, but potentially hazardous. (This was my fault.)

I should also make it clear that the sector-skewing is not certain for the 16-sector RDOS. It may be different.

In the *TRANSFER* program, line 1015 should be line 1025. I think this would work better, although it wouldn't show lines that are too long. It really doesn't affect the programs' performance at any rate.

Steve Burke

The new "RDEX format" puts much more info into each issue, making the magazine even more useful. With all this new information, I'm finding it difficult to go through back issues to find articles and/or softkeys. I'd like to suggest you publish an annual index covering all softkeys/articles/etc., going back to your first issue. Thanks!

H You're right Steve, we definitely need an accurate index. A lot of readers have told us that they are maintaining an index using *Appleworks*. Larry Newby has the most reasonable offer for a ready-to-use *Appleworks* database of *COMPUTIST* softkeys. See the "BUGs" column for his address. RDEXed

Chad Baker

Q Here is a question. I know I'm picking at straws, but do you happen to know what the new user password for *Motherboard West* is? Can we 'advertise' BBSs? If so,

The Alien Nation
 916/674-3437
 1200/300 baud
 20 Megs Downloads/Uploads
 Text Files 13 msg bases
 10PM-7AM California
 Apple/Commodore/IBM/TRS Support
 Thank you and Happy Computing.

RDEX END

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It's Here!

With the debut of the COMPUTIST reader's Classified Ads section, COMPUTISTs now can buy, sell, trade, etc. directly with other readers without the editors hacking and chopping their letters to pieces.

If you want to advertise a product or service to make some \$\$\$ but you don't want to spend a lot of \$\$\$ to pay for a display ad, then for just for a few \$\$\$ you can advertise here.

Ad Rates

The first line will cost you \$5. After that, it's just 1\$ per line, with up to 30 characters per line.

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And for \$2, you can have your ad placed in a box like this!

1/2 off!

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FOR SALE: software

If you've written some programs (games, utilities, templates, etc.), you could find a market just waiting for your product. Make back some the \$\$ you spend creating your masterpieces and sell copies in this classification.

WANTED

If you're in the market for a particular product or service, you can make your needs known in this section!

ESCAPE

This is our miscellaneous section. If you aren't sure where your ad fits, put it here!

HELP!

This is my favorite section. If you just need some help finding some information or product, try putting an ad here...

Bulletin Boards

Advertise your BBS right here.

CLUBS

Get Your Club membership up with a notice of club meetings and membership fee.

You Name It

Make up your own classification. If we think it's useful, we'll use it.

To put your ad in the next issue of COMPUTIST, use the order form at the top of the page

Remember, you must PREPAY, especially if you want to take advantage of the consecutive-run savings.

And don't forget, you can have your ad boxed for only \$2, and bold any line for only \$1 a line.

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Ron Balewski

Congratulations on your decision to carry deprotection schemes for machines other than Apple. I use both Apple and IBM clones, and both have protected software that needs 'work'.

In preparation for cracking IBM software, I wrote a rather nifty sector-editor that I'd like to share with the rest of your readers. It's operation is loosely based on that of the Apple *Copy II Plus* editor (since that's the most convenient editor I've ever used). But it does (I think) improve on some features.

I plan to distribute this utility as a 'shareware' package, and, therefore, will retain the copyright, but will also allow free distribution.

I'd rather not have the source file published, but that shouldn't be a problem. I don't think you'd want to publish it or your readers would want to type it in! It's written as nine C files with a combined length of about 4000 lines of code!

I'll be glad to send a copy of my *DiskZap* to any of your readers for \$5.00 to cover the production and shipping costs. The disk will contain a *DISKZAP.EXE* file, an optional configuration program, and a documentation file.

How about sending a copy of the actual package (that you are selling) to me for review-examination?IBMrdexEd

Mike Basford

Softkey for...

Zork III
Infocom

1 Insert a DOS disk in drive A

DISKCOPY A: B:

2 Place your *Zork III* disk in drive A and a blank disk in drive B. Continue the copy and ignore errors on tracks 1-3.

3 Take out your *Zork III* disk and insert your DOS disk in A.

DEBUG

R CS

XXXX

:0000

<-----you enter this

R DS

XXXX

:0040

R IP

XXXX

:7C00

R ES

XXXX

:0000

L 0:7C00 0 0 1

G = 0:7C00 0:7C2A

R AX

XXXX

:0800

G 0:7C63

E 800:14E5 B8 08 02

E 800:211A 02 08

W 800:0000 1 8 18

L 0:7C00 0 0 8

E 0:7C7C 02 08

E 0:7C41 B8 08 02

W 0:7C00 1 0 8

Q

4 Take out your new disk in drive B and write-protect it. It is now *DISKCOPY*-able. Reboot your system: **Alt Delete**

Softkey for...

EasyWriter 1.0

Requirements

- Configured, write-protected *EasyWriter 1.0* (EW) program disk
- PC DOS disk.
- A newly formatted (FORMAT B:/S) 'empty' disk with *COMMAND.COM* erased. We will use a different *COMMAND.COM* (later).
- AN initialized EW data disk.

1 Insert the DOS disk in drive A.

DEBUG

2 After DEBUG has loaded, remove the DOS disk and insert the EW disk. Tell DEBUG the program name and load it.

N COMMAND.COM

L

Run the EW loader program so it can load the EW program.

G 127

Remove the EW disk and insert the blank disk.

M 200 6FFF 100 Relocate EW to overlay loader.

R CX Inspect the "CX" register.

CX 00DD

Old contents of CX displayed.

:6E80 CX = length of program for debug to write.

N EXWRITER.COM You must use this exact name.

W Write EW main program to "blank" disk.

Q Exit DEBUG.

Now copy *COMMAND.COM* from the original EW program disk to the 'blank' disk. Then copy *FORTHSCRE.EEN* from your EW data disk to the 'blank' disk. Label the 'blank' disk "EasyWriter program and Data

disk". This disk contains 2 invisible DOS files, the EW loader program (*COMMAND.COM*), the EW main program (*EZWRITER.COM*), and a full-sized data file area (*FORTHSCR.EEN*) - all on the same copyable disk! If you prefer, you can rename *COMMAND.COM* as *EW.COM*, and copy a normal *COMMAND.COM* onto the disk. This would also allow running *EasyWriter 1.0* on a non-standard disk (Winchester, 2-sided, 8", etc.).

Softkey for...

EasyWriter II

This is a lot easier. Use menu option 2 on the 'housekeeping' disk to format 2 blank disks. Then use menu option 3 to copy the program disks as though they were data disks!

Softkey for...

POOL 1.5

These patches remove the copy-protection and fix the program so it will switch to the color monitor.

1 Put a DOS disk in drive A and a new disk in drive B.

**FORMAT B:/1
DEBUG**

2 Remove the DOS disk from drive A and insert the *POOL 1.5* disk.

L 100 0 0 40

W 100 1 0 40

L 100 0 40 40

W 100 1 40 40

L 100 0 80 8

W 100 1 80 8

L 100 0 A0 30

W 100 1 A0 30

3 Remove the *POOL 1.5* disk from drive A.

L 100 1 0 1

E 19D 1E B8 40 00 8E D8 A1 10 00 24 CF

0C 20 A3 10 00 B8 04 00

E 1B0 CD 10 1F CB 90 90

W 100 1 0 1

4 Remove the disk from drive B and label and write protect it. Place it in drive A and boot it.

IBM RDEX END

Send all contributions to:

IBM-RDEX editor
COMPUTIST
PO Box 110846-T
Tacoma, WA 98411

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This package contains:

▶ TWO DISKS (supplied in DOS 3.3). Each disk contains at least 60 Super IOB Controllers including the standard, swap, newswap and fast controllers. Also included is **version 1.5 of Super IOB**, the Csaver program from COMPUTIST No. 13, and a Menu Hello Program that lists the available controllers and, when you select one, automatically installs it in Super IOB and RUNs the resulting program.*

▶ A reprint of **Disk Inspection and the Use of Super IOB**, from COMPUTIST No. 17. This article explains how to write your own Super IOB controllers.

▶ **COMPUTIST No. 32**, which contains an extensive article detailing the hows and whys of Super IOB v1.5 and at least 5 articles using the new Super IOB program.

- Several of the controllers deprotect the software completely with no further steps. This means that some programs are only minutes away from deprotection (with virtually no typing).

- The issue of COMPUTIST in which each controller appeared is indicated in case further steps are required to deprotect a particular program.**

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■ Yes, please send me The Super IOB Collection

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Send to: **Super IOB Collection**
PO Box 110846-T Tacoma, WA 98411

or call: (206) 474-5750 for  or  orders.

*Requires at least 64K of memory.

**Although some controllers will completely deprotect the program they were designed for, some will not, and therefore require their corresponding issue of COMPUTIST to complete the deprotection procedure.

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