AppleWorks Forum

The Monthly Publication of **NAUG:** ***The National AppleWorks Users Group***

Volume IV, No. 8 **Four Dollars**

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Support for AppleWorks and ///EZ Pieces Users

From the Editors

Happy Anniversary to NAUG

This issue of the ***AppleWorks Forum*** represents the start of **NAUG**'s fourth year of publication. During those years, we grew from a small group of 45 active AppleWorks users into the nation's largest Apple computer group, with 13,000 members in the United States and 37 other countries.

Your support of **NAUG** helps us represent your interests in the AppleWorks community. For example, Claris Corporation regularly sought our suggestions when developing AppleWorks 3.0, and other developers frequently call **NAUG** to learn how our members would react to different AppleWorks-compatible product ideas.

NAUG's size lets us negotiate significant discounts with manufacturers and vendors. (An article in next month's issue of the ***AppleWorks Forum*** will list new discount offers available to **NAUG** members.) Please tell us about other products you want us to try to add to the list; it never hurts for us to ask manufacturers and vendors for special member discounts. In addition, we are always anxious to hear ideas and suggestions from our member-colleagues. While we regularly survey members to get your input, your letters and suggestions often include excellent ideas that let us help all members of the AppleWorks community.

It is coincidental, but apropos, that we celebrate our anniversary the same month that Claris starts shipping AppleWorks 3.0, the first major upgrade to AppleWorks. We plan to help keep AppleWorks a vibrant, useful product that evolves as our abilities, equipment, and expectations grow.

The ***National AppleWorks Users Group*** (**NAUG**) is an association that supports AppleWorks users. **NAUG** provides technical support and information about AppleWorks and enhancements to that program. Our primary means of communicating with members is through the monthly newsletter entitled the ***AppleWorks Forum***.

Letters to NAUG

How to Rename Disks and Files

Dear NAUG:

Is there any way to change disk volume names or file names from within AppleWorks?

Dan Corbett
Naples, Florida

[Ed: The only way to rename disk volumes from within AppleWorks is with TimeOut FileMaster. Once you invoke FileMaster, select "Disk Activities", and choose the "Rename" option.

FileMaster also makes it convenient to rename disk files without leaving AppleWorks. Select "File Activities" and choose the "Rename" option. There is also an AppleWorks work-around that lets you rename disk files without an enhancement program. Follow these steps:

1. *Load the file you want to rename onto the AppleWorks desktop.*
2. *Use the Apple-N command to rename that file.*
3. *Issue an Apple-S command to save the file on the disk. This saves the file under the name you assigned in step #2 above.*
4. *Press the Escape Key to return to the Main Menu.*
5. *Select choice #5, "Other Activities".*
6. *Select choice #4, "Delete files from disk" and delete the original version of the file.*

This six-step process works, but FileMaster is more convenient and faster.]

AppleWorks Forum

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Publisher: The National AppleWorks Users Group

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The "AppleWorks Forum" (ISSN 0893-4118) is published monthly for $27 per year by the National AppleWorks Users Group, 49068 Harvest Dr., Plymouth, MI 48170.
Second Class postage paid at Plymouth, MI, and additional mailing offices.
POSTMASTER: Send address changes to AppleWorks Forum, NAUG, Box 87453, Canton, MI 48187

Print Shop Causes AppleWorks Printer Problems

Dear Cathleen,

Like most AppleWorks users, I find the program does almost everything I need. But once in a while, I must reluctantly leave AppleWorks and boot up Print Shop to get greeting cards, banners, or signs I cannot produce easily with AppleWorks. Then AppleWorks doesn't print properly after I run Print Shop, even if I turn off my printer. I must turn off my computer, let it rest a bit, and restart the system to get correct output from AppleWorks. What is my problem?

Anita Cohen
East Brunswick, New Jersey

[Ed: Some programs (particularly Print Shop and SideWays) send special codes to your printer interface card to over-ride some of the defaults on the card before printing. Unfortunately, these programs do not reset the card to their default settings after you print.

You should be able to send a "reset" code to the interface card before printing an AppleWorks document (the reset code for an Apple Super Serial Card is Control-I R), but that approach does not work. If you send this code, AppleWorks freezes the next time you try to print.

Follow these steps to reset a Super Serial interface card after you run a program like Print Shop or SideWays:

1. *Prepare a disk that only has the files ProDOS and BASIC.SYSTEM.*
2. *Boot your computer with this disk. The computer will load in BASIC and then display the AppleSoft BASIC prompt ( ]).*
3. *Type in the following program:*

```
1Ø  SLOT = 1
2Ø  IF PEEK ((SLOT*256)+49169) <> 133 THEN 4Ø
3Ø  POKE (SLOT*16)+4929Ø,Ø
4Ø  PRINT CHR$(4); "-APLWORKS.SYSTEM"
```

(If you use an UltraMacros-enhanced copy of AppleWorks, replace "-APLWORKS.SYSTEM" in line 4Ø with "-ULTRA.SYSTEM".)

4. *Enter the command* "SAVE STARTUP" *to save this program on your disk in a file called STARTUP.*
5. *Use a file copy program to copy all the files except ProDOS from your AppleWorks Startup Disk onto this new disk. The new disk now becomes your AppleWorks Startup Disk.*

In the future, whenever you leave Print Shop or SideWays, boot your system with this new Startup Disk. Here is how the disk works:

1. *ProDOS loads into memory.*
2. *ProDOS looks for the first system file on the disk; it finds BASIC.SYSTEM, so it loads BASIC into the computer.*
3. *BASIC looks for a file called STARTUP on the disk. It finds the file you just created, so it loads and runs that program.*
4. *The STARTUP program checks for a Super Serial Card and resets the card back to its default settings. The program then runs the program APLWORKS.SYSTEM on the Startup Disk. APLWORKS.SYSTEM is the startup file for AppleWorks.*

This procedure resets your interface card to its default settings and boots up AppleWorks.

This program originally appeared in Tom Weishaar's ***A2 Central****, an excellent Apple II newsletter.]*

How to Enter Caret Marks in Printer Codes

Dear Ms. Merritt:

My NEC PC-8023A printer requires a printer code of ^R to print large letters and ^T to return to normal size characters. I cannot enter these codes; entering the caret mark tells AppleWorks I'm done entering printer commands. Can you help me with this problem?

Fred E. Nelson
Colorado Springs, Colorado

Letters...

[Ed: First try entering Control-R and Control-T as the commands for your printer. Some printer manuals use the caret mark to signify control codes.

If your printer requires caret marks, you are not alone. Some excellent printers (e.g., those from Texas Instruments) use caret marks in commands. While I believe there are work-arounds and patches that let you enter caret marks in printer codes, AppleWorks version 3.0 solves this problem. With version 3.0 you enter an Apple-Return instead of a caret mark to declare that you are done entering a printer code; thus AppleWorks 3.0 accepts caret marks in printer codes.]

How to Add Memory to a Laser 128EX

Dear Cathleen,

I think my fellow **NAUG** members with Laser 128EX computers might like to know about an error in the manual for that computer. The Laser 128EX comes with an expansion board that makes it easy to upgrade the memory in the computer. However, the manual says you should install your first set of memory chips in bank 4. That is incorrect; you should start installing the extra chips in bank 1.

You should also use a program built into the Laser 128EX to test your chips. Invoke this feature as follows:

1. Turn on the computer with no disk in the drive.
2. Enter a Control-Reset to stop the disk drive.
3. Type "CALL -151" and press the Return Key.
4. Type "C5ØAG" and press the Return Key.

The computer will test all the memory in the system and will tell you if it detects any defective chips.

George Ruzich
Orland Park, Illinois

[Ed: This memory test only works on the Laser 128EX. It does not work on Apple-brand computers.]

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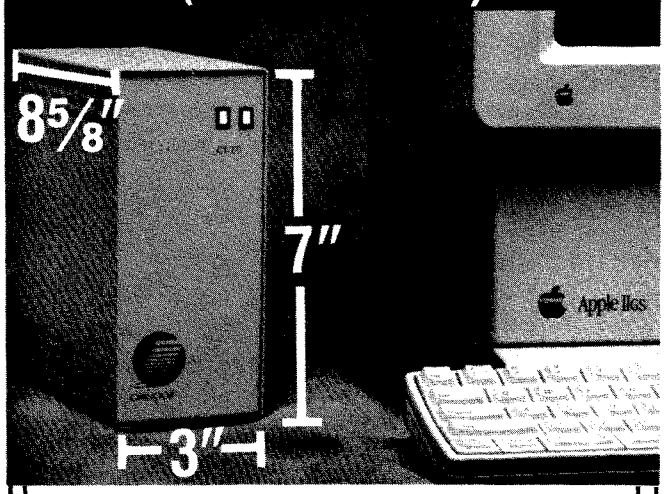

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How to Use a LaserWriter with AppleWorks: Part I

by William Marriott

This is the first of two articles that describe how to use a laser printer with AppleWorks. This month, Mr. Marriott describes how to use an Apple LaserWriter with an Apple IIGS or with an Apple IIe equipped with an AppleTalk Workstation Card. Next month he describes how to get laser-quality output from an Apple IIc or IIc Plus, a Laser computer, or from an Apple IIe equipped with a Super Serial Card.

Laser printers produce text and graphic output that competes with the documents you receive from professional print shops. Owners of Macintosh computers regularly use laser printers to get the highest quality output available from that system. Now AppleWorks owners can use these printers to get similar output from their Apple II computers.

Laser printers use a laser beam to draw images on photosensitive material and transfer special ink, called "toner", onto the printed page. The dense pattern of small dots prints as a high quality image that is impossible to duplicate on dot matrix and daisy wheel systems. *Figure 1* contains samples of AppleWorks output from a laser printer.

Laser printed pages print quickly and look crisp and professional.

Some Background about Apple LaserWriters

Apple Computer calls their laser printers "LaserWriters". The original LaserWriters were available in two models; the LaserWriter and the LaserWriter Plus. These models are now superseded by the LaserWriter II SC, LaserWriter II NT, and LaserWriter II NTX. All these printers, except the LaserWriter II SC, work well with AppleWorks.

Except for the LaserWriter SC, all LaserWriters use a built-in computer to interpret a special language called "Postscript". Postscript controls a LaserWriter much like a BASIC program controls a computer. Most Macintosh programs translate their printed output into Postscript statements that the LaserWriter uses to produce its final printouts. If you own an Apple IIe or IIGS, you can utilize some of the Postscript capabilities built into the printer and get exceptional output. If you use an Apple IIc or Laser computer, you will have to disable the Postscript capabilities of the LaserWriter and be satisfied with output that looks as if it came from a daisy wheel printer.

Of course, laser printers are expensive. New LaserWriters cost between $2,500 and $6,800, which makes it difficult to justify for a single AppleWorks user. However, Apple designed the LaserWriter so several users can share a printer through a network called "AppleTalk". Apple builds AppleTalk compatibility into every LaserWriter, Apple IIGS, and Macintosh. You can also add AppleTalk compatibility to Apple IIe systems. The LaserWriter's built-in network capabilities make it easy to add an Apple IIGS or Apple IIe to an existing AppleTalk network and share a LaserWriter already on that network.

Each model Apple II computer accesses the LaserWriter differently. If you have an Apple IIGS, you can use the AppleTalk interface built into the computer to use the LaserWriter. If you have an Apple IIe, you can use an Apple Workstation Card to run the LaserWriter through the AppleTalk network. If you have an Apple IIc, IIc Plus, an Apple IIe without an AppleTalk card, or a Laser computer, you can connect to a LaserWriter as if it were a letter-quality serial printer. I will describe those techniques in next month's article.

Apple IIGS

If you have an Apple IIGS, you should add your computer to the AppleTalk network serving the laser printer. You will need one "Apple LocalTalk Locking Connector Kit Din 8" (Apple part number M2068) to make the necessary connections. (The terms "AppleTalk" and "LocalTalk" are often used interchangeably. AppleTalk refers to the software built-into the computer and printer that manages communications over the network. LocalTalk is the physical cabling and connectors that link the system.)

There are five steps necessary to configure a IIGS to print on a LaserWriter:

1. Prepare a Startup Disk for the printer.
2. Configure the computer so it can access the AppleTalk network.
3. Connect the computer to the network.
4. Prepare the printer to accept AppleWorks output.
5. Format your AppleWorks document for the LaserWriter.

Prepare a Startup Disk

Since you are working on an Apple IIGS, I will assume you have a copy of the Apple IIGS System Disk version 3.2. (This disk comes with the IIGS. If you have an older IIGS, you can get the appropriate System Disk from your Apple dealer or from the **NAUG** Public Domain Library ($4, plus $2 s/h).) I will also assume you know how to use the Apple IIGS Finder or a utility program such as Copy II+ to copy disks and to copy files from a subdirectory to the main directory on a second disk. (For more information about subdirectories, see "What AppleWorks Users Should Know about ProDOS Pathnames" in the *AppleWorks Handbook: Volume One*.)

Figure 1: Sample Output from a LaserWriter

National AppleWorks Users Group
Box 87453
Canton, Michigan 48187

Dear NAUG Member:

This is an example of 10-point Times output from a LaserWriter printer connected to an Apple IIgs through an AppleTalk network. To print in Times.10 you must enter the command for Proportional-1 from the AppleWorks Option Menu. Also see the article for the correct magin settings to get attractive output. Note that you can underline and **boldface** or **do a combination of both.**

This is an example of 12-point Times output from a LaserWriter printer connected to an Apple IIgs through an AppleTalk network. To print in Times.12 you must enter the command for Proportional-2 from the AppleWorks Options Menu. Also see the article for the correct margin settings to get attractive output. Note that you can underline and **boldface** or **do a combination of both.**

```
This is an example of 10-point Courier
output from a LaserWriter printer
connected to an Apple IIgs through an
AppleTalk network.  Courier is the
default font for the LaserWriter when
you print from AppleWorks or when you
select any characters per inch
setting.  Note that you can underline
and boldface or do a combination of
both.
```

You can also print different size characters when you use Courier. This is 17 cpi. Times is limited to only 10-point and 12-point output.

First, you will prepare a Startup Disk that lets you send an ImageWriter emulator program to the LaserWriter. Follow these steps (Hard disk users will have to modify this program so it includes the correct pathnames to the program files.):

1. Use any utility program (such as Copy II+) or the IIGS Finder to make a copy of your working AppleWorks Startup Disk. Do all your work on this backup copy.

2. Copy the following files from the Apple IIGS System Disk onto the AppleWorks Startup Disk:

ProDOS Prefix	Filename
/SYSTEM.DISK	BASIC.SYSTEM
/SYSTEM.DISK/SYSTEM/SYSTEM.SETUP	ATINIT
/SYSTEM.DISK/APPLETALK	CHOOSER.II
/SYSTEM.DISK/APPLETALK	CHOOSER.0
/SYSTEM.DISK/APPLETALK	NAMER.II
/SYSTEM.DISK/APPLETALK	NAMER.0
/SYSTEM.DISK/APPLETALK	MTXABS.0
/SYSTEM.DISK/APPLETALK	IWEM

3. Use the utility program to rename the file "APLWORKS.SYSTEM" on your AppleWorks Startup Disk to "APLWORKS".
4. Quit the utility and boot the new copy of AppleWorks that contains the files you added in step #2 above. This will leave you in BASIC, not AppleWorks.
5. When you see the "]" prompt, type the following lines (Type each line carefully and proofread each line before pressing the Return Key.):

```
5 REM Startup Program
6 REM By Apple Computer
10   HOME
20   PRINT " Program Loader ": PRINT
30   PRINT " 1) AppleWorks "
40   PRINT " 2) Chooser "
50   PRINT " 3) Namer": PRINT
60   INPUT " Enter your choice:";A$
70   A =  VAL (A$)
80   ON A GOTO 100,200,300
90   GOTO 10
100  PRINT CHR$ (4);"-APLWORKS"
110  END
200  PRINT CHR$ (4);"-CHOOSER.II"
210  END
300  PRINT CHR$ (4);"-NAMER.II"
310  END
SAVE STARTUP
```

When you boot this disk, you will see a menu that lets you choose the program you want to use.

Configure AppleWorks to Use the LaserWriter

Now that you prepared a new Startup Disk, you must configure AppleWorks to use the LaserWriter. Follow these steps:

1. Boot your computer with the Startup Disk you just created. Choose "AppleWorks" from the Program Loader Menu.
2. Select option #5, "Other Activities", from the AppleWorks Main Menu.
3. Choose #7, "Specify information about your printer(s)", from AppleWorks' Other Activities Menu.
4. Add a printer to the AppleWorks Printer Menu. Choose "ImageWriter" (not a custom printer), and give it the name "LaserWriter". Specify that the printer interface card is in Slot 7. Set the platen width to 8.5 inches.
5. Exit the Other Activities Menu and quit AppleWorks.

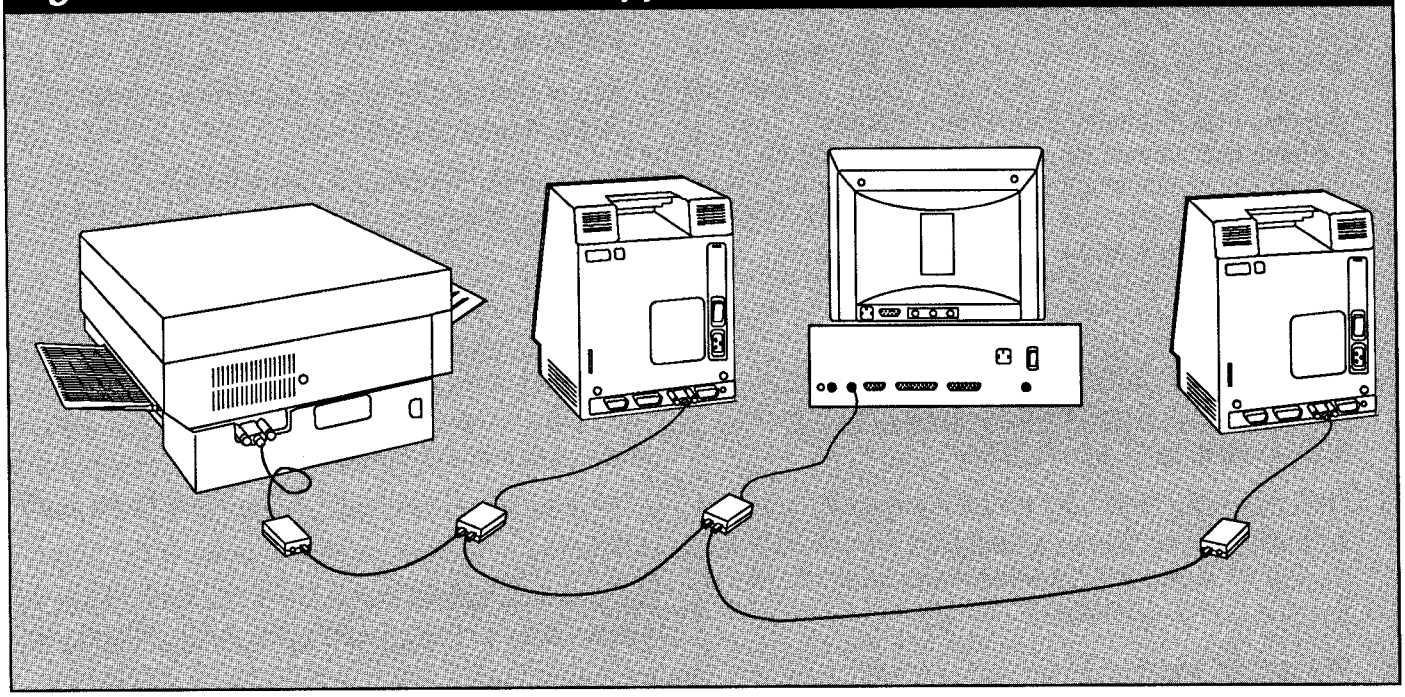
You now configured AppleWorks to send ImageWriter codes to the LaserWriter printer. When you use AppleWorks, you will send an "ImageWriter emulator" program to the LaserWriter so it can interpret those codes.

Configure the IIGS to Access the Network

The next step is to configure your Apple IIGS so it can access the AppleTalk network. While the IIGS does not need an interface card (Apple builds the necessary circuitry into the computer), you must configure the Control Panel on the IIGS so it can communicate with the network. Follow these steps:

1. Press the Control, Open-Apple, and Escape Keys to access the Desk Accessories Menu. Select the Control Panel accessory.
2. If you use a RAM Disk, select "RAM Disk" and make certain that the "Maximum RAM Disk Size" is at least 256K *less* than the "Largest Selectable". (AppleTalk requires 256K of RAM for the network.) Press the Return Key to exit the RAM Disk option.
3. You must configure your system so it uses the built-in AppleTalk capability in the IIGS. The IIGS accesses AppleTalk through Slot 7, so you must leave Slot 7 empty. In addition, you must disable either the printer port or modem port built into the IIGS. Follow these steps:

Figure 2: How to Add a IIGS to an AppleTalk Network



A. Turn off your computer and rearrange the cards so Slot 7 is vacant. If you have a hard disk interface card in Slot 7, move that card to Slot 1.

B. Boot your computer and press the Control, Open-Apple, and Escape Keys to access the Desk Accessories Menu. Select the Control Panel Accessory.

C. Select "Slots" and use the Arrow Keys to set Slot 7 to "Built-in AppleTalk". If you have a hard disk drive, set the Startup Slot to "Slot 1". If you do not have a hard drive, leave the Startup Slot at "Scan".

D. Set Slot 1 to "Your card". This disables the Apple IIGS printer port, but leaves Slot 1 available for your use. You can put a Super Serial Card in that slot to compensate for the loss of the port, or you can put your hard disk interface card in Slot 1 if you must move that card from Slot 7.

E. Press the Return Key and exit the Control Panel and Desk Accessories Menu.

4. Now you must physically connect your computer to the network. Follow these steps:

A. Turn off the computer and attach the LocalTalk connector box to the printer port on the Apple IIGS.

B. Connect the LocalTalk cable to the connector box and connect the other end of the cable to any other connector box that has a free port. *Figure 2* shows how to add an AppleTalk connector to an existing network.

Prepare the LaserWriter

Now you can run the software that tells the LaserWriter to emulate an ImageWriter II. You must repeat these procedures each time you reset or restart the LaserWriter:

1. Boot the Apple IIGS with the new AppleWorks Startup Disk.
2. Select "Chooser" from the Startup Menu.
3. Click on "LaserWriter" in the left-hand box.
4. After a momentary pause, the box on the right of the Chooser Menu will list the LaserWriter printers connected to the network. Click on the LaserWriter you want to use and the Chooser will download the ImageWriter emulator to that printer. The printer will eject a page with the message "ImageWriter emulator loaded".

5. Issue an Apple-Q to quit the Chooser and reboot the Apple IIGS.
6. Choose "AppleWorks" from the Startup Menu.

How to Prepare AppleWorks Documents

You are now ready to use AppleWorks as if you were printing on an ImageWriter. Here are some suggestions to help you get better quality output from your system:

1. AppleWorks is pre-set to print at 10 characters-per-inch, so the LaserWriter will automatically print at 10 cpi in Courier, a mono-spaced font that resembles the output you get from an electric typewriter or daisy-wheel printer (see *Figure 1*). You can use the CI command to print in Courier at 4, 5, 6, 8, 10, 12, 15, 17, and 20 cpi. In addition, the LaserWriter understands all the commands available on the ImageWriter II, but will not print foreign characters, MouseText, or color.
2. While some users find Courier satisfactory, I suggest you use the Apple-O command to select a more attractive font. Issue a P1 command and the LaserWriter prints in 10-point Times (equivalent to "elite" type on a typewriter); select P2 and the LaserWriter prints in 12-point Times (equivalent to "pica" on a typewriter). Times is a proportionally-spaced font that gives higher quality output than the default font of Courier.
3. Unfortunately, the LaserWriter's Times characters and inter-letter spacing are narrower than the corresponding proportional spaced characters printed by an ImageWriter. If you select Proportional-1 output, you must set the right margin at .1 inch to get a one-inch margin by tricking AppleWorks to print more characters on each line. To get true centering, set the right margin at 0.7 inches just before you issue a Center Command (see *Figure 3*).

   To get correct margins with Proportional-2 output, set the right margin at .7 inches for the entire document.
4. The default top margin of zero inches and bottom margin of two inches are not correct for a LaserWriter. Insert Top Margin and Bottom Margin Commands to get the margins you want. Usually top and bottom margin settings of 1.0 inches are appropriate.
5. Do not try to get justified output with the Times font. AppleWorks does not correctly manage both proportional fonts and full justification; you must choose one feature or the other.

Figure 3A depicts the standard settings for a word processor document printed in 10-point Times on a LaserWriter. *Figure 3B* depicts the settings for 12-point Times.

You can now enjoy the high quality LaserWriter output from AppleWorks on your IIGS.

Figure 3: Sample Settings to Print with Times Font

Figure 3A: 10-point Times

```
--------Proportional-1
--------Top Margin:    1.0 inches
--------Bottom Margin: 1.0 inches
--------Right Margin:  0.7 inches
--------Centered
     ^National AppleWorks Users Group^
                 Box 87453
           Canton, Michigan 48187
                (313) 454-1115

--------Right Margin:  0.1 inches
--------Unjustified
```

Figure 3B: 12-point Times

```
--------Proportional-2
--------Top Margin:    1.0 inches
--------Bottom Margin: 1.0 inches
--------Right Margin:  0.7 inches
--------Centered
     ^National AppleWorks Users Group^
                 Box 87453
           Canton, Michigan 48187
                (313) 454-1115

--------Unjustified
```

Potential Problems and Conflicts

Once you see AppleWorks documents printed on a LaserWriter, you will never again be satisfied with dot matrix output. But there are some disadvantages to using this setup. Consider the following:

1. Using the LaserWriter can disrupt the work of Macintosh users on the network.

You must download an ImageWriter emulator program to the LaserWriter before you can use that printer with AppleWorks. The emulator uses memory in the LaserWriter, and can cause "Out of memory" errors for Macintosh users who send complex documents to the printer. This problem is most evident when Macintosh users try to print pages containing graphics on LaserWriters with less than two megabytes of memory.

2. You cannot use TimeOut UltraMacros with a LaserWriter on an AppleTalk network. UltraMacros is incompatible with AppleTalk and locks up your keyboard or drops you to monitor level when you try to print. If you like UltraMacros, use an UltraMacros-enhanced copy of AppleWorks to prepare your documents, save your files on a disk, then use an unenhanced copy of AppleWorks to print on the LaserWriter.

3. You cannot use TimeOut SuperFonts or TimeOut SideSpread with a LaserWriter. The ImageWriter emulator program does not replicate the ImageWriter's graphics mode, the mode you use when you print with SuperFonts or SideSpread.

4. If you use an Apple IIGS with a hard disk and want to communicate with the LaserWriter through AppleTalk, you will have to choose between using a second printer *or* a modem.

On an Apple IIGS, the AppleTalk option is built into Slot 7, the slot most users reserve for their hard disk interface card. You will have to move the hard disk interface card into either Slot 1 or Slot 2, and disable the printer port or modem port. (The Control Panel settings for Slot 1 control the printer port; the settings for Slot 2 control the modem port.) Then you can connect *either* a printer *or* a modem (but not both) to the remaining port.

If you use a hard disk with an Apple IIe, you should also use Slot 7 for the AppleTalk interface. I suggest you move the hard disk interface card to Slot 2 or 4, whichever is vacant. Your computer will boot from the floppy disk connected to Slot 6, so you should prepare a Boot Disk for that drive. The Boot Disk will tell your system to boot from the hard disk in Slot 2 or 4. (See the sidebar entitled "How to Prepare an Apple IIe Boot Disk" on the next page for step-by-step directions on how to prepare that disk.)

5. The current version of GS/OS (Apple IIGS System Software 4.0) is incompatible with Chooser II. You must use ProDOS if you want to use a LaserWriter with an Apple IIGS.

6. AppleTalk uses 256K of RAM. This reduces the size of the AppleWorks desktop available for data files.

7. AppleWorks' Apple-H ("print a hard copy") command does not send a "top-of-page" command when it finishes printing a screen; the LaserWriter must receive that command before it prints a page. To work around this limitation, issue an Apple-H command, then print a blank word processor document to send the necessary top-of-page command to the printer.

8. You cannot print columns of text or right justified text in a proportional space font. AppleWorks versions 2.1 and earlier do not offer true tabs, so the program cannot align columns of text when you use a proportional font. AppleWorks 3.0 issues true tabs, but the tab settings are not handled correctly by the ImageWriter emulator on the LaserWriter. You must issue a 10- or 12-characters-per-inch command to use the mono-spaced Courier font when printing charts, tables, data base reports, and spreadsheets.

How to Prepare an Apple IIe Boot Disk

When you install an AppleTalk WorkStation Card in an Apple IIe, you move the hard disk interface card from Slot 7 into Slot 2 or 4. As a result, the computer no longer automatically boots from the hard disk. Follow these steps to prepare a Boot Disk that starts your system from the hard disk:

1. Format a new 5.25-inch disk and copy the files ProDOS and BASIC.SYSTEM onto that disk.
2. Boot your computer with that disk. The Applesoft BASIC prompt will appear on the screen.
3. Type the following:

   `"1Ø PR#2"` *or* `"1Ø PR#4"`

   depending on whether your hard disk interface card is in Slot 2 or 4. Press the Return Key.
4. Type "SAVE STARTUP" and press the Return Key.

Insert this disk in Drive 1 whenever you boot your system. The computer will access the 5.25-inch drive and will reboot from your hard disk drive.

Apple IIe and AppleTalk Network

If you can justify the expense, you can also get high quality AppleWorks output from an Apple IIe. However, you must add an Apple II Workstation Card (Apple part number A2B2088, list price of $249) to your Apple IIe to gain access to the AppleTalk network. The Workstation Card lets you use the Postscript capability of the LaserWriter to get the same high-quality output available with the Apple IIGS. You will also need one "Apple LocalTalk Locking Connector Kit Din 8" (Apple part number M2068) to make the necessary connections.

Follow these steps to configure the computer and software:

1. Install the Apple II Workstation Card in Slot 7 of your Apple IIe. The card includes two ports that match the Din 8 connectors used by the Apple IIGS and by the AppleTalk network. Use one port for the AppleTalk connections; use the other port to connect a serial printer or a modem. Connect the LocalTalk cables as described for the Apple IIGS (see *Figure 2*).
2. Prepare a Startup Disk as described above. You will find the files you need on the utility disk supplied with the Workstation Card. You will not need to configure any other settings or hardware.
3. Use the Chooser program as described above to send the ImageWriter emulation program to the LaserWriter. Repeat this step each time anyone on the network resets the LaserWriter or recycles the power to the printer.

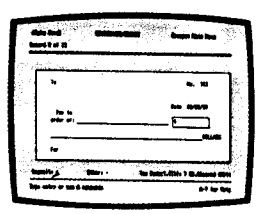
Conclusion

You should now know how to connect an Apple IIGS or Apple IIe to an existing AppleTalk network and configure AppleWorks to use a LaserWriter printer on that network. If you can get access to such a network, your efforts will be rewarded with pages that print quickly and look crisp and professional.

[The author wants to thank Apple Computer for providing information necessary to prepare this article.]

*[William Marriott is a Technical Support Specialist with Claris Corporation and is a former Associate Editor of the **AppleWorks Forum**.]*

CHECK IT OUT



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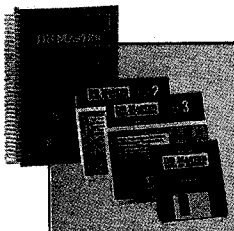

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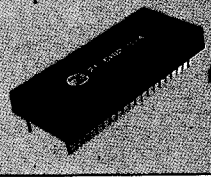

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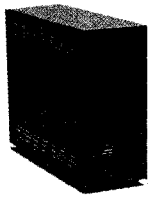

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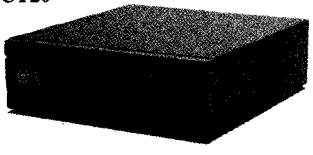

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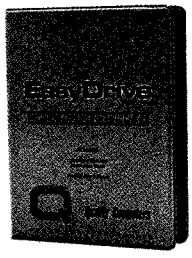

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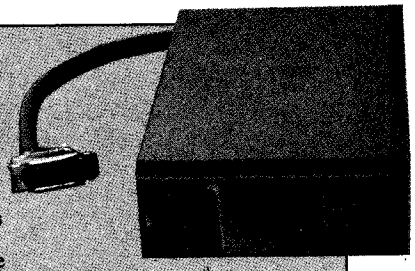

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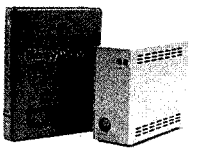

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How to Install AppleWorks on a Hard Disk

by Gary R. Morrison

Last month, I described how to organize your hard disk and how to install a program selector. This month, I will describe how to install AppleWorks and TimeOut on the disk. When you complete this procedure, you will be able to boot your computer from the hard disk and run AppleWorks. I will assume you already followed the directions in last month's article and installed EasyDrive or ProSel on your system.

Use your working copy of AppleWorks for this installation. You will have to re-install TimeOut later in this process, but you will not have to reconfigure AppleWorks or re-install your memory expansion software.

This is a four-step process:

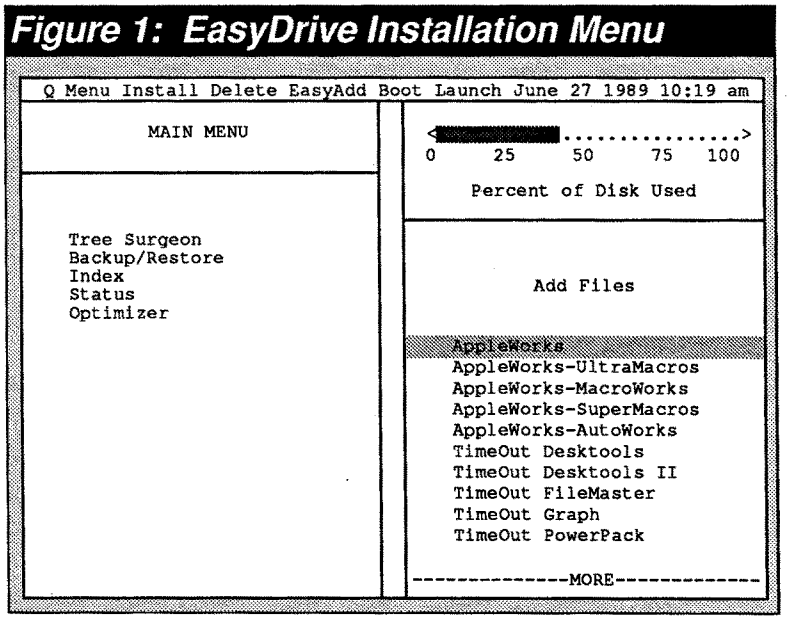
1. Copy AppleWorks into the appropriate subdirectory on the hard drive.
2. Create a subdirectory to hold the TimeOut modules.
3. Re-install the TimeOut enhancements.
4. Install the TimeOut modules on the hard drive.

Installing AppleWorks

If you followed the steps in the previous articles, you are ready to install application programs like AppleWorks on your hard disk and build a menu with your disk management software. I will describe how to install AppleWorks with two disk management programs; EasyDrive and ProSel.

EasyDrive: It is relatively easy to install AppleWorks with EasyDrive, this program selector automatically sets up the appropriate subdirectories and copies the program files into those directories. Follow these steps:

Figure 1: EasyDrive Installation Menu



1. Boot your computer from the hard disk. The EasyDrive Main Menu will appear. Press the Escape Key.
2. Press the Right Arrow Key to highlight INSTALL and press the Return Key. This takes you to the Install Menu (see *Figure 1*).
3. EasyDrive automatically installs the most popular Apple II application programs. A list of those programs appears on the right side of the screen. Use the Arrow Keys to highlight the appropriate version of AppleWorks and press the Right Arrow Key to make your selection.
4. Press the Escape Key to indicate you selected the software you want to install and answer "YES" to indicate your selection is complete.
5. EasyDrive prompts you to insert the AppleWorks Startup Disk and then the Program Disk. Follow the on-screen directions. If you named your disk anything besides /APPLEWORKS,

enter the name of that disk when EasyDrive asks for the pathname.

When EasyDrive finishes, AppleWorks appears in the EasyDrive menu. To run AppleWorks, highlight "AppleWorks" and press the Return Key. When you quit AppleWorks, the program will return you to the EasyDrive Main Menu.

ProSel: The ProSel installation process is more complex than the automated procedure used by EasyDrive, but is still relatively easy. You must first establish subdirectories on your disk and then copy AppleWorks into the appropriate subdirectory. You use the ProSel utility program Cat Doctor to set up the subdirectories and copy the necessary files.

Proceed as follows:

1. Boot your computer from the hard disk, the ProSel menu will appear on the screen. Use the Arrow Keys to select Cat Doctor and press the Return Key.
2. With the Cat Doctor menu on the screen, type a slash (/) to indicate you want to set up a subdirectory. Call this subdirectory AW.
3. The name of the active volume on your hard disk appears on the screen. (If you followed the steps in these articles, the name that appears should be /PROGRAMS.) Press the Tab Key to go past the current volume name and enter /AW. The name should now read /PROGRAMS/AW. Press the Return Key.

Now you will use Cat Doctor to copy all the files from your AppleWorks disk into this subdirectory.

4. Insert your working AppleWorks disk into one of the floppy drives and type an "X" for copy.
5. ProSel asks for the "Source directory". Press the Solid-Apple Key (the Option Key on the IIGS). Enter the slot and drive that contains your AppleWorks disk. If you are using an original AppleWorks disk, the name AppleWorks will appear at the top of the screen. Press the Return Key. If your AppleWorks files are in a subdirectory, highlight the subdirectory and press the Return Key.
6. ProSel next asks for the destination directory. Enter the pathname of the subdirectory you just created for AppleWorks (e.g., /PROGRAMS /AW), or press the Solid-Apple-Key and select the directory.
7. ProSel will display a list of the files on the AppleWorks disk. Press Control-A to select all of the files. Then "de-select" the files you do not want to copy by using the Arrow Keys (or mouse) to move the highlight and the Space Bar to de-select the file. For example, highlight ProDOS by using the Arrow Keys and press the Space Bar to indicate you do not want to copy ProDOS onto the hard disk. (If you use a 3.5-inch copy of AppleWorks, de-select all the sample files on the disk.) Then press the Return Key to copy the files onto the hard disk.

   If you use a 5.25-inch disk, insert the AppleWorks Program Disk and repeat these steps to copy both the Startup and Program Disks into the subdirectory /PROGRAMS/AW.
8. Ignore the last prompt from Cat Doctor; press the Escape Key to return to the Cat Doctor Menu, then "quit" Cat Doctor and return to the ProSel Main Menu.

You are now ready to add AppleWorks to the ProSel menu. Continue as follows:

9. Select the ProSel Editor from the ProSel Main Menu and press the Return Key. The top of the screen still displays the Main Menu, but the bottom of the screen will indicate that you are in the editor. Use the Arrow Keys to highlight a blank area of the screen and press the Return Key.
10. The next screen asks if you want to use the "automatic" feature to add the new application to the menu or if you want to make the entry manually. Answer with "A" for Automatic. (If you do not see this screen, you have an older version of ProSel-8; version 4.0 is current. You can upgrade to the latest version for $10 or upgrade to ProSel-16 (which includes ProSel-8) for $20. Contact Glen Bredon, 521 State Road, Princeton, New Jersey 08540.)
11. ProSel displays the name of the current volume. Press the Return Key to view the files on the volume. Use the Arrow Keys to highlight the file named APLWORKS.SYSTEM and press

the Return Key. ProSel adds AppleWorks to the menu. *[Ed: If you use an UltraMacros enhanced version of AppleWorks, highlight the file named ULTRA.SYSTEM instead of APLWORKS.SYSTEM.]* You can then use the ProSel Editor to change the file name from APLWORKS.SYSTEM to APPLEWORKS.

12. Press the Escape Key to leave the editor and press the letter "P" to save the new menu.

When you boot your computer from the hard disk, ProSel will display a menu that includes APLWORKS.SYSTEM (or ULTRA.SYSTEM). Highlight that choice, press the Return Key, and you will be in AppleWorks. Quit AppleWorks and you will return to the ProSel Main Menu.

Next it is time to copy your TimeOut modules onto the hard disk and tell AppleWorks how to find those enhancements.

Installing TimeOut

If you use EasyDrive, it's easy to install the TimeOut modules on your hard disk. Insert a copy of the TimeOut disk in a drive, press the Escape Key, and select INSTALL from the menu bar at the top of the screen. Follow the same steps you used to install AppleWorks, but select the names of the TimeOut modules you want to install from the menu. EasyDrive will prompt you for the correct disk and copy the TimeOut files onto your hard disk.

If you use ProSel, use Cat Doctor to create a separate subdirectory on your hard disk and copy your TimeOut modules into that subdirectory. I suggest you create the TimeOut subdirectory within the AW subdirectory. Call the new subdirectory "TO". If you follow these suggestions, the complete pathname to the TimeOut subdirectory is /PROGRAMS/AW/TO. Then copy all the necessary TimeOut files into that subdirectory. Be sure to read the TimeOut manual(s) for a list of the files you should copy from each TimeOut disk, some modules (e.g., QuickSpell) access other files on the TimeOut disk.

Re-Install TimeOut on AppleWorks

The next step is to re-install TimeOut on your hard disk copy of AppleWorks. Follow these steps:

Using TimeOut SuperFonts with a Hard Disk

Generally, you should put all the TimeOut modules and their associated files in a single subdirectory. However, TimeOut SuperFonts can access any standard Apple IIGS font; there are dozens of fonts you can use with SuperFonts. (The NAUG Public Domain Library lists eleven disks filled with SuperFonts-compatible fonts.) I suggest you create a separate subdirectory for those fonts to make it easier to manage your font library. Consider creating a subdirectory called "Fonts" in the TimeOut directory; copy all your fonts into that subdirectory. The path to that subdirectory is /PROGRAMS/AW/TO/FONTS.

1. Insert a copy of any TimeOut module in a drive. If you are using EasyDrive, press the Escape Key and then select "Boot" from the EasyDrive menu. Boot the computer from the TimeOut disk. If you are using ProSel, enter the slot number followed by the drive number. For example, press the number "6" then the number "1". Do not press the Return Key or enter any punctuation marks. (Unfortunately, ProSel offers no prompts on the screen nor makes any apparent response to the first key press.) Then select BASIC.SYSTEM, and press the Return Key.
2. Indicate you want to update AppleWorks.
3. Respond to the "Sort Menus?" prompt by indicating "Yes" or "No".
4. Respond to the "More than one TimeOut applications disk?" prompt with "No". All your TimeOut modules will be on the hard disk.
5. Respond to the "Select location of TimeOut applications" prompt with "ProDOS Directory" and specify the location of the TimeOut applications by entering the pathname /PROGRAMS/AW/TO.
6. TimeOut next asks for the location of the AppleWorks Startup Disk. Select "ProDOS directory" and enter the path /PROGRAMS/AW.

How to Run Programs from a Floppy Disk

Whether you use EasyDrive or ProSel, you can still run a program from a floppy disk without rebooting your computer.

If you use ProSel, get to the ProSel menu and enter the slot and drive number of the disk that contains your application. Nothing happens on the screen, but don't be deterred. Just enter the correct numbers without pressing the Return Key. ProSel will display a list of all system files and any subdirectories. Select the file you want to run and press the Return Key. If you select BASIC.SYSTEM, ProSel automatically loads BASIC and then runs the program called STARTUP on the disk. You should not select ProDOS.

If you use EasyDrive, boot the computer and press the Escape Key to get to the top menu. (Note: If the computer beeps, you have an old version of EasyDrive. The current version is 1.5.) Then press "B" to highlight Boot and press the Return Key. You can then select the location of the disk you want to use to boot the computer.

TimeOut will install itself on your hard disk copy of AppleWorks. Now boot up AppleWorks and test each TimeOut module. If a module asks you to insert a disk, you must either copy additional files into the TimeOut directory or use the TimeOut Utilities module to configure that application so it finds the necessary files on the hard disk.

Follow these steps to configure an individual TimeOut module:

1. Enter an Apple-Escape to call the TimeOut Menu.
2. Select Utilities from the TimeOut Menu.
3. Select "Configure" from the Utilities Menu.
4. Select the module you want to configure. Then examine the location of the necessary files. They should read either "TimeOut Applications Disk" or "/PROGRAMS/AW/TO". Make the necessary corrections, indicate you want to change the disk copy of the program, and recheck the module.

Installing Other Programs

Now you can install other programs on your hard disk. If you use EasyDrive, use the auto installation program as described above. If your application is not on the EasyDrive list, or if you use ProSel, the process is still quite easy. First, create a new subdirectory with a short, but descriptive name. Second, copy the files from the floppy disk into the new directory on your hard disk. Remember, you do not need to copy ProDOS or BASIC.SYSTEM from the application disk since you already have them installed on your hard disk. Third, create a menu item for the application. It is fairly easy to decide which file to tell EasyDrive or ProSel to run to start the application. Look to see if there is a file in the directory that ends with the suffix .SYSTEM. If there is, select the first .SYSTEM file to launch the application. If there is no .SYSTEM file, select the file named STARTUP. EasyDrive or ProSel will automatically run your application when you select it from the Main Menu.

Conclusion

You should now know how to install AppleWorks and your AppleWorks enhancements on a hard disk drive. You should be able to generalize these techniques to put all your applications programs on the hard disk and take advantage of the speed and convenience of your powerful storage unit. Next month, I will describe how to back up the files on your hard disk.

[Dr. Gary R. Morrison is an Associate Professor at Memphis State University. He is the author of the book "ProDOS 8 and 16", RepairWorks, and numerous other articles and software.]

NAUG Classifieds

The 1987-88 U.S. Dept. of Education master list of over 90,000 schools and addresses is available in AppleWorks database files. The databases are available on 5.25 or 3.5 inch disks. A tremendous asset for advertisers to schools. The cost is less than a one time rental from mailing brokers. Contact: The Software House, Box 27, 80 N High St., Chillicothe OH 45601. Phone: (614) 773-3223.

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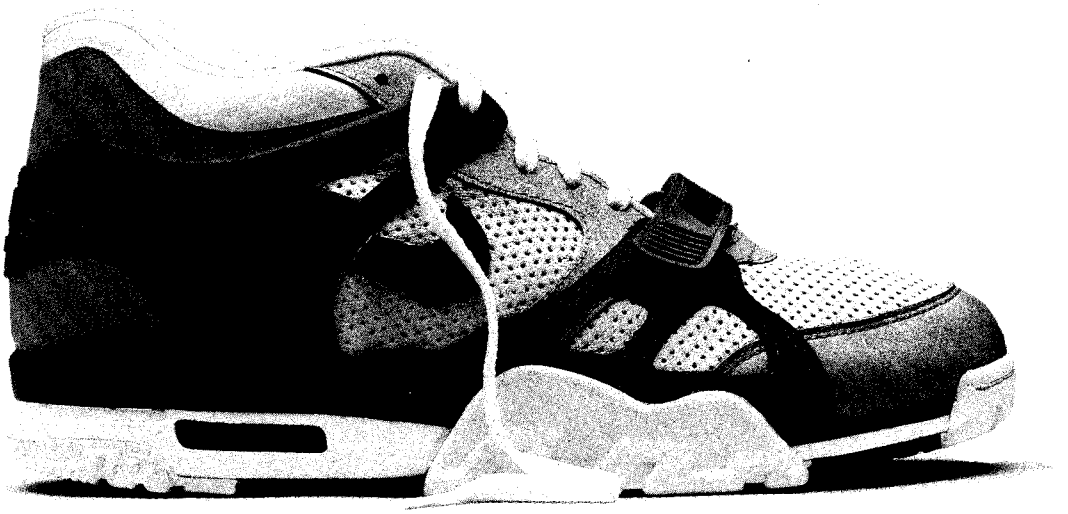

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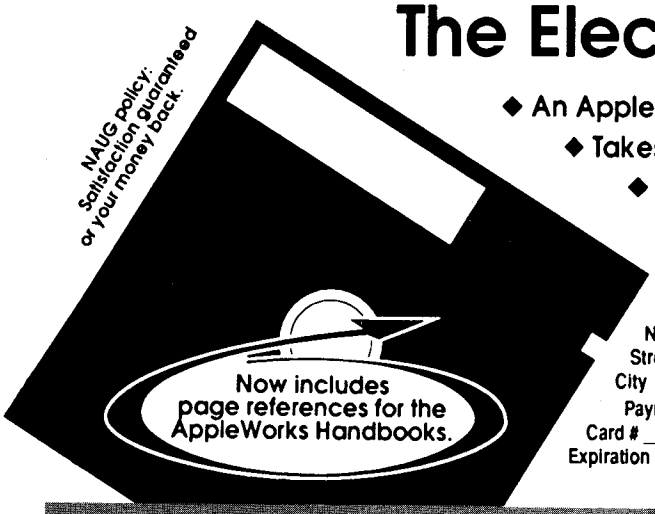

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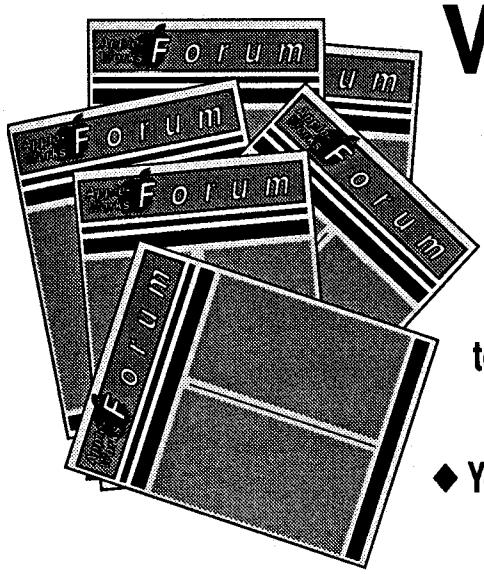

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AppleWorks Wall Chart Update

NAUG produces a popular wall chart with control codes for more than 100 printers. We want to increase the number of printers on the chart and add the codes for color printers. We already have the codes for the following printers:

Manufacturer	Model
Alphacom	AlphaPro 101
Apple	DMP, ImageWriter I & II, LQP
Brother	HR-15, HR-15XL, HR-25, HR-35, M-1109
C.Itoh	1550, 1570F, 7500, 8510, 8510A, 8510B, Prowriter, Prowriter (alternate), A10-20, F10-40, Y-1020 (LQ)
Canon	Typewriter
Citizen	120D
Comrex	CR-11, Comwriter CR-IIe
Diablo	36API, 630API, P11, P31, P32
Digital	LA50, LA100
Dynax	DX-15, DX25, DX-35
Epson	MX models, FX models, RX models, LX80, LX90(Homewriter 10)
Fujitsu	SP320, SP830, DLP24
Genicom	3014-I, 3024-I (epson), 3014-I & II, 3024-I & II (okidata)
Hewlett- Packard	LaserJet series II
IBM	Dot Matrix
Inforunner	Ritemann
Juki	6100
Legend	Most models
Mannesmann Tally	Spirit 80, 180i, 180L
NEC	360 ELF (LQ), 2000, 3510, 3520, 3530, 3500R, 3515, 3525, 2050,3550, 8850, 8023, 8023A, 8830, P2/P3-2, P2/P3-7, P6, P660-765
Okidata	ML82A, ML83A, u92, 182, 183, 192, 193, 292, ML84, ML92, ML93, Pacemark 2350 & 2410, Okimate 20
Olympia	Electronic Compact RO (LQ)
Panasonic	KX-P1090, P1092, KX-P1091
Qume	Sprint 5, Sprint 11, Sprint 9/55
Radio Shack	DWP-510, DW-II
Ricoh	RP1300, RP1500, RP1600Q, RP2200Q, RP1500, RP1600Q
Silver Reed	EXP500, EXP550, EXP770
Smith Corona	D200, D300
Star	Delta, Radix, Gemini 10X/15X, NX-10, SG10/SG15, Power Type (PM and WP mode)
Texas Instruments	TI-850, TI-855
Toshiba	P1340, P1351
Triumph-Adler	Satellite III

If the printer you use is not on this list, please fill out the other side of this card so we can include your printer in our updated chart. In addition, if you know of any mistakes in the original wall chart, please let us know in the space provided on this form.

_____

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Printer Model _____

Printer Manufacturer _____

Command	Code	Check here if you have tried this code:
Platen width		
Line feed (Y/N)		
Top of page (Y/N)		
Underline begin		
Underline end		
Boldface begin		
Boldface end		
Italics begin		
Italics end		
Superscript begin		
Superscript end		
Subscript begin		
Subscript end		

Command	Code	Check here if you have tried this code:
6 lines per inch		
8 lines per inch		
5 CPI		
6 CPI		
7 CPI		
8 CPI		
9 CPI		
10 CPI		
11 CPI		
12 CPI		
13 CPI		
15 CPI		
17 CPI		
Proportional		

Is your printer color compatible? yes_____ no _____

If it is, please fill out the following section:

Command	Code	Check here if you have tried this code:
Black		
Red		
Blue		
Green		
Yellow		
Other		

Do you know of any errors in the current Wall Chart that need to be corrected?

_____

_____

_____

Name _____

Address _____

_____

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Branching Spreadsheets: How to Manipulate Text in AppleWorks 3.0

by Warren Williams and Cathleen Merritt

This is the fourth in a series of articles that describe how to create AppleWorks spreadsheets that "branch"; spreadsheets that make decisions. This month, the authors describe how to use the new text-handling feature in the AppleWorks 3.0 spreadsheet module. They assume you know the syntax of the @IF, @LOOKUP, and @CHOOSE functions described in the previous articles in this series.

You're about to conclude a demonstration of an AppleWorks gradebook spreadsheet to the skeptical teachers in your department. You've computed students' averages, identified the lowest and highest scores on each test, and even determined the standard deviation for the final examination. Just when you expect to end the demonstration to cries of astonishment and wonder, the teacher next to you asks, "That's all very nice ... but how can I get the program to assign letter grades to students?"

Until last month's announcement of AppleWorks 3.0, you would wince at that statement, mumble something about TimeOut UltraMacros, and hope someone else would ask a question quickly. But version 3.0 of AppleWorks makes it easy to prepare spreadsheets that display different words or phrases based on the content of other cells. This feature lets AppleWorks users write more powerful spreadsheet templates.

In this article, we will describe how to develop spreadsheets that use the text management features in AppleWorks 3.0. We will first present the syntax of the text-management functions in @IF, @LOOKUP, and @CHOOSE statements, and then describe two examples that use this feature.

@IF

The @IF function includes a "test" and then statements that declare what should appear in a cell if the test is true or false. *[Ed: For more information about the @IF function, see the article entitled "Branching Spreadsheets: How to Use @IF" in the May 1989 issue of the **AppleWorks Forum**.]*

Prior to AppleWorks 3.0, the "test", "iftrue", and "iffalse" statements all had to contain values. However, AppleWorks 3.0 manages both labels and values in @IF statements.

For example, in AppleWorks 3.0, the formula:

```
H20: @IF(A1=1,"Non-taxable",G15*.06)
```

puts the word "Non-taxable" in cell H20 if cell A1 contains the number one. If cell A1 contains anything but a one, the formula puts the value of cell G15 times .06 in cell H20.

@IF statements can include text in the "test" and in the "iftrue" and "iffalse" portions of the formula. For example:

```
B10: @IF(A10="hello","goodbye","what?")
```

puts the word "goodbye" in cell B10 if cell A10 contains the word "hello". If A10 contains any-

thing but "hello", the formula puts "what?" in cell B10.

You can also use this feature to leave cells blank. For example,

```
B10: @IF(A10="hello","goodbye","")
```

leaves cell B10 blank if cell A10 contains anything but the label "hello".

@LOOKUP

The @LOOKUP function includes a "test" followed by a reference to a "table" located elsewhere in the spreadsheet. For example:

```
D2: @LOOKUP(C2,C6...C11)
```

says "Look in the table in cells C6 through C11 for the number that matches the number in cell C2. If you find a match, display the contents of the cell immediately to the right of the cell containing the match. If no number exactly matches the number in C2, check cells C6 through C11 for the next lower number and display the contents of the cell to the right of that number." You can generalize the syntax as follows.

```
@LOOKUP(test,tablestart...tableend)
```

Prior to version 3.0, the test and all entries in the table had to be numbers. In AppleWorks 3.0, the test must still be a number, but the table can contain text. For example, *Figure 1* displays the letters A through E or the word "ERROR" in cell D2 depending on the contents of cell C2. *[Ed: For more information about the @LOOKUP function, see the article entitled "Branching Spreadsheets: How to Use @LOOKUP" in the July 1989 issue of the **AppleWorks Forum**.]*

@CHOOSE

The @CHOOSE function uses a "position setting" and a series of "positions". The syntax of the @CHOOSE statement looks as follows:

```
@CHOOSE(position setting, position1, position2,
        position3,...,position11)
```

For example:

```
S50: @CHOOSE(C5,10,20,30,40,A10*2)
```

Figure 1: Example of @LOOKUP Function

```
 =====A========B========C========D========E========F========G========H=======
 1|
 2|                      86    B ——— @LOOKUP(C2,C6...C11)
 3|
 4|
 5|                 Average  Grade
 6|                       0    E
 7|                    64.5    D
 8|                    74.5    C
 9|                    84.5    B
10|                    94.5    A
11|                   100.1    ERROR
```

checks the contents of cell C5. If C5 contains a one, the formula puts the number ten in cell S50. If cell C5 contains a two, the formula puts the number 20 in cell S50. If cell C5 contains a five, the formula multiplies the number in cell A10 by two and puts the result in cell S50.

Prior to version 3.0, both the position setting and the contents of each position had to contain values. However, AppleWorks 3.0 lets you use text in each "position" in the formula. For example:

```
X45: @CHOOSE(B20,20,40,60,"You are beyond your limit")
```

will display the numbers 20, 40, or 60 or the text "You are beyond your limit" in cell X45. *[Ed: For more information about the @CHOOSE function, see the article entitled "Branching Spreadsheets: How to Use @CHOOSE" in the June 1989 issue of the **AppleWorks Forum**.]*

Inconsistencies

Note that there are two idiosyncrasies in the implementation of the text handling features of AppleWorks 3.0. First, you must put quotation marks around all text entered into @IF and @CHOOSE statements, but not text entered into a table used by an @LOOKUP statement. Second, you can enter text in any position in an @IF statement, but you cannot enter text in a "position setting" entry in an @CHOOSE statement or in the reference list section of an @LOOKUP table.

Let's examine two applications of the new text-management capability of AppleWorks. *Figure 2* presents a gradebook that assigns letter grades based on average test scores. *Figure 3* depicts a business invoice that uses the @IF and @LOOKUP functions to reduce typing. We sim-

plified these templates to concentrate on the new feature of AppleWorks 3.0; an actual gradebook or invoice would include more information than appears in these examples.

A Gradebook

The sample gradebook in *Figure 2* uses the text-management feature of AppleWorks 3.0 to calculate letter grades and to leave cells blank instead of displaying error messages.

The formulas in column I compute each student's average score on all four tests. The formula you normally use is @AVG(D8...G8). However, that formula displays the word "ERROR" in column I until the students take their first test.

Figure 2 shows how to eliminate the ERROR message. For example, cell I8 contains the following formula:

```
@IF(@COUNT(D8...G8)<1,"",@AVG(D8...G8))
```

test if true if false

This formula puts the @AVG statement within an @IF statement, and tells @IF to count the number of entries in cells D8 through G8. If there are no entries in cells D8 through G8, the count is zero, and the formula displays a blank. (As mentioned earlier, you put the text you want to display between quotation marks. To display a blank, enter no text between the quotation marks.) If there are one or more entries in cells D8 through G8, the test is not true and the formula puts the average of cells D8 through G8 in cell I8.

The formulas in column K use the same technique to suppress error messages; these formulas use the @LOOKUP function to display appropriate letter grades for each student. Cells A25 through A30 contain the lookup table. Note that we entered spaces in front of the letter grades in cells B25 through B29; the text in those cells consists of two spaces and then the letter grade. This insures the grade is nicely formatted when it appears in column K.

Figure 2: Gradebook

```
     =====A==========B======C==D===E===F===G===H====I====J======K========L====
 1|Teacher:  Mrs. Smith
 2|Class:    Biology 1
 3|Semester: Fall, 1990    Hour: 4
 4|
 5|Last        First     |       Tests       |         |
 6|Name        Name      |  #1  #2  #3  #4 | Average | Grade
 7|=====================|=================|=========|=======
 8|Adams       Cynthia   |  87  88  82  84 |    85.2 |   B
 9|Baker       Mike      |  86  77  75  70 |    77.0 |   C
10|Cook        Jim       |  84  82  80  75 |    80.2 |   C
11|Delpf       Sally     |  75  65  70  70 |    70.0 |   D
12|                      |                 |         |
13|                      |                 |         |
14|                      |                 |         |
15|                      |                 |         |
16|                      |                 |         |
17|                      |                 |         |
18|                      |                 |         |
19|                      |                 |         |
20|                      |                 |         |
21|                                @IF(@COUNT(D8...G8)<1,"",@AVG(D8...G8))
22|
23| Average  Grade
24| ==============                          @IF(I8<1,"",@LOOKUP(I8,A25...A30))
25|       0  E
26|    64.5  D
27|    74.5  C
28|    84.5  B
29|    94.5  A
30|   100.1ERROR
```

Automated Invoice System

The example in *Figure 3* demonstrates another application of the text management feature in AppleWorks 3.0; the ability to automatically enter text and values into invoices and other business forms. To use this invoice system, you enter the catalog number and quantity into the invoice template. The spreadsheet supplies the rest, including the description of the item, the unit price, the total price, the tax, and shipping. (We simplified the shipping calculations by charging $3.50 per order, however you can calculate shipping expenses by using the @LOOKUP function to compare a person's zip code with a table of zip codes and calculate shipping based on that result.)

The formulas in cells E8 through E13 look up the catalog number you entered in column A and compare that number to those in the table in cells D23 through D35. The formula then supplies the correct description. The formulas in column G look up the price for the catalog number in the table in cells F23 through F35. Finally, the formulas in column I calculate the costs by multiplying the unit cost by the quantity of items ordered.

Note that the @LOOKUP formulas in columns E and G use a different method to display blank cells instead of error messages or zeros. (Cells E10 through E13, G10 through G13, and I10 through I13 all contain formulas, yet nothing appears in those cells.) @LOOKUP functions treat a blank test cell as a zero, so we put a zero in each lookup table (see cells D23 and F23). But cells E23 and G23 are blank, so the formula puts a blank in place of the @LOOKUP function in the invoice. As a result, we can prepare an invoice to handle numerous items; text and prices appear in the lines only when we enter catalog numbers into the invoice.

This approach does not work in column I where we calculate the quantity times the unit price, so we put the calculations within an @IF statement. @IF statements also treat blank cells as having a value of zero. So, if the quantity is greater than zero, the @IF statement calculates the amount of the purchase. If the quantity cell is blank, the @IF formula inserts a blank into the corresponding cell in column I.

Conclusions

You now know how to use the text management features of the AppleWorks 3.0 spreadsheet module to put text and blanks in your spreadsheets. Creative AppleWorks users will find many ways to use this feature to improve the quality of their spreadsheet templates.

Figure 3: Invoice

```
===A====B==C==D============E============F====G=====H====I========J====
1|                    Beagle Bros
2|                 6215 Ferris Square
3|                 San Diego, CA 92121
4|
5|
6| Cat. # | Qt. | Description              |   Unit    |  Total
7|========|=====|==========================|===========|=======
8|   110  |  1  | TimeOut FileMaster       |  $49.95   |  $49.95
9|   145  |  1  | TimeOut SuperFonts       |  $69.95   |  $69.95
10|        |     |                          |           |
11|        |     |                          |           |
12|        |     |                          |           |
13|        |     |                          |           |
14|
15|                                          Sub-total:  119.90
16|                                          Tax:          7.19
17|                                          Shipping:     3.50
18|
19|                                          Total Due: $130.59
20|
21|        Cat. # Description          Cat. #   Price
22|        ==================          ================
23|              0                         0
24|            100TimeOut DeskTools      100   49.95
25|            105TimeOut DeskTools II   105   49.95
26|            110TimeOut FileMaster     110   49.95
27|            115TimeOut Graph          115   89.95
28|            120TimeOut PowerPack      120   49.95
29|            125TimeOut QuickSpell     125   69.95
30|            130TimeOut ReportWriter   130   79.95
31|            135TimeOut SideSpread     135   49.95
32|            140TimeOut SpreadTools    140   59.95
33|            145TimeOut SuperFonts     145   69.95
34|            150TimeOut Thesaurus      150   49.95
35|            155TimeOut UltraMacros    155   59.95
```

@IF(C9>0,C9*G9," ")

@LOOKUP(A9,F23...F35)

@LOOKUP(A9,D23...D35)

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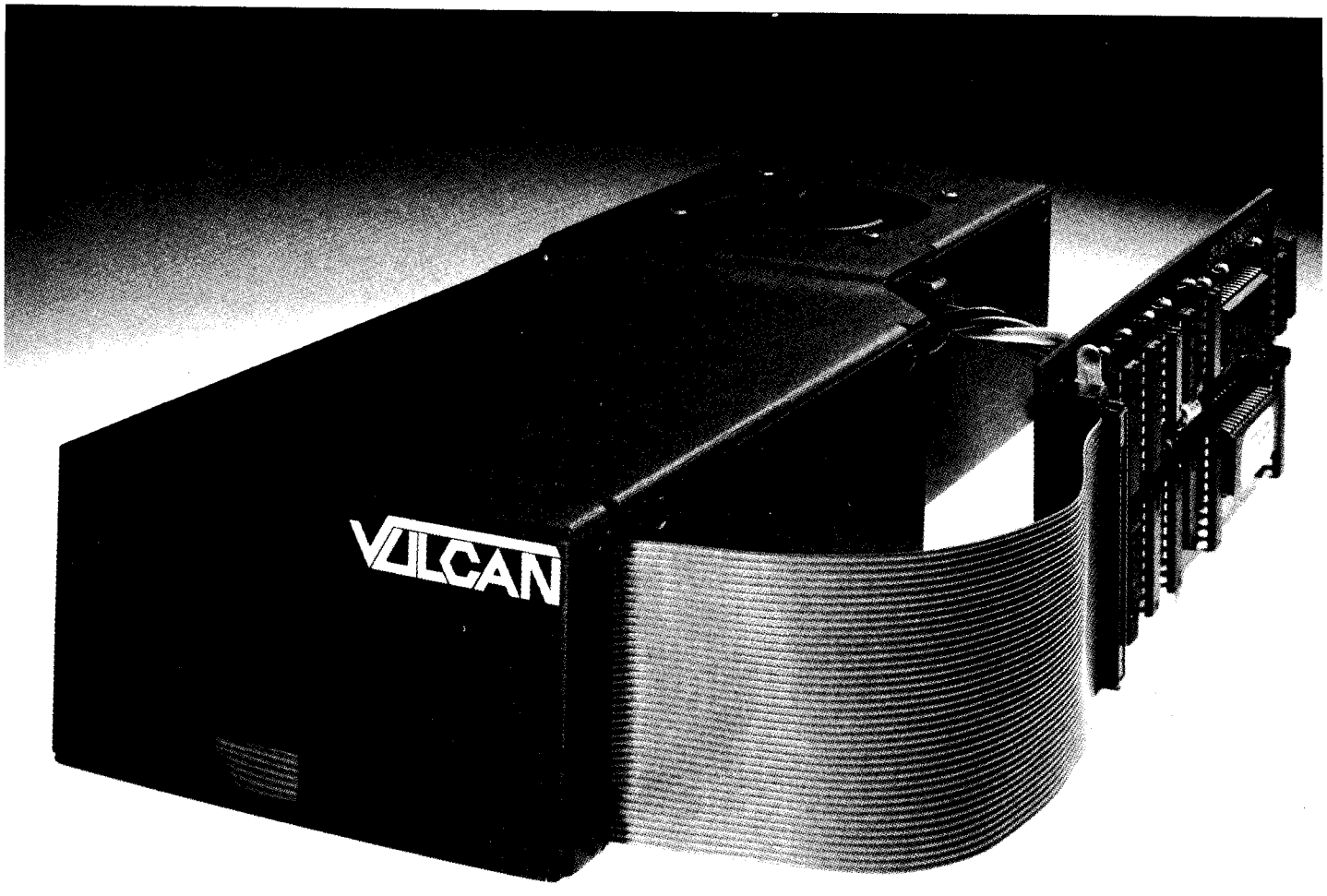

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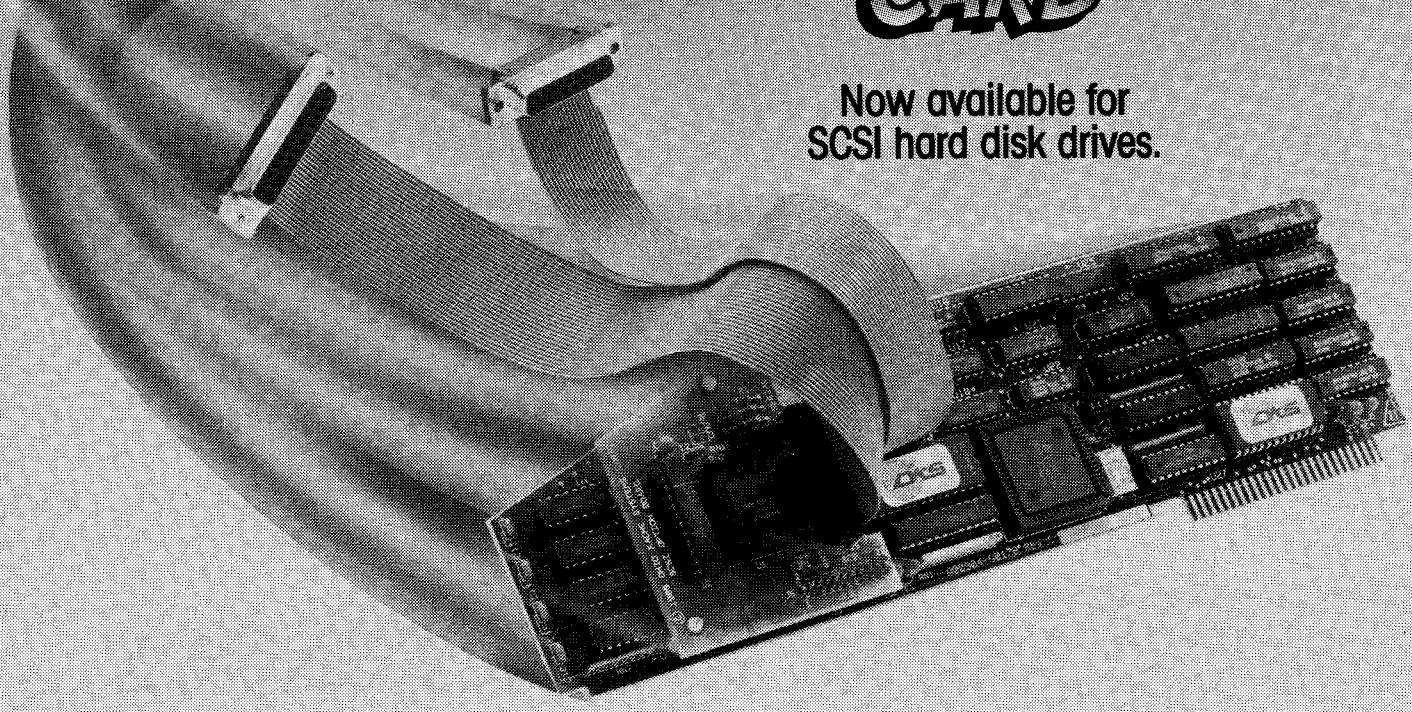

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How to Get More Power from Branching Macros

by Mark Munz

UltraMacros' support for IF-THEN-ELSE logic adds significant power to the branching capability of a macro. In this article, Mr. Munz explains the syntax of UltraMacros' IF-THEN-ELSE statements and offers two practical applications of this branching capability.

In an earlier article in this series, I described how to use simple <if> statements to control program flow. *[Ed: See the article entitled "An Introduction to Branching" in the March 1989 issue of the **AppleWorks Forum**.]* But that article described only the simplest <if> statements; statements that allow a single branch in a macro. This month I will describe how to use the IF-THEN-ELSE capability available in <if> statements to more fully utilize the branching power of TimeOut UltraMacros.

Simplest <if> Statement

In its simplest form, the <if> statement has four parts: The word "if", an "expression", an "outcome", and the word "elseoff". The "outcome" occurs if the "expression" is true, otherwise the macro jumps past the "elseoff" statement and continues as though the <if> statement was not in the macro program.

For example, consider the following macro:

```
a:<all: A=8: if A=8 then msg ' HELLO THERE ':
elseoff>!
```

This macro stores the number eight in numeric variable "A", then uses an <if> statement to test if "A" contains an eight. If it does, the macro displays the message "HELLO THERE" at the bottom of the AppleWorks screen. If variable "A" contains anything but an eight, the macro terminates and does nothing. Since this macro always stores the number eight in variable "A", it always displays "HELLO THERE".

IF-THEN-ELSE Statements

While there are practical applications for simple <if> statements, you gain enhanced power if you use the more complete form for these statements. In its complete form, the <if> statement has six parts: The word "if", an "expression", the "if true outcome",the word "else", the "if false outcome", and the word "elseoff". You can depict the syntax as follows:

```
<if test then iftrue: else iffalse: elseoff>
```

If the test is true, UltraMacros executes all the statements between <then> and <else> and skips past the <elseoff> token to continue. If the test is false, UltraMacros executes all the statements between <else> and <elseoff> and continues running commands after the <elseoff> token.

Note that only one outcome occurs for each <if> statement: UltraMacros either executes the statements between <then> and <else>, or executes the statements between <else> and <elseoff>.

The syntax of IF-THEN-ELSE statements should make the role of <elseoff> clear. <elseoff> terminates an IF-THEN-ELSE statement and tells UltraMacros where to resume after a branching operation.

Sample IF-THEN-ELSE Macro

Consider the following macro that demonstrates the operation of IF-THEN-ELSE logic:

```
b:<all: A=7: if A=8 then $1 = ' TEST IS TRUE ':
                    else $1 = ' TEST IS FALSE ':
                    elseoff: msg $1>!
```

This macro sets numeric variable "A" equal to seven and tests to see if variable "A" equals 8. If the test is true (which, of course, it is not), the macro stores the string " TEST IS TRUE " in variable $1.

If the test is false (which it is), the macro skips to the <else> token and stores the string " TEST IS FALSE " in variable $1. Then the macro displays the contents of $1.

In either case, the macro then continues after the <elseoff> token and displays the contents of $1 at the bottom of the AppleWorks screen.

Figure 1: Sample Application of <ifnot> Token

```
c:<all:$1='hello': ifnot $1='hello' then A=1:
                                    else A=Ø:
                                    elseoff:
      msg ' Variable "A" contains ' A>!
```

Figure 2: Different Tests Available with <if> and <ifnot>

```
if A=B          { Check if A equal to B }
if A>B          { Check if A greater than B }
if A<B          { Check if A less than B }
ifnot A = B     { Check if A not equal to B }
ifnot A<B       { Check if A greater than or equal to B }
ifnot B>A       { Check if A less than or equal to B }
```

Figure 3: Macros with <if> and <ifnot> Logic

```
d:<all: $1="Munz": ifnot $1="Mark" then msg ' NOT MARK ': elseoff>!
e:<all: A=1Ø: begin: msg A: A=A-1:
        if A>Ø then rpt:
               else msg ' DONE ':
               elseoff>!
```

Expressions in a Test

<if> statements can only test for values that are equal to, greater than, or less than another value. You cannot test for "not equal", "greater than or equal to", or "less than or equal to". To overcome this limitation, UltraMacros offers an <ifnot> command that follows the same syntax as the <if> statement.

The <ifnot> command checks whether a condition is false, rather than true. For example, consider the macro in *Figure 1*. That macro stores the string "hello" in variable $1. Then the macro tests to see if $1 does *not* contain "hello". If $1 does not contain "hello", the macro stores the number one in variable "A". If $1 contains "hello", the macro skips to the <else> token and stores the number zero in variable "A". The macro then displays the message "The number is" followed by the contents of variable "A" at the bottom of the screen. (Of course, $1 contains "hello", so this macro always stores a zero in variable "A".)

The combination of <if> and <ifnot> tokens lets you test for all possible relationships between variables. *Figure 2* summarizes the possible test combinations.

<if> and <ifnot> statements often result in a contorted logic. It sometimes helps to rearrange the words representing the commands and speak the rearranged sentence out loud. For example: < ifnot A=B > becomes "If A is not equal to B", and < ifnot B>A > becomes "If B is not greater than A". The oral expression of re-ordered <ifnot> statements makes it easier to understand the logic of these negatively stated expressions.

Let's examine two more applications of this logic before exploring more complex, practical uses for these commands.

Figure 3 presents two examples of macros with <if> and <ifnot> logic. Note that only the <then> command is required in an <if> command; the <else> statement is optional. You use <if> without <else> if you want a single branch in a macro; use <if> and <else> if you want two or more branches.

The first macro in *Figure 3* sets variable $1 to "Munz". The <ifnot> statement checks if $1 is not equal to "Mark". Since $1 contains "Munz", it is not equal to "Mark", and the expression is true; that is, "Munz" does not equal "Mark". Since the expression is not true, the macro executes the statements between <then> and <elseoff>, and the message "NOT MARK" appears on the AppleWorks screen.

Figure 4: Macros That Separate Names

```
s:<adb:                                { macro only works in a data base file }
   onerr stop:                         { stops the macro when it reaches the bottom of the file}
                                       { and the Down Arrow causes an AppleWorks error beep }
   oa-1:                               { go to the top of the file }
   begin:                              { start the loop }
     $Ø=cell:                          { store current entry in $0 }
     $1=$Ø:                            { copy string in $0 to $1 }
     sa-k:                             { calls the subroutine that splits the current category into two }
     oa-Y:                             { clears the entry in that category }
     print $1 : rtn:                   { enter the last name }
     Print $2 : rtn:                   { enter the first name }
     oa-tab: oa-tab:                   { move the cursor back to the first category }
     down:                             { move to the next record }
   rpt>!                               { repeat until reaching the end of the file }

k:<adb:                                { subroutine that separates an entry }
  X=len $1:                            { determine the length of the name }
  $2=right $1,1:                       { capture the character under the cursor }
  if $1="," then                       { check if current character is a comma }
              X=X-1: $1=left $Ø,X:     { capture the string to the left of the comma }
              X=X+2: Y=len $Ø: Y=Y-X:  { determine the length of the first name }
              $2=right $Ø,Y:           { skip the space and the comma and store the first name in $2 }
            else                       { if the current character is not a comma }
               X=X-1: $1=left $1, X:   { reduce $1 by one character }
               rpt:                    { return to the beginning of the subroutine }
  elseoff>!
```

The second macro sets the value of variable "A" to ten. The macro then starts a loop that displays the value of "A", decrements that value by one, and tests if "A" is greater than zero. This loop needs a <begin> statement, otherwise the macro would reset variable "A" to a value of ten each time it repeated the loop. When the value of "A" reaches zero, the expression < if A>Ø > is not true, so the macro displays "DONE" and stops.

Two Macros with IF-THEN-ELSE Logic

Now we will examine two practical applications of the <if> statement. The first macro assumes you entered a person's last name and first name into a single category. The macro divides that entry into two categories. The second macro searches for duplicate data base records and lets you delete one of those records.

These are the most complex macros we've developed in the Macro Primer series; they provide an opportunity to demonstrate the operation of subroutines, variables, <if> statements, and other concepts introduced in the earlier articles.

Divide a Data Base Entry

Imagine you have a data base with student names in a category called "NAMES". You entered the names in the format "lastname, firstname". Now you want to split the names into two categories. *Figure 4* contains the necessary macros, but first you must reorganize your data base file so it is compatible with these macros.

Follow these steps before compiling and running the macros in *Figure 4*:

1. Get the data base on the screen and change the display to multiple record layout.
2. You will need a blank category to hold the students' first names. If you do not have an extra category, create that category now.
3. Use the Apple-N command to name that category "FName".
4. Use the Apple-L command to move the FName category next to the NAMES category. Your screen should look like the sample in *Figure 5*.

5. Issue an Apple-L command and set the cursor so it moves to the right when you press the Return Key.

Now you can enter, compile, and run the macros in *Figure 4*.

Here is how these macros work:

Figure 5: Data Base File Ready to Accept First Name

NAMES	FName	Address1	Address2
Bennett, Tim		123 Anywhere Street	Apt. 402
Merritt, Emily		234 Elsewhere Ave	
Merritt, Jennifer		234 Elsewhere Ave.	
Merritt, Michael		234 Elsewhere Ave.	
Munz, Mark		8765 Porshe Road	
Smolarz, Joshua		66 South Lane	
Smolarz, Yvonne		66 South Lane	
Williams, Lisa		5678 Lake Street	Apt. 312

The task requires us to repeat a series of steps for each record in a data base. Thus, I divided the macro into two segments. The main macro takes responsibility for cursor movement and the placement of the first and last names into the correct categories. The subroutine separates the entry of a person's name into two variables. IF-THEN-ELSE logic controls the operation of the subroutine.

Here's what happens when you invoke this macro:

1. The <sa-s> macro begins with an <onerr stop> command that tells UltraMacros to stop when AppleWorks sounds its error bell. In our example, pressing the Down Arrow Key after AppleWorks processes the last record normally sounds the AppleWorks error bell. Now the <onerr stop> command "listens" for that error beep and terminates the macro. You can use the <onerr stop> command to terminate a macro when you want a macro to repeat itself until all records are processed.
2. The <oa-1> command puts the cursor at the beginning of the file.
3. The <begin> command defines the beginning of a loop. It tells UltraMacros where to start processing when it encounters the <rpt> command.
4. The macro stores the current entry in the NAMES category in variable $Ø.
5. The macro then duplicates the value of $Ø in $1, so the name is now in two locations; $Ø and $1.
6. <sa-s> then calls the <sa-k> subroutine.
7. <sa-k> determines the length of the name stored in $1, and stores the last character of that string in variable $2.
8. The macro tests if the character in $2 is a comma, the character that appears between the last and first names in our example. If $2 does not contain a comma, the macro skips to step #11 below. If $2 contains a comma, <sa-k> stores the characters preceding the comma in variable $1, thus replacing the full name previously stored in $1with the last name.
9. The macro then determines the length of the first name. The formula is:

   `(length of total name - length of last name - X).`

   The macro subtracts two to allow for the comma and for the space between the last name and first name.
10. <sa-k> then captures the first name in variable $2 and returns to the <sa-s macro>. That is, it skips to step #12 in this step-by-step description.
11. If the character in $2 is not a comma, the macro executes the <else> portion of the logic. The macro decreases the value of "X" by one and repeats the process of storing the current character in $2 and determining if $2 contains a comma. This continues until the <sa-k> macro captures the comma in $2 and executes the <then> logic described in the steps 8-10 above.
12. With the last name stored in $1 and the first name in $2, control returns to the <sa-s> macro.
13. The <sa-s> macro issues an <oa-y> to yank out the current entry in the NAMES category and puts the contents of $1 in that category.
14. The macro enters a Return to lock in that entry. The Return also moves the cursor to the next category, the FName category.

15. <sa-s> copies the first name from variable $2 into the FName category and enters a Return to lock in that entry.

Figure 6: Example of Nested <if> Statements

```
<ba-1>:<all: msg 'Do you really want to? (y/n) ':
    $1=getstr 1: msg '':
    if $1="N" then Z=Ø:
              else if $1="n" then Z=Ø:
                             else if $1="Y" then Z=1:
                                            else if $1="y" then Z=1:
                                                           else bell: bell: rpt: elseoff>!
```

16. The macro issues two <oa-tab> commands to move the cursor back to the first category and then issues a Down Arrow command to move the cursor to the next record in the file.

17. If the cursor is already on the last record, the Down Arrow command will cause an AppleWorks error beep that is captured by the <onerr stop> command. (I issued the <onerr stop> at the beginning of the macro.) If there are more records in the data base, the macro executes the <rpt> command which turns control back to the <begin> token and the loop repeats itself.

This macro uses both a loop and a subroutine. Operation of the loop stops when the macro issues a Down Arrow command with the cursor on the last record in the file. Operation of the subroutine stops when the <if> token encounters the comma between the first and last names in the entry in the data base file.

Nested <if> Statements

A discussion of IF-THEN-ELSE logic is not complete without mention of one other important variation of the <if> statement; the "nested <if>". A "nested <if>" consists of one or more <if> statements called by another <if> statement.

Figure 6 presents an example of nested <if> statements.

The macro <ba-1> starts by displaying the message "Do you really want to? (y/n)" and captures the response in variable $1.

The macro then executes one or more <if> statements to check whether you entered an "N", "n", "Y", or "y".

If $1 contains an "N", the macro sets "Z" equal to zero, jumps past the <elseoff> token and stops. If $1 does not contain an "N", the macro executes the <else> portion of the statement. The <else> portion contains another <if> statement that checks if $1 equals "n". If $1 contains an "n", the macro sets "Z" equal to zero and terminates. If it does not contain an "n", the macro checks to see if $1 contains a "Y". If $1 contains a "Y", the macro sets "Z" equal to one. If it does not contain a "Y", the macro checks if $1 contains a "y". If $1 contains a "y", the macro sets "Z" equal to one. If $1 does not contain a "y", the macro sounds the bell twice and displays the "Do you really want to? (y/n)" question.

Since the <then> and <else> portions of every <if> statement can themselves include additional <if> statements, you can use nested <if> statements to generate an unlimited number of branches in your macros.

I will use nested <if> statements in the next set of macros.

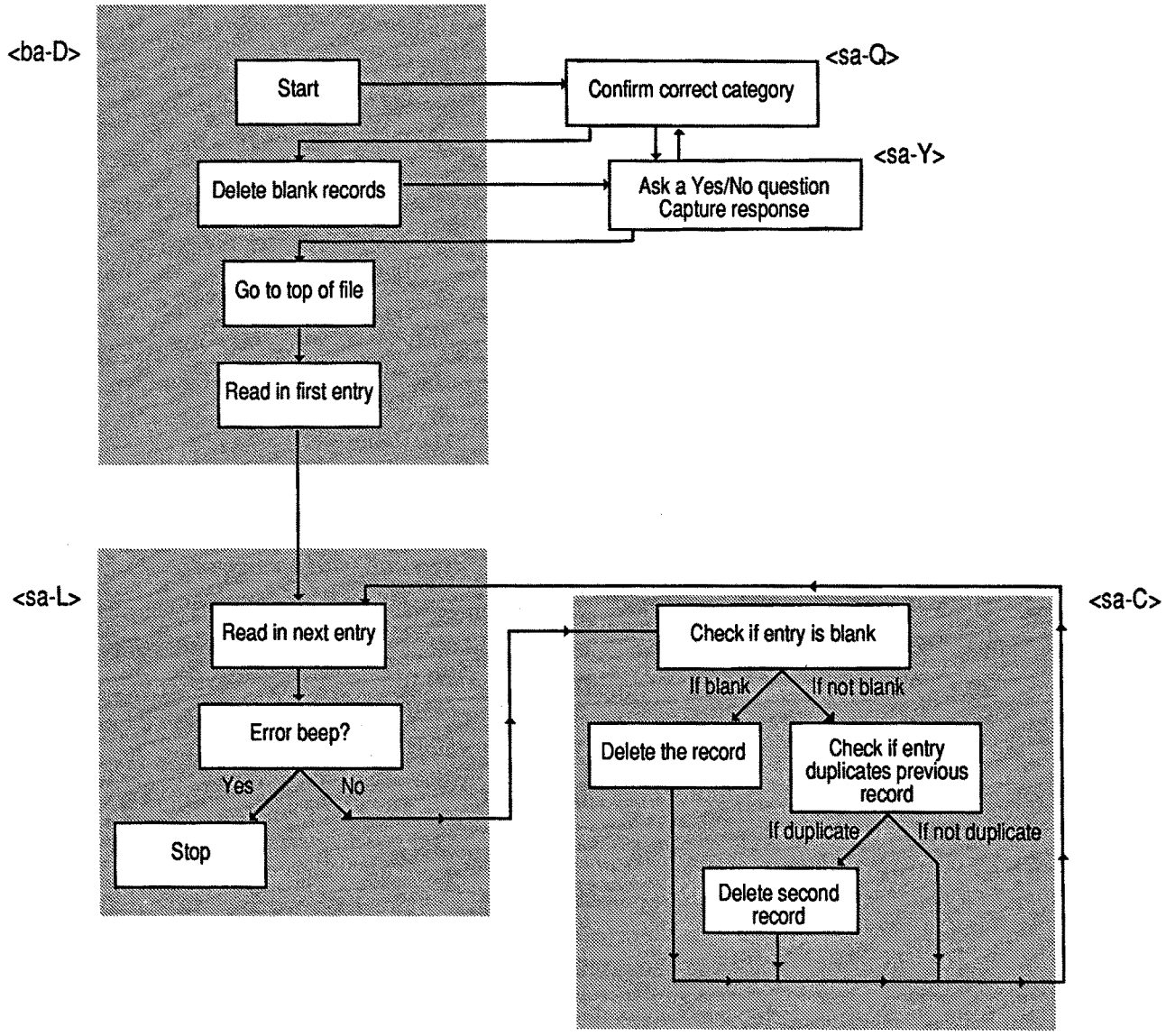
<ctrl-x> and <zoom>

The next example also introduces two new commands: <ctrl-x> and <zoom>.

<ctrl-x>: While running a macro, UltraMacros sometimes hides the cursor from view. The <ctrl-x> token forces UltraMacros to display the cursor during operation of a macro.

<zoom>: The <zoom> command forces AppleWorks to "zoom out". <zoom> hides the display of printer commands in the word processor, shows values rather than formulas in the spreadsheet, and displays multiple record layout mode in the data base module. You can follow this command with <oa-z>

Figure 7: Flowchart of Macros That Delete Duplicate Records



to show the printer options in the word processor, display formulas in the spreadsheet, or enter single record layout mode in the data base module.

Macro That Deletes Duplicate Records

Now let's examine the next example, a series of macros that deletes duplicate records from a data base file.

It is easier to find errors and enhance a macro if you separate complex operations into smaller subtasks. Given the complexity of this task, I "modularized" the operation into a series of five subroutines as follows:

1. <sa-D> checks if you are testing the correct category and starts the process.
2. <sa-L> controls the loop that tests each record.
3. <sa-C> checks for and deletes blank records.
4. <sa-Q> checks if you are testing the correct category.
5. <sa-Y> handles the user's response to a yes/no question.

Figure 8: Macros That Delete Duplicate Data Base Records

[This is a macro you start from the keyboard. It double-checks the category and starts the operation.]

```
<ba-D>:<adb:
   sa-1:                                          { check for correct category }
   $Ø=" Delete Blank Entries ": sa-Y: B=Z:        { does user want to delete blank records? }
   oa-1:                                          { put cursor at beginning of file }
   $1=cell:                                       { read the first entry into $1 }
   down:                                          { move cursor to the second record }
   goto sa-L>!                                    { goto the loop macro }
```

[This macro controls the loop through the records.]

```
L:<adb:
   onerr stop:                                    { stop at the end of the file }
   begin:                                         { start the loop here }
     $9=cell:                                     { read current entry into $9 }
     sa-C:                                        { compare with previous record }
     $1=$9:                                       { copy current entry into $1 }
     down:                                        { goto next record }
   rpt>!                                          { do comparison on the next record }
```

[This macro checks if current record is blank and deletes blank records if authorized.]

```
C:<adb:
   ifnot $9 = "" then                             { check if it's not a blank record }
                  if $1=$9 then                   { if the two records are identical }
                              oa-D: rtn: up:      { delete the second record }
                else                              { do this if the record is blank }
                  if $1=$9 then                   { is this a duplicate blank record? }
                              if B=1 then         { user authorized deleting blank records }
                                       oa-D: rtn: up>!   { delete the record }
```

[This macro checks if the current category is the correct one.]

```
Q:<adb:
   zoom:                                          { we need to zoom out for this task }
   ctrl-x:                                        { display the cursor }
   $Ø=' Is this the correct category to search for duplicates':
   sa-Y:                                          { ask a yes/no question }
   if Z=Ø then bell: bell: msg ' Aborted !!': stop:   { if answer is "no" abort the macro }
   elseoff>!
```

[This macro asks a yes/no question and captures the user's response.]

```
Y:<all:
   msg $Ø + '? (Y/N) ':                           { display this message }
   ctrl-x:                                        { show the cursor }
   X = key:                                       { capture the keystroke from the user }
   Z=Ø:                                           { set default response to "No" }
   if X=27 then Z=Ø: else                         { check for Escape Key press }
   if X=121 then Z=1: else                        { check for "y" }
   if X=89 then Z=1: elseoff:                     { check for "Y" }
   msg ''>!                                       { clear the message line }
```

Figure 7 depicts the logic of the different subroutines in this set of macros. *Figure 8* presents the actual macros.

Enter and compile the macros in *Figure 8*, then follow these steps:

1. These macros assume that if two records have identical entries in a single category, the records are duplicates. Put the cursor in the category you want to use to check for duplicate records and issue an Apple-A command. You must first sort the records based on the category you want to use to check for duplicate records.
2. Leave the cursor in the category you want to check and press <ba-D> to start the operation.
3. The macros ask if you are in the correct category and if you want to delete blank records. Answer each question as indicated.

The macro goes to the top of the file, reads in the first category, and jumps to the <sa-L> macro. That macro loops through the file and compares the current record with the previous record using the <sa-C> macro. If <sa-C> finds they are identical, it deletes the entry as long as it is not blank. If it is blank, <sa-C> checks if the user authorized the deletion of blank records. If authorized, it deletes the blank record.

Summary

This month, I discussed IF-THEN-ELSE logic using the <if> statement. I also described advanced applications of <if>, including <ifnot>, <else>, and nested <if> statements and introduced the <ctrl-x> and <zoom> commands. I also presented two applications of complex macro sets that use IF-THEN-ELSE logic to perform useful data base file maintenance tasks.

Next month I will discuss the remaining commands available when you write AppleWorks macros.

[Mark Munz is a programmer with Beagle Bros, publishers of TimeOut UltraMacros.]

Status of AppleWorks 3.0

Claris Corporation plans to start shipping AppleWorks 3.0 late this month. **NAUG** members who sent Claris the update form enclosed with the July 1989 issue of the ***AppleWorks Forum*** should start receiving AppleWorks 3.0 by September 10.

Beagle Bros also plans to ship AppleWorks 3.0-compatible TimeOut programs in late August. The new TimeOut modules are compatible with AppleWorks 2.0, 2.1, and 3.0, and some modules have features not available in the earlier versions. However, these new features only work with AppleWorks 3.0, so you need not upgrade TimeOut until you upgrade to AppleWorks 3.0. TimeOut upgrades will be available from **NAUG**'s Beagle Buddies. Complete information will appear in next month's issue of the ***AppleWorks Forum***.

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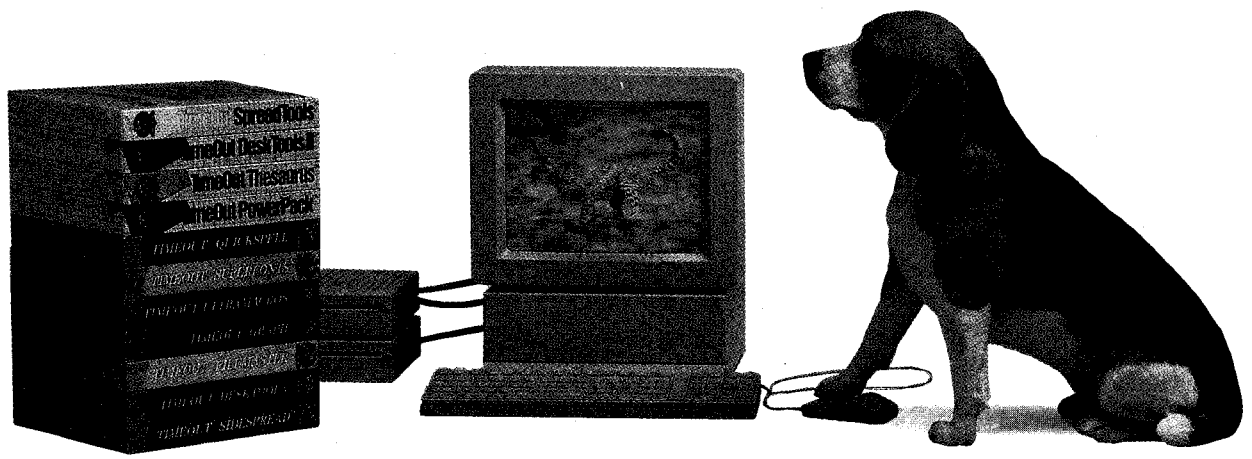

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How to Get Help with AppleWorks Applications and Apple IIGS Questions

by Nanette Luoma

Each month, the ***AppleWorks Forum*** lists the member-volunteers who offer technical support for AppleWorks products. This month's list identifies the volunteers who can answer questions about general AppleWorks applications and using AppleWorks on the Apple IIGS. Next month's issue will contain a list of members who offer help with the AppleWorks modules.

Applications/Apple IIGS

How to Use This List

To the left of each volunteer's name are numbers that indicate the applications the consultant supports. Volunteers are listed alphabetically by state.

1 = Apple IIGS hardware
2 = Diversi Key*
3 = SoftSwitch*
4 = Telecommunications
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*Utility programs for the Apple IIGS

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August 1 — Seattle, WA
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The presenter, Dr. Warren Williams, is a technical advisor to NAUG and a frequent contributor to the ***AppleWorks Forum***. He has written more than 60 articles about AppleWorks and has conducted more than 75 AppleWorks seminars throughout the country. Write or call NAUG for more information.