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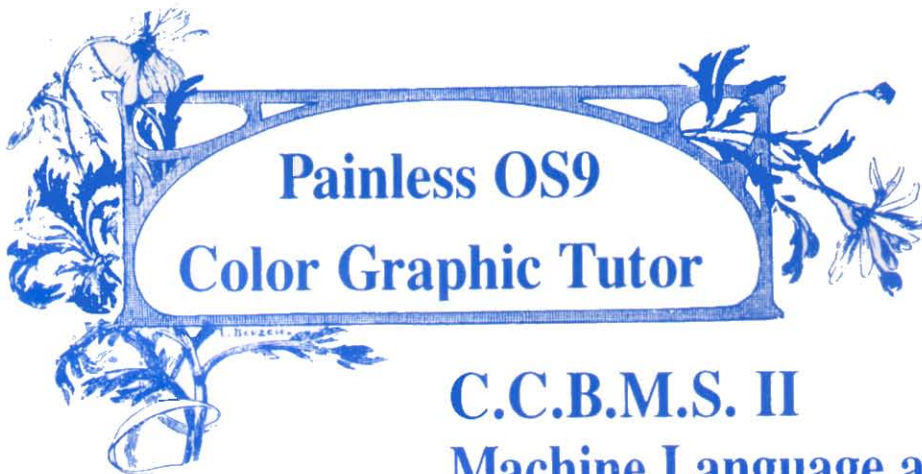
**CoCo**

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**Color Graphic Tutor**

**C.C.B.M.S. II**

**Machine Language and OS9**



**Church**

**Base**

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# CoCo Clipboard Magazine

Vol. 2 Issue 4 Mar./Apr. 1989

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# CoCo Clipboard Magazine

Vol. 2 Issue 4 Mar./Apr. 1989

## TABLE OF CONTENTS

Reader Mail .....	page 4
From the Desk of by Ted and Darlene Paul .....	page 5
Color Graphics Tutor by Jim Bennett.....	page 6
ChurchBase II by Boisy Pitre .....	page 13
C.C.B.M.S. by Jim DeStefano .....	page 17
Machine Language and OS9 by Bob van der Poel .....	page 23
Painless OS9 by Randy Krippner .....	page 27
OS9 Comments by Shelby LaMont .....	page 32
The Wegert Report by Steve Wegert.....	page 33
CoCo 'N Amateur Radio by Mike Dooley KE4PC and Jerry Murphy K8YUW .....	page 41
Hard Drive Software Review by Jim DeStefano.....	page 46
DOWNTIME by Rush Caley .....	page 54
Product Reviews The Review Crew .....	page 55
* * * * *	
Subscription Information .....	page 11
ClipDisk Ordering .....	page 12
Clipboard Coupons.....	page 39
Survey Form .....	page 40
Advertiser Index .....	page 22

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# Reader Mail



Dear Clipboard:

I belong to the Hudson Valley Computer Group, a computer club in the Catskill Mountains of New York State. Our president, Peter Chast, gave me your flyer letter. He knows that I own a CoCo, am a Ham (KB2FEP) and have said many times I would like to use it with Packet. I was grabbed by paragraph three, in which you say, "In another issue CoCo Clipboard readers who tinker with amateur radio found an article on how to set up their CoCo via and RS232 Pak (and a Ham Receiver) and access the world of packet radio." Would you send me one of your magazines. I would like to see the article on the RS232 Pak and Ham.

A. Foster  
Surprise, NY

Dear Mr. Foster:

The magazine has been sent and we hope you enjoy it. Back issues of Clipboard ARE ALWAYS AVAILABLE - every single one! The cost for a single copy is \$3.50 including first class postage. Will Ted ever get his Ham license? Stay tuned!

Dear Ted & Darlene:

Last year I was introduced to the CoCo Clipboard by way of a gift subscription from Rush Caley. I want you to know that I was impressed by the quality and the contents of your magazine. Each issue has taught me something, and has been an invaluable tool in aiding me with my BASIC programming.

Especially helpful to me was Rush's Database Management articles and now Jim DeStafeno's "C.C.B.M.S." In addition to having a small business, I also co-manage an apartment complex.

I saw with dismay that the ending date of my subscription to the Clipboard is February 1989, this month! I'm not sure if I am to receive one more issue or not, but regardless, enclosed you will find my check for \$15.00 for another year of your magazine.

Thank you for your magazine, and for taking time out of your personal lives to help hundreds (perhaps thousands?) of Color Computer owners like myself. CoCo Clipboard

is a fine quality magazine.

Kimberly K. Lindquist  
Albany, Oregon

Gentlemen:

I have received today the two disks which were ordered with my letter of December 5th. Enclosed is a check for \$77.00 for my one year subscription to both the magazine and the ClipDisk.

Your magazine is interesting and let us hope it will grow fast so that the "other one" will pep up again.

Our CoCo deserves to have two good quality magazines

Wishing you the best for the coming year.

Eduardo S. Prado Jr.  
San Paulo, Brazil

(Editor's Note): other magazine ???







FROM THE DESK OF...

## Ted & Darlene Paul



Over the last four weeks Darlene and I have been attending a seminar sponsored by the Chautauqua County Industrial Development Administration and the State University College at Fredonia on small businesses. Ignorance may be bliss, but it's what you don't know that can really hurt you. We also found out that a lot of what we do here has been "right on" as far as running our business. This missive is directed towards many of you that are considering starting your own business to supply the Color Computer market place.

Planning and patience are two key words which come to mind right away. Unfortunately neither one is easy to come by or to practice.

Planning is perhaps the key to any successful venture. Along with planning you've got to add product / production. If there isn't a need for a software program that displays a directory in InnuIt (native Eskimo language) your chances of selling even one are pretty low. You might speak fluent InnuIt and have a real need to display a directory using it, but it's doubtful anyone else does. Hardware wise you might have a need for a keyboard that has all the vowels on the top and then all the numbers below, and displays Cuneiform symbols on the screen - but nobody else will. So before you cash in your whole life policy and quit your day job do some planning.

For arguments sake however let us assume that you do have a product that really fills a niche in the CoCo market place. It can be hardware or software, it doesn't matter - you have a viable product and everybody in your club is buying it. You have a potentially profitable product now what is the plan?

What is the cost of production? What is the cost of promotion? How do we determine the market size? The price of the item? What is your return policy? What is the cost of production? Are their licensing fees? Do you need a variance from the zoning board to run a business from your home? You'd be surprised how neighborly old Fred can turn into raging nasty Fred if he feels your business is going to lower his property values! And don't think he won't find out - the walls have ears and your wife talks to his wife, and the mailman talks to old Fred.... get the picture!

So you can see that besides having a good

product you've got to have a plan and be prepared to follow it, or carefully amend it to get into and stay in business. Patience is next.

Patience is a virtue. Repeat this to yourself the first 500 times you find an empty mailbox with no orders but plenty of bills. Almost no body made a million dollars the first time out of the starting gate. For a wonderful view of what starting a business can mean - especially with being patient - be sure to watch "Growing a Business" on your local PBS station. If it's not being aired locally see if it is available on VHS at your local library.

You'll meet a wide variety of entrepreneurs who started with very little in money but a strong belief in themselves and their product. They also were willing to be patient about their first orders, and willing to promote their product and they do so many, many hours a day. Running your own business is NOT a part time project. I don't care if you have one software product or a warehouse full of RS232 boards and modems. Unless you can divorce yourself from the TV, the bowling alley every Saturday and other distractions, you'll find selling even ONE item successfully will be very difficult.

Over the next several issues I will try to devote some of the space in this column to passing on what we've learned about running a business. Your comments are welcome. If you've got questions or solutions I'd love to hear from you. Perhaps we'll even turn over some of this space to your ideas.

Back in the CoCo world for a while we find several interesting things happening. It looks like the CoCo 3 will be with us for another year. Apparently the holiday sales were up to expectations for the gang at Tandy and our trusty CoCo is scheduled to continue in production. New software is again coming into the market place, in particular another new word processor simply called, "Simply Better." Please check out their ad in this issue.

We are also very pleased to announce that *CoCo Clipboard Magazine* has reached the 1000 paid subscription level - in fact by the time you read this it will be 1000+!. Our 1000th subscriber is Mr. Greg Wathan of Overland Park, Kansas. Thanks Greg! We'll be

continued on 58

# Color Graphic Tutor



Jim Bennett

From the time that the first Color Computer made its debut, graphics has been a strong point with the CoCo. Even the name, "COLOR Computer", implies graphics. The fact that some pretty impressive graphics can be so easily programmed on this computer is the primary reason that many of us became CoCo-nuts.

Who can forget the great excitement and sense of accomplishment of having created that very first graphics program? I drew a somewhat lop-sided star, but that was all it took; from that moment on, I was hooked! The point is that for many of us, it's graphics which was, is, and always will be our main interest. We are the nuts who approach graphics with the same degree of enthusiasm and seriousness (if not fanaticism) that you usually find among those other nuts who are "into" esoteric, high tech applications for the computer!

Graphics includes much more than interesting pictures which serve only to entertain and show off what the computer is capable of doing, and it's important in more kinds of programs than just computer games. Diagrams, charts, maps, icons, and the like are all graphics. Even a title screen or a menu which utilizes colors, shapes, different fonts, pull-down boxes, etc. to create a compelling and well organized design is using graphics elements. Graphics can do many jobs from creating and maintaining interest, to illustrating, to simplifying and organizing information which is displayed on the screen. Who would have thought a few years ago that there would be word processors where you actually would use a mouse to do a lot of the work! Isn't a mouse supposed to be for graphics? Is nothing sacred? Why, those pesky mice have infested everything!

Educational programs use graphics to teach and to provide motivation to students. Artists, designers, and architects are discovering tremendously exciting advantages in computer generated graphics for advertising, television, movies, videos, and in developing experimental design concepts. Medical science is using computer graphics as an aid both in research and in diagnostic work. When we consider also that the direction in the computer software market is toward more user-friendly software of all kinds, the role of graphics seems unlimited.

Today just about any program which has a

screen display of just bare-bones text is perceived to be archaic and unprofessional. The demand is for programs that are pleasing to the eye as well as efficient and easy to use. A title or menu which has a multi-color, pleasing design contributes to the overall user-friendliness of the software; compared to the plain old two color (text on background) title or menu, it just naturally seems friendlier and less intimidating.

We CoCo 3 owners who are truly serious about graphics are eager to find more programs using sophisticated graphics - programs which will really challenge and help us discover how to use more of the CoCo 3's tremendous graphics potential. Serious graphics programmers also need a forum to exchange ideas. I think CoCo Clipboard Magazine is an excellent place for the graphics programs to appear and for the forum to begin. Wouldn't it be great if there were something about graphics in every issue?

The programs which accompany this article will surely challenge and inspire all you graphics CoCo-nuts. The first program, "COLORMIX", is an in-depth, user-interactive tutorial on colors and their mixtures. It requires the use of a joystick.

Theoretically, if we chose the right 16 HSCREEN 2 colors we should be able to mix them together to create every color in existence, including such "difficult" colors as: brown, olive, pink, etc. (I realize that most of you probably heard that all you need is three primaries - red, yellow, and blue - to mix all the other colors. I hate to burst anyone's bubble, but the red - yellow - blue approach does not work either in theory or practice. In order to create good mixed colors, we must choose colors more evenly spaced across the spectrum than are red, yellow, and blue. Also, the more colors we can use, the better)

"COLORMIX" makes an initial selection of 12 hue colors, a black, a white, and 2 grays. This is ideal for creating full-color graphics. In the program you will see the colors abbreviated as follows: yellow=Y, yellow-orange=YO, orange=O, red-orange=RO, red=R, red-violet=RV, violet=V, blue-violet=BV, blue=B, blue-green (turquoise)=BG or T, green=G, yellow-green=YG, black=N, white=W, dark

Color Graphic Tutor continues on 7

gray=DN, light gray=LN. After LOADING and RUNNING "COLORMIX", the program menu should appear. Simply press a number key 1 - 5 to initiate the option of your choice.

The first option presents the 16 pre-selected colors listed above and allows you to make changes if you desire. The colors should match as closely as possible their names; e.g., the color red should be true red. To change a color, simply use your joystick to move the flashing box to the color that you're going to change and click the fire button. Then type the new color number. Pressing ENTER will make the change. When you are satisfied with the selection of colors, press the BREAK key to return to the menu.

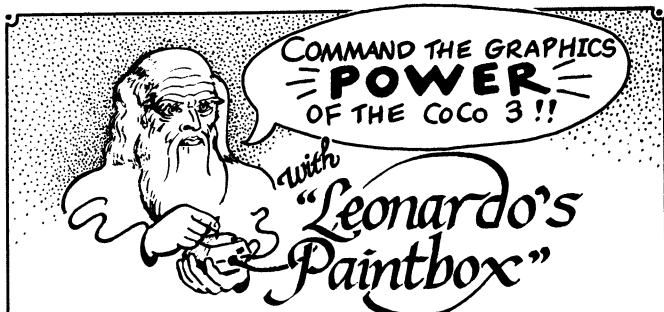
Choosing option 2 will display the 12 hues in a color wheel. This will enable you to determine if sequentially the 12 hues look right together and have equal intensity. To return to the menu, press BREAK.

Option 3 is a color chart which shows all 16 colors placed in vertical stripes mixed with the 16 colors in horizontal stripes. Sixteen times sixteen equals 256 colors. However, since each color mixture occurs twice, there are actually 120 mixed colors plus the original sixteen making a total of 136 different colors!

The color mixtures are created in exactly the same way that mixtures are created in commercial color lithography; tiny dots of color (in this case, pixels) are put down in an alternating pattern so that they blend visually. It takes quite a while to accomplish this for the entire chart, but it is worth seeing. The completed chart is nothing short of spectacular! To determine which two colors create any mixture on the chart, read the name of one color at the top vertically and the other to the right horizontally. Again, press BREAK when you are ready to return to the menu.

The fourth option is called "CoCo Markers" and allows you to experiment drawing with the colors and their mixtures. Your joystick should be centered so the marker displayed in the middle of the screen remains stationary until you move the joystick. The palette of 16 colors is shown at the bottom. The larger color block on the left displays the color that you are currently using. Click on any color at the bottom and you can draw with that color. Click on a second color and you can draw with a mixture of the two colors. The next click will give you a solid color, the click after that again produces a mixture, and so on.

Color Graphic Tutor continues on 8



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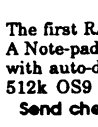
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There are two size marks you can make: large (16 pixels) and small (4 pixels). Pressing the down arrow will give you the smaller size. Pressing the up arrow will give you the larger one. If you want to clear the screen, simply press the CLEAR key. And, of course, you return to the menu via the BREAK key.

The intent of "CoCo Markers" is to provide an easy way to work with different color combinations as well as their mixtures to see how they look together. The program is suited for making quick, simple designs, coloring them, and even adding shading and high-lighting to achieve 3-D effects. Notice how the mixed colors have a texture which contrasts nicely with the flat look of the solid colors. This program can be used just as an artist would use a preliminary color sketch, to plan the color harmonies in a graphic design prior to actually creating the final version in full detail. Also, you can use the color selection option to modify the range of colors to create new and interesting color harmonies and contrasts.

I recommend that you try changing the white to a light pastel (very pale) color or to light gray. This color will then become the new background for "CoCo Markers". Of course, it's always helpful to have white available somewhere on the palette, so you might put white in place of a color you won't be using, perhaps in the RV slot (a color that's easily mixed). Be careful, though, when you change any of the last four

colors (the black, two grays, and white) since they are used throughout the program for text and background colors.

"COLORMIX" is designed to be used with an RGB monitor and unfortunately there is no way to duplicate the exact appearance of the color mixes on a television or a composite monitor. TV's and CMP's produce a phenomenon called "color artifacting" with the color mixtures. The changes indicated within the two programs for TV or CMP will produce a fair approximation of what happens on an RGB monitor. Instead of making mixtures by alternating the color of every other pixel, the TV/CMP version alternates the colors every two pixels, i.e. 2 black - 2 white, etc.

The short program titled "CLIPPER" presents Clipboard's lovable little koala in an example of how color mixing might be used to achieve simple shading. This program demonstrates a method of creating 4 shades of gray. The 3-D effect is certainly more impressive than what can be done using just solid colors. Good color is an essential element in good graphics. Hopefully, this presentation will help you create really eye-catching graphics with more dynamic color. I would appreciate your comments.



```

0 *****
* "COLORMIX" *
* BY *
* JIM BENNETT, 1989 *
*****
10 "COLORMIX" WILL ENABLE YOU
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WHEEL, CREATE OVER 100 MIXTURES,
AND EXPERIMENT DRAWING WITH THE
COLORS. IF USING TV OR CMP, MAKE
THE CHANGES INDICATED IN LINES
230,490, & 890
20 PCLEAR1:HBUFF1,120:HBUFF2,120
:HBUFF3,80:POKE65497,0
30 ONBRKGOTO60
40 DIMH$(15),C(15),H(15),V(15):F
ORX=0TO15:READH$(X):READC(X):PAL
ETTEX,C(X):NEXT
50 *****SET UP MENU*****
60 HSCREEN2:HCLS14:HCOLOR15:HLIN
E(30,42)-(290,125),PSET,BF
70 ONERRGOTO60
80 HDRAW "BM84,28S4C1D28R10U9F6E
6D9R10U28L1G5H5L11BR39C4BRD28R2
8U7L10U5R10U5L10U5R10U6L27BR34C7
BRD28R12U6F6R14U28L1D6H6L14BR38
C10BRD23F5R17E5U23L10D7L7U7L10
90 HPAINT(88,29),1,1:HPAINT(126,
29),4,4:HPAINT(164,29),7,7:HPAIN
T(204,29),10,10:HCOLOR12
100 HPRINT(7,9),"1 - SELECT 16 C
OLORS":HPRINT(7,10),"2 - SEE 12
HUE COLOR WHEEL":HPRINT(7,11),"3
- SEE CHART OF 136 COLORS":HPRI
NT(7,12),"4 - DRAW WITH COCO MAR
KERS":HPRINT(7,13),"5 - QUIT":HC
OLOR15:HPRINT(10,17),"MAKE YOUR
SELECTION"
110 EXEC44539:I$=INKEY$:L=INSTR(
"12345",I$):IFL=0THEN110
120 ONL GOTO140,330,450,580,900
130 *****SELECT COLORS*****
140 HCLS13
150 S=0:X=0
160 FORV=50TO120STEP70:FORH=0TO2
80STEP40
170 PALETTES,C(X):S=S+1:X=X+1:HC
OLORS-1,12:HLINE(H+5,V)-(H+35,V+
40),PSET,BF
180 NEXTH,V
190 HCOLOR15:HPRINT(11,0),"Hues
& Color Codes":HPRINT(7,1),"(Ent
er The Correct Numbers)"
200 X=0:FORV=5TO23STEP18:FORH=2T
O40STEP5:HPRINT(H,V-2),H$(X):HPR
INT(H-1,V-1),"---":HPRINT(H-1,V)
,STR$(C(X)):H(X)=H:V(X)=V:X=X+1:
NEXTH,V
210 DATA Y,54,YO,52,O,38,RO,36,R
,37,RV,45,V,43,BV,12,B,11,BG,24,
G,16,YG,50,N,0,DN,7,LN,56,W,63
220 "DATA Y,36,YO,37,O,21,RO,22,
R,23,RV,24,V,25,BV,26,B,27,BG,30
,G,17,YG,34,N,0,DN,16,LN,32,W,63
230 'FOR CMP OR TV, USE DATA IN
LINE 220 INSTEAD OF LINE210
240 H=INT(JOYSTK(0)/8)*40:V=JOYS
TK(1):IFV<32THENV=50ELSEV=120
250 HCOLOR15:HLINE(H+2,V-1)-(H+3
8,V+41),PSET,B:HCOLOR13:HLINE(H+
2,V-1)-(H+38,V+41),PSET,B
260 IFBUTTON(0)THENS=(H/40)+(INT
(V/120)*8):HCOLOR15:HPRINT(12,13
),"ENTER COLOR":C$="" :I=0:GOSUB2
90:PALETTES,C
270 GOTO240
280 IFC>63THENC=0:RETURNELSERETU
RN
290 I$=INKEY$:IFI$=""THEN290ELSE

```

```

IFI$=CHR$(13)THENC=VAL(C$):HCOLO
R13:HPRINT(12,13),"ENTER COLOR "
+C$:GOSUB310:CS$=RIGHT$(STR$(C(S
)),LEN(STR$(C(S)))-1):HS=H(S):VS
=V(S):HPRINT(HS,VS),CS$:HCOLOR15
:HPRINT(HS,VS),C$:C(S)=C:RETURN
300 C$=C$+I$:HPRINT(24+I,13),I$:
I=I+1:GOTO290
310 IFC>63THENC=C(S):C$=RIGHT$(S
TR$(C),LEN(STR$(C))-1):RETURNELS
ERETURN
320 *****DRAW COLOR WHEEL*****
330 HCLS15:HCIRCLE(160,96),95,12
,9:HCIRCLE(160,96),50,12,9:HPA
INT(160,30),12,12:HCOLOR15
340 HLINE(32,35)-(287,156),PSET:
HLINE(287,35)-(32,156),PSET
350 HLINE(92,0)-(227,191),PSET:H
LINE(227,0)-(92,191),PSET
360 HLINE(160,0)-(160,192),PSET:
HLINE(32,96)-(288,96),PSET
370 RESTORE
380 READX$:IFX$="63"THENELSE380
390 READ H,V,C:IFH=0THEN400ELSEH
PAINT(H,V),C,15:GOTO390
400 HCOLOR12:FORX=1TO6:READH,W$:
HPRINT(H,8+X),W$:NEXT
410 GOTO410
420 DATA 190,33,0,220,48,1,240,8
4,2,245,117,3,215,141,4,180,165,
5,135,162,6,100,144,7,90,114,8,8
5,80,9,105,50,10,140,33,11,,,
430 DATA 19,"THE",18,"COLOR",16,
"COMPUTER",20,"3",18,"COLOR",18,
WHEEL
440 *****DRAW 16X16 CHART*****
450 HCLS15
460 HCOLOR12:HPRINT(0,0),"THIS C
HART TAKES 10 MINUTES TO COMPLET
E."
470 C=0:FORX=0TO280STEP19:HCOLOR
C:C=C+1:HLINE(X,8)-(X+20,191),PS
ET,BF:NEXTX
480 FORV=8TO191:C=INT((V-8)/11.5
):FORH=0TO304STEP2:IFV/2=INT(V/2
)THENHSET(H,V,C):NEXTH:ELSEHSET(
H+1,V,C):NEXTH
490 'IF CMP OR TV CHANGE LINE480
TO READ,"FORV=8TO191STEP2:C=INT(
(V-8)/11.5):FORH=0TO304STEP4:HSE
T(H,V,C):HSET(H+1,V,C):HSET(H+2,
V+1,C):HSET(H+3,V+1,C):NEXTH
500 NEXTV
510 DATA Y, YO, O, , RO, R, RV, , V, BV,
, B, T, , G, YG, , N, DN, , LN, W
520 RESTORE:HCOLOR15:HLINE(0,0)-
(319,7),PSET,BF:HCOLOR12:HPRINT(
0,0),"Y YO O RO R RV V BV B T G
YG N DN LN W"
530 READX$:IFX$="WHEEL"THENELSE5
30
540 HCOLOR12:FORV=1TO23:READC$:I
FC$=""THEN550ELSEHPRINT(38,V),C$
550 NEXTV
560 GOTO560
570 *****CREATE COCO MARKERS*****
580 HSCREEN2:HCLS15
590 ONERRGOTO880
600 HCOLOR12:I=4:C=0:H1=0:H2=319
:V1=0:FORX=1TO5:HLINE(H1,V1)-(H2
,172),PSET,B:H1=H1+3:H2=H2-3:V1=
V1+3:NEXT
610 HPRINT(10,23),"CoCo 3 Color
Markers"
620 FORX=0TO14:HCOLORX:HLINE(17+
(X*19),174)-(33+(X*19),182),PSET
,BF:NEXT:HLINE(302,174)-(318,182
),PSET,B
630 HCOLOR0:HLINE(2,174)-(15,189
),PSET,BF:HGET(7,175)-(3,179),3

```

```

640 HDRAW"BM158,96S4COEU3E7F3G7L
3"
650 HLINE(157,98)-(174,80),PSET,
B
660 HPAINT(173,81),0,0
670 HGET(158,96)-(169,84),1
680 HCOLOR15:HLINE(157,98)-(174,
80),PSET,BF
690 HGET(175,100)-(188,87),2:PH=
175:PV=100:JH=160:JV=100
700 JJ=JOYSTK(0):IFJJ>37THENJH=J
H+2:IFJJ>45THENJH=JH+2:IFJJ>60TH
ENJH=JH+8
710 I$=INKEY$:IFI$=CHR$(10)THENI
=2:HGET(8,175)-(6,177),3:SOUND20
0,2:ELSEIFI$=CHR$(94)THENI=4:HGE
T(8,175)-(4,179),3:SOUND200,1
720 IFI$=CHR$(12)THENHCOLOR15:HL
INE(13,13)-(306,171),PSET,BF:GOS
UB850:GOTO860
730 IFJJ<28THENJH=JH-2:IFJJ<10TH
ENJH=JH-2:IFJJ<3THENJH=JH-8
740 JJ=JOYSTK(1):IFJJ>37THENJV=J
V+2:IFJJ>45THENJV=JV+2:IFJJ>60TH
ENJV=JV+8
750 IFJJ<28THENJV=JV-2:IFJJ<10TH
ENJV=JV-2:IFJJ<3THENJV=JV-8
760 IFJH<19THENJH=19
770 IFJH>305THENJH=305
780 IFJV>180THENJV=180
790 IFJV<13THENJV=13
800 IFJV>172ANDBUTTON(0)ANDZ=0TH
ENHCOLOR(HPOINT(JH-1,JV+1)):HLIN
E(2,174)-(15,189),PSET,BF:Z=1:HG
ET(8,175)-(8-I,175+I),3:SOUND120
,3
810 IFJV>172ANDBUTTON(0)ANDZ=1TH
ENC=HPOINT(JH-1,JV+1):Z=0:GOTO88
0
820 IFBUTTON(0)ANDJV<168THENGOSU
B850:HPUT(JH,JV)-(JH-I,JV+I),3,P
SET:GOTO860
830 IFPH<>JH ORPV<>JV THENGOSUB8
50:GOTO860
840 PH=JH:PV=JV:GOTO700
850 HPUT(PH,PV)-(PH+13,PV-13),2,
PSET:RETURN
860 HGET(JH,JV)-(JH+13,JV-13),2
870 HPUT(JH,JV)-(JH+10,JV-11),1,
OR:HDRAW"BM"+STR$(JH)+", "+STR$(J
V)+";C12EU3NF3E5NF3E2F3G7L3":PH=
JH:PV=JV:GOTO700
880 FORH=3TO14STEP2:FORV=174TO18
8STEP2:HSET(H,V,C):HSET(H+1,V+1,
C):NEXTV:NEXTH:C=0:HGET(8,175)-(
8-I,175+I),3:SOUND200,2:GOTO820
890 'IF CMP OR TV, CHANGE LINE88
0 TO READ,"FORH=3TO14STEP4:FORV=
174TO188STEP2:HSET(H,V,C):HSET(H
+1,V,C):HSET(H+2,V+1,C):HSET(H+3
,V+1,C):NEXTV,H:HGET(8,175)-(8-I
,175+I),3:SOUND200,2:GOTO820
900 RGB:POKE65496,0

0 *****
* "CLIPPER" *
* BY *
* JIM BENNETT, 1989 *
*****
10 POKE65497,0:PCLEAR500:HBUFF1,2
00
20 HSCREEN2:FORX=0TO15:PALETTEX,
11:NEXT:HCLS0
30 FORH=0TO12STEP2:FORV=0TO12STE
P2:HSET(H,V,8):HSET(H+1,V+1,8):N
EXTV,H:HGET(0,0)-(11,11),1
35 'FOR CMP OR TV CHANGE LINE 30

```



```

TO READ, "FORH=0TO12STEP4:FORV=
OTO12STEP2:HSET(H,V,8):HSET(H+1,
V,8):HSET(H+2,V+1,8):HSET(H+3,V+
1,8):NEXTV,H:HGET(0,0)-(9,9),1"
40 HCLS15:FORP=0TO15:READC:PALET
TEP,C:NEXT:DATA ,56,7,56,,56,,38
,,,,,63,56,11
45 'IF CMP OR TV CHANGE LINE 40
TO READ, "HCLS15:FORP=0TO15:REA
DC:PALETTEP,C:NEXT:DATA ,32,16,3
2,,32,,38,,,,,63,32,11"
50 C=14:GOSUB120
60 FORX=1TO14:READH,V,C:HPAINT(H
,V),C,14:NEXT:DATA95,48,14,113,1
10,14,78,183,14,243,183,14,63,17
5,1
70 DATA 252,175,1,105,90,1,204,9
0,1,204,44,1,109,44,1,140,121,15
,99,112,5,211,110,5,140,121,2
80 FORH=55TO245STEP10:FORV=31TO1
81STEP10:HPUT(H,V)-(H+10,V+10),1
,OR:NEXTV,H
85 'FOR CMP OR TV CHANGE LINE 80
TO READ, "FORH=55TO255STEP8:FOR
V=24TO184STEP8:HPUT(H,V)-(H+7,V+
7),1,OR:NEXTV,H"
90 FORX=1TO17:READH,V,C:HPAINT(H
,V),C,14:NEXT:DATA 73,54,13,234,
54,13,112,119,13,159,155,13,176,
155,13,210,159,13,135,80,12,170,
80,12,157,83,12
100 DATA 151,113,7,102,162,7,121
,162,7,140,162,7,152,162,7,172,1
62,7,191,162,7,206,162,7
110 HDRAW"BM135,77C13D2BM171,77D
2BM154,83FDFDFD4GDGBM156,113L5
":C=2
120 HDRAW "BM108,42S4C"+STR$(C)+

```

```

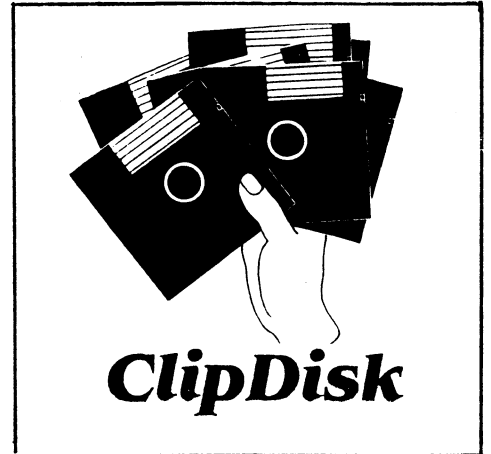
"E3RER2E2RER2ER3ER3ER7ER29FR8FR3
FR2FR2F2RFR2FRFRFRF2ERERE2RER2ER
2ER2ER3ER5ER10ER3ER7ER6ERERDGDGD
G2D4GDG2D4G6DG3L4GD3L3G2L6G5DGL3G
2L4G2L3D3G2D3G2D2G2D4G2D2G4DG2FR
4F2R3FR3F3RFRFRFRFR3RF4RF3DF5DF
2D2F3DF2D3FD3F2D3F2D7FD11
130 HDRAW"D5GD3G2D3GDBL189U3HU6H
U4HU6HU7EU5EU2EU3E2U2E2UEU2E4UE2
UE2UE5RE3RE3RE2RER2ERE3RERERERER
ER2UH2UH4UH2UHU4HUHUHU2L4HL3HLH3
LH2L2H4U3H4L3H4U2L3H3U4HU2H3U4H2
UHUR4FR4FR4FR12ER12FR3F3R3FRFE2
RBD63BDD2DF7RF2RF2RF2RF2RFRFR3F
RFRFR5FR6FR5ER5
140 HDRAW"ER4ERER2E2RER2ERE5RE4U
E2UEUEU2BF44BR3G3LG3LGLGLGLGLGLG
LGLGLGD3FD2FD2FD6FD11BL144U5EU6E
U6UEUHLHLHLHLHLHLHL3HL3HL5BR
3BD32C14BDBR5UHU8HU11HU4EU3EU4EU
3E3U2EU2E5UE3UE10RE3RE3RE3RER2E2
RERBU6FRFR2FR2FR2FR2FR2FR3FRF2R
FR3FR2FR4FR7ER3ER3
150 HDRAW "ER3ER2E2R4E2RER3ER2E2
R2E4REBR3DG2DG4LG3LGLG2LG2LGL2GL
2GL2GL2GL2GL2GL14HL3HL2HL2HL3H3L
H2L2H2L2H4LH3LHUHU57BE15BUD2GLG
2LG2L2G2L2G5DG3DG3D2GU4HU3HU2HUH
2UH2LHLHL3HLBD32BF8BR2BFBR2BD2UH
UHU3EUEU2EDFDFD4FDF2DFDFDFD2FDF3
DFD2F4DF4RF2RFRFDF4
160 HDRAW"BR45E2RE4RE4UE2UE2UE3U
2E2U2E2U3EU2E2U2EU3EU3E2UEDFDF2D
FDFDBU29BE6BUBE2BUGLGLGLG2LGLGDG
D2GDGDGD3GD2HUH2UH2UH2LHL3LH3LH
2LH2UHBR66BE3BR3BUBR5C"+STR$(C)+
"DG2L2DL3DL2DL2DL2DL4DLDL3DL2DL2
DL2DL2DLDLDLDLDLDL2LD3L3D4L
D4L2D3LD2
170 HDRAW"BL114LH2U2HUH2UH2UH2"

```

```

180 HDRAW"UH3LH2LH3LH2LH2LH2LH2
L3H2L2HLH2BF42BR35D4FDFR3EUEU4HU
HL3GDGBR36D5F2R3EUEU4HUHL3GDGBL7
BD1BGBDBLBD3DF2D3FD6GDGLGLGL9HL
2HL2HUHU3EUEU2E2UE2UE2UERER3FRFB
D27C"+STR$(C)+"BD5L11HLHL2F4RF2R
8ERERE2RUEGLGL2BLBG45C14U2L7G7D
8F5R8E2H2GL4H4U5E5R5UBR5
190 HDRAW"D16R4ER6ER3U5L3GL3GL2U
15L3GLD2BR19D14R5U19L5D4BDBR13D1
4R5U7R5E5U5H2L13D4BR5D4R3E2U2HL4
DBR15D14R5U6R5E3U6H3L10D4BR5D4R3
EU3HL3DBR13D15R4FR5U4L2HL2U3R2FR
2U4LHL3U3R3FRU4L3HL6D3BR15D17R2F
RU6FRF7E3H8R4E2U5H2L3HL3HL4D2BR6
BD3D3R2EUIL2BU45
200 HDRAW "BL6BH2F2R2FR2F2R2FRF3
RF3RF4DF3DF5DF3DF2DFD3FD2FD2F
2D3FD4FD5GD4GD5GD3GD
210 IFC=14THENRETURN
220 POKE65496,0
230 GOTO230

```



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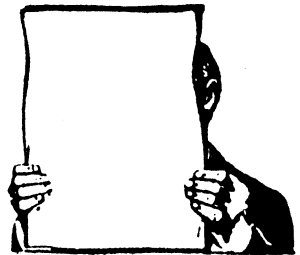
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# ChurchBase II



Boisy Pitre

For this month, we'll look at the evolution of the CHURCHBASE program, as well as string handling functions and their usage in multidimensional arrays.

For the most part, we will totally revise last issue's CHURCHBASE listing, but the newer features are worth the changes that were made.

## CHURCHBASE ANEW

I presented the core program of CHURCHBASE last issue. You may have noticed that it was small. Also the vast amount of string space and DIMensioning it took to handle just 100 members sucked up almost all available memory, leaving us with a little over 5K left for the development of the program. The only advantage of the listing was speed. If we developed the program further, we would have found that the speed of viewing and modifying each record would be extremely fast. However, with only 5K of workspace left, we would have a very limited version of a good church database program.

The "new" CHURCHBASE listing takes on a different concept. Instead of memory being used to store records, the disk acts as an extension of the memory. So where you could store only 100 members in memory to one file, now you can store as many member records as your disk can handle, whether it be a 35-track single-sided disk, or an RGB Computer Systems hard drive. Plus, we have much more memory to work with. The only thing that negates perfection in the program is its speed from record to record.

Speaking of disks, get out a blank disk and format it. Label it as CHURCHBASE DISKETTE. From now on, use this disk to save all of your CHURCHBASE listings. If you have a second disk drive, you may want to format another disk and label it as CHURCHBASE DATA DISKETTE, then place it in your second drive.

For this issue, I've brought to you three listings. Type in the first one, CONFIG.BAS and save it under the same name. (Do not RUN it yet). The CONFIG program is a parameter setter for CHURCHBASE. Such things as number of drives and baud rates are handled by the CONFIG program and saved in a disk file called CONFIG.CB. The CHURCHBASE program will use this file to configure itself to your particular system.

The second listing, CBTITLE.BAS, is the CHURCHBASE title-maker program. Just type in the listing. (Do not RUN it yet either). CBTITLE will produce a machine-language file of the CHURCHBASE title screen called CB TITLE.BIN. When the CHURCHBASE program is RUN, it will look for this file and load it in. The title screen is a nice, VIP-WRITER type screen using the 64x32 screen resolution and 8 colors.

The third listing, CBASE.BAS is the new CHURCHBASE listing. Type it in and save it under the name CBASE.BAS. Now load in the first listing you typed, CONFIG.BAS and RUN it.

You are asked several questions about your system. If you have a one-drive system, press the 1 key. If you have a two-drive system, press the 2 key. The next question will ask which drive do you want as your MAIN drive. Usually the main drive is drive 0, so press the 0 key. If you had a two drive system, a second question will ask which drive you want to use for your DATA. Usually this is drive 1, so press the 1 key.

The next question concerns the speed of your drives. If you are not sure about this option, just press the 3 for the regular 30 millisecond step rate. Otherwise, select the stepping rate that best suits your drive system.

Question 3 asks for the baud rate. Select the number next to the appropriate baud rate for your printer. Another question asks for the name of your church or assembly. Type it in (it should not exceed 30 characters) and press the ENTER key.

Question 4 asks which CoCo type do you have. Select the number corresponds with your CoCo model. The program then prompts you to insert your CHURCHBASE disk in drive 0 and press a key. It will then save all of your answers in a file called CONFIG.CB for later use in the CHURCHBASE program.

Next load and RUN the CBTITLE program. This program produces a machine-language title for CHURCHBASE. After the program has ended, load CBASE.BAS and LIST it.

So far, CHURCHBASE takes 3 granules on the disk and we have about 22000 bytes of memory to use up. Unlike the previous issue's listing, this version of CHURCHBASE

follows the modular design outline very strictly. REMARKS are liberally used, and line numbering coincides with the guide lines.

One of the most innovative aspects of CHURCHBASE is its INITIALIZATION module. You may notice a few new POKES that I've included. One is a poke for the double clock speed. If your CoCo doesn't handle the double clock speed very well, you may wish to edit out the POKE FP,0 and POKE FP-1,0 commands in the following lines: 5010, 10060, and 60170.

Also, a routine is included to transfer the ROM contents of the 64K CoCo to RAM. For this reason a 64K CoCo is required for CHURCHBASE. Transferring the ROM to RAM is essential to access some of the special features of the CoCo.

(The ROM-to-RAM routine has no effect on the CoCo 3 except that the machine will NOT accept CoCo 3 commands unless you reset or cold-start it). The BREAK and CLEAR keys are re-defined to be accepted as "trappable" keys. Also, CHURCHBASE puts the user in a NO LOWERCASE environment. Everything typed by the user will be in upper-case, no matter how much you use the SHIFT-0 key combination. There is also a PCLEAR0 routine to reserve as much memory as possible for CHURCHBASE. And finally, the drive stepping rate POKES are also initiated in this module. A note to users of a DOS other than RS-DOS. If you are experiencing trouble with CHURCHBASE, try replacing line 60110 with POKE 150,BR. Some DOS may hold the drive stepping rate table in another location.

That takes care of the INITIALIZATION module. As you can see, a lot goes on to set up CHURCHBASE's environment. Now look at the SUBROUTINE and ERROR TRAPPING modules. I've put the most used routines in the SUBROUTINE module, and also a routine in the ERROR TRAPPING module that checks to see if a file exists on the disk. You may want to incorporate these routines into your own programs. Since the CoCo 1 & 2 has no error trapping routines, we must use "home-made" techniques to prevent the most prevalent errors. Please note: CHURCHBASE is not fully error-protected! About 95% of the reason an error may occur is because of the operators negligence, not that of the program, so be careful that you type in the correct information always.

Now for the moment we've all been waiting for... RUN the program. The CHURCHBASE title screen appears and you are prompted to press a key. After typing today's date the MAIN MENU appears with your church's name at the top.

At this point I must inform you that CHURCHBASE expects all dates to be typed in without slashes or dashes. Just plain MMDDYY format. This may not be the neatest thing, but it saves the computer much overhead when calculation time comes.

The MAIN MENU gives you 5 functions. At this time only selection 1, ADD RECORDS, is

operable. Press the 1 key to access this function.

You notice that the screen changes and ADD RECORDS appears in reverse video at the top of the screen. Also, the words PERSONAL INFO. appear with the current record number. A cursor awaits your input. The fields LAST NAME, FIRST NAME, MIDDLE NAME, SEX, BIRTH DATE, and AGE appear. All but the AGE field are input fields. As you type, notice that you cannot type over the assigned limit of characters for that field. Since the LAST NAME field can hold a maximum of 30 characters, the keyboard refuses to perform after the 30th character has been typed. You can use the backspace key to delete the previous character, press the CLEAR key to clear the line and start over, or the ENTER key to accept that field and go on to the next field. When you get to the BIRTHDATE field, notice that only numbers can be entered. This field will not accept alphabetical characters. Also, the field MUST be 6 characters long (2 for the month, 2 for the date, and two for the year)

As soon as you type in the birthdate of an individual, the AGE field shows the age of the individual. This age will be accurate assuming that you typed the correct date at the beginning of the program. Strange things can happen if you use the wrong date or some abstract month number.

When you have typed the SEX of the individual, a new screen of questions appears. Notice that this is the same record, just more data to input. This screen is the RESIDENT INFO. screen with ADDRESS, CITY, STATE, ZIP CODE, and HOME PHONE fields here. As with the DATE fields, the ZIP CODE field will accept only numerical characters with a length of 5.

After this screen, a third screen, CHURCH INFO. appears. DATE OF MEMBERSHIP and 3 CHURCH POSITIONS fields are here. If the member holds no position, or just one, press the ENTER key and the cursor will go to the next field.

Screen 4 is the HISTORY INFO. screen. Questions pertaining to previous churches and pastors are inputted here. Again, these fields can be bypassed by press the ENTER key.

After you have inputted a whole record, CHURCHBASE automatically saves it to the MEMBER.FIL file on your data drive, and three progressive tones sound off, letting you know that CHURCHBASE is ready for a new record. When you have completed inputting records, press the BREAK key and you will return to the MAIN MENU. Also press the BREAK key while inputting a field will erase that record and bring you to the MAIN MENU.

#### IMPLEMENTING MULTI-DIMENSIONAL ARRAYS

One of the best things about a CoCo is that it leaves out hardly anything that the bigger systems use. Hierarchical information processing on a CoCo is just as realistic as



on an IBM PS/2. BASIC has a wonderful way of handling information hierarchially -- using multi-dimensional arrays.

We have used arrays to some extent in CHURCHBASE. These are known as single dimension, or simple arrays. They organize data in a single direction. For instance:

```
A$(1)="CLIPBOARD"
A$(2)="CLIPDISK"
A$(3)="COCO 3"
```

These are examples of simple arrays. They come in handy when you need to specify data in a row-type format, one right after the other. A simple routine to input information into arrays may go somewhat like this:

```
10 FOR K=1 TO 5
20 INPUT A$(K)
30 NEXT K
```

Line 10 loops the INPUT statement 5 times. Therefore you are able to input a line of data, with the variable as the common denominator.

Multidimensional arrays are a totally new ball-game. They bring true power to the CoCo's hierarchial information structure. The Color Computer can handle 2-dimension and 3-dimension arrays. Two-dimension arrays are situated in a row & column type structure, much like a spreadsheet.

```
10 DIM A$(3,3)
20 A$(1,1)="PIA":A$(1,2)="6809E":A$(1,3)="
GIME"
30 A$(2,1)="KEYBOARD":A$(2,2)="DISK
DRIVE":A$(2,3)="RGB MONITOR"
40 A$(3,1)="BIT":A$(3,2)="BYTE":A$(3,3)
="BUG"
```

In the example above, we DIMensioned the A\$ variable. This must be done everytime you use multi-dimensional arrays. Notice that we have divided the variable into "sub-elements". Each sub-element reflects to the main element. Element 1 reflects a hardware listing. Sub-elements are PIA, 6809E, and GIME. Element 2 reflects a peripheral listing with KEYBOARD, DISK DRIVE, and RGB MONITOR as the sub-elements. Element 3 reflects a software programming jargon listing with BIT, BYTE and BUG as subelements.

Three-dimensional arrays are more complex and take a HUGE amount of memory from the programmer. An example of a 3-dimensional array would be like this:

```
A$(1,1,1)="DESKMATE"
A$(1,1,2)="PHANTHOMGRAPH"
A$(1,1,3)="COLOR COMPUTER ARTIST"
```

The three-dimensional array concept is used by such programs as Lucid 3-D, a three dimensional spreadsheet for IBM computers. Very seldom is there a need for three dimensional arrays for practical applications on the CoCo. But on larger systems, a

problem may become so complex that it may take four or even five dimensional arrays to handle the problem! Our Color Computer can handle up to three dimensions, however.

We have covered a lot of ground this issue on the CHURCHBASE project, as well as going over the concept of string arrays. Next issue I hope to have the VIEW RECORDS option completed, and maybe more if possible. We'll also look at some more string handling techniques. If you have any problems or suggestions, please write to me here at Clipboard and I will get in touch with you. Stay tuned next month as CHURCHBASE continues to evolve into a full-fledged church database!

```
10 '*** CHURCHBASE CONFIGURATOR
***
20 CLS
30 PRINT"CHURCHBASE CONFIGURATOR
"
40 PRINT
50 PRINT"HOW MANY DRIVES? (1/2)
60 A$=INKEY$:IFA$="1" THEN DN=1
ELSE IF A$="2" THEN DN=2 ELSE 60
70 IF DN=1 THEN 150
80 PRINT:PRINT"WHICH DRIVE DO YO
U WANT FOR YOURMAIN DRIVE? (0-3)
"
90 A$=INKEY$:IFA$>"3" AND A$<"0"
OR A$="" THEN 90 ELSE MD=VAL(A$
)
100 PRINT
110 PRINT "FOR YOUR DATA DRIVE?
(0-3)"
120 A$=INKEY$:IFA$>"3" AND A$<"0
" OR A$="" THEN 120 ELSE DD=VAL(A
$)
130 IF DD=MD THEN DN=1
140 GOTO 150
150 PRINT:PRINT "WHICH DRIVE DO
YOU WISH TO USE? (0-3)"
160 A$=INKEY$:IFA$>"3" AND A$<"0
" OR A$="" THEN 160
170 MD=VAL(A$):DD=MD
180 CLS:PRINT"WHICH STEPPING RAT
E FOR YOUR DRIVES?":PRINT
190 PRINT" 1 - 6 MS"
200 PRINT" 2 - 12 MS"
210 PRINT" 3 - 23 MS"
220 PRINT" 4 - 30 MS"
230 A$=INKEY$:IFA$>"4" AND A$<"1
" OR A$="" THEN 230 ELSE SR=VAL(
A$)-1
240 CLS:PRINT"WHICH BAUD RATE WO
ULD YOU LIKE FOR YOUR PRINTER?"
250 PRINT
260 PRINT" 1 - 9600"
270 PRINT" 2 - 4800"
280 PRINT" 3 - 2400"
290 PRINT" 4 - 1200"
300 PRINT" 5 - 600"
310 PRINT" 6 - 300"
320 A$=INKEY$:IFA$="" THEN 320
330 IF A$="1" THEN BR=1:GOTO 400
340 IF A$="2" THEN BR=7:GOTO 400
350 IF A$="3" THEN BR=18:GOTO 40
0
360 IF A$="4" THEN BR=41:GOTO 40
0
370 IF A$="5" THEN BR=87:GOTO 40
0
380 IF A$="6" THEN BR=183:GOTO 4
00
390 GOTO320
400 CLS
```

```

410 LINEINPUT"TYPE THE NAME OF Y
OUR CHURCH OR ASSEMBLY (MAXIMUM
30 CHARACTERS)";R$
420 IF LEN(R$)>30 THEN PRINT:PRI
NT"TOO LONG. RETYPE":GOTO410
430 PRINT
440 PRINT "COCO TYPE:"
450 PRINT
460 PRINT" 1 - COCO 1 OR 2
470 PRINT" 2 - COCO 3"
480 A$=INKEY$:IFA$>"2" AND A$<"1
" OR A$="" THEN 480
490 CT=VAL(A$)
560 CLS:PRINT"INSERT YOUR CHURCH
BASE DISK IN DRIVE 0 AND PRESS
A KEY..."
570 EXEC44539:OPEN"O",#1,"CONFIG
.CB"
580 PRINT#1,DN,MD,DD
590 PRINT#1,SR
600 PRINT#1,BR
610 PRINT#1,R$
620 PRINT#1,CT
630 CLOSE #1:END

```

```

10 CLS:PRINT"CHURCHBASE TITLE-MA
KER"
20 PRINT "INSERT YOUR FORMATTED
CHURCHBASEDISK IN DRIVE 0 AND":P
RINT"PRESS A KEY:":EXEC34442
30 CLSO
40 FOR X=0TO63:SET(X,0,2):NEXT
50 FOR K=1056 TO 1214
60 READ M:POKE K,M:NEXT
70 PRINT#200,"boisy"CHR$(128)"g"
CHR$(128)CHR$(128)"pitre"CHR$(12
8)"s";:POKE 1231,ASC("."):POKE 1
238,ASC("")
80 PRINT#233,"coco"CHR$(128)"cli
pboard";
90 PRINT#262,"programming"CHR$(1
28)CHR$(128)"project";
100 FOR X=0TO63:SET(X,18,3):SET(
X,21,4):NEXT
110 PRINT#364,"for"CHR$(128)CHR$
(128)"the";:PRINT#387,CHR$(128)C
HR$(128)CHR$(128)"k"CHR$(128)"ta
ndy"CHR$(128)"color"CHR$(128)"co
mputer";
120 POKE 1412,ASC("6"):POKE 1413
,ASC("4")
130 PRINT#426,"disk"CHR$(128)CHR
$(128)"system";
140 FOR X=0 TO 63:SET(X,28,6):SE
T(X,31,7):NEXT
150 SAVEM"CBTITLE",1024,1535,409
99
160 CLS:PRINT"NOW THE TITLE SCRE
EN IS SAVED TODISK."
170 DATA 128,134,140,130,154,128
,154,170,128,170,190,188,178,198
,204,194,218,128,218,238,236,226
,246,252,242,134,140,130,158,156
,152,128
180 DATA 128,138,128,128,154,128
,154,170,128,170,186,128,186,202
,128,128,218,128,218,234,128,234
,250,128,250,138,128,128,154,128
,128,128
190 DATA 128,138,128,128,158,156
,154,170,128,170,190,189,128,202
,128,128,222,220,218,238,236,226
,254,252,250,132,140,130,158,156
,152,128
200 DATA 128,138,128,128,154,128
,154,170,128,170,186,128,186,202

```

```

,128,128,218,128,218,234,128,234
,250,128,250,128,128,138,154,128
,128,128
210 DATA 128,137,131,136,154,128
,154,169,163,168,186,128,186,201
,195,200,218,128,218,235,227,232
,250,128,250,137,131,136,155,147
,146

```

```

0 ' *** CHURCHBASE ***
1 'FOR THE 64K COLOR COMPUTER
2 '
3 'A CLIPBOARD PROGRAMMING PROJE
CT
4 'AUTHORED BY:
5 'BOISY PITRE
6 '
7 GOTO 60010 'INITIALIZE SYSTEM
10 '***** SUBROUTINE MODULE *****
*
20 PRINT#484,"PRESS A KEY TO CON
TINUE:":EXEC34442:RETURN'** "PR
ESS ANY KEY" PROMPT
30 AC$="" :PO=1 '** INPUT ROUTINE
31 PRINT#LP:PRINT#LP,"";
32 A$=INKEY$:IFA$="" THEN32
33 IF A$=CHR$(250) THEN30
34 IF A$=CHR$(248) THEN 10060
35 IF A$=CHR$(8) AND PO-1<1 THEN
SOUND 10,1:GOTO 32 ELSE IF A$=CH
R$(8) THEN PO=PO-1:PRINTCHR$(8);
:AC$=LEFT$(AC$,LEN(AC$)-1):GOTO3
2
36 IF A$=CHR$(13) AND TY=1 THEN
IF LEN(AC$)<>LN THEN SOUND 10,1:
GOTO 32
37 IF A$=CHR$(13) THEN RETURN
38 IF TY=1 AND A$>"9" OR TY=1 AN
D A$<"0" THEN SOUND 200,1:GOTO 3
2
39 IF PO>LN THEN SOUND 10,1:GOTO
32
40 PRINT A$;:AC$=AC$+A$:PO=PO+1:
GOTO 32
50 X1=VAL(RIGHT$(TD$,2)):X2=VAL(
RIGHT$(BD$,2)):YR=X1-X2 '** AGE C
ALCULATION ROUTINE
52 X1=VAL(LEFT$(TD$,2)):X2=VAL(L
EFT$(BD$,2)):IF X1<X2 THEN X1=V
AL(MID$(TD$,4,2)):X2=VAL(MID$(TD
$,4,2)):IF X1<X2 THEN YR=YR-1
54 PRINT#419,"":YR"YEARS OLD":RE
TURN
60 FOR K=96 TO 448 STEP 32:PRINT
#K:NEXT:RETURN'** CLEAR PART OF
SCREEN ROUTINE
70 POKE FP-1,0:PUT #1,R:R=R+1:PO
KE FP,0:RETURN'** ADD RECORD TO
FILE ROUTINE
75 PUT#1,R:R=R+1:RETURN
5000 '***** ERROR TRAPPING *****
5010 OPEN"D",#1,F$,1:IF LOF(1)=0
THEN CLOSE:EX=0:RETURN ELSE EX=
1:CLOSE:RETURN'** FILE EXIST VER
IFY ROUTINE
10000 '***** MAIN PROGRAM MODULE
*****
10010 '** MAIN MENU **
10020 POKE FP,0:CLS:PRINT "TODAY
'S DATE? (MMDDYY)":LP=32:LN=6:TY
=1:GOSUB30:TD$=AC$:POKE FP-1,0
10030 F$="MEMBER.FIL: "+RIGHT$(ST
R$(DD),1):OPEN"D",#1,F$,444
10040 FIELD#1,20AS LN$,16AS BN$,
10AS MN$,1AS SX$,30AS AD$,18AS C
T$,2AS ST$,5AS ZP$,10AS HP$,6AS
BD$,10AS BP$,28AS PW$,18AS WP$,6
AS DM$,28AS CP$(1),28AS CP$(2),2
8AS CP$(3),30AS PC$(1),30AS PC$(

```

```

2),30AS PC$(3),30AS PP$(1),30AS
PP$(2),30AS PP$(3)
10050 R=LOF(1)+1
10060 H$=STRING$(11,128)+"church
base"+STRING$(11,128):POKE FP,0:
CLS:PRINT #0,H$:PRINT#32,"";:PRI
NT TAB((32-LEN(R$))/2);R$:PRINT#
75,"MAIN MENU
10070 PRINT#136,"1 - ADD MEMBERS
"
10080 PRINT#198,"2 - VIEW ENTIRE
FILE"
10090 PRINT#260,"3 - VIEW SELECT
ED RECORDS"
10100 PRINT#324,"4 - CHURCHBASE
UTILITIES"
10110 PRINT#390,"5 - EXIT CHURCH
BASE"
10120 PRINT#485,"INPUT YOUR SELE
CTION:":
10130 POKE 42346,177'INKEY$ WITH
CURSOR
10140 ON INSTR("12345",INKEY$) G
OTO 11000,12000,13000,14000,1500
0
10150 GOTO10140
11000 '** ADD MEMBERS (OPTION 1)
11010 CLS:H$=STRING$(10,128)+"ad
d"+CHR$(128)+CHR$(128)+"members"
+STRING$(10,128)
11020 PRINT H$:PRINT#36,"**** PE
RSONAL INFO. ****"
11030 PRINT#75,"RECORD"R
11040 PRINT#96,"last"CHR$(128)"n
ame":PRINT#160,"first"CHR$(128)"
name":PRINT#224,"middle"CHR$(128
)"name":PRINT#288,"date"CHR$(128
)"of"CHR$(128)"birth (MMDDYY)":P
RINT#352,"sex (M/F)":PRINT#416,"
age"
11050 LP=128:LN=20:TY=0:GOSUB 30
:LSETLN$=AC$:LP=192:LN=16:GOSUB3
0:LSETBN$=AC$:LP=256:LN=10:GOSUB
30:LSETMN$=AC$:LP=320:LN=6:TY=1:
GOSUB30:LSETBD$=AC$:GOSUB50:LP=3
84:LN=1:TY=0:GOSUB30:LSETSX$=AC$
11060 GOSUB60
11070 PRINT#41,"RESIDENT";
11080 PRINT#96,"address":PRINT#1
60,"city":PRINT#224,"state":PRIN
T#288,"zip"CHR$(128)"code":PRINT
#352,"home"CHR$(128)"phone"
11090 LP=128:LN=30:GOSUB 30:LSET
AD$=AC$:LP=192:LN=18:GOSUB30:LSE
TCT$=AC$:LP=256:LN=2:GOSUB30:LSE
TST$=AC$:LP=320:LN=5:TY=1:GOSUB3
0:LSETZP$=AC$:TY=0:LP=384:LN=10:
GOSUB30:LSETHP$=AC$
11100 GOSUB 60:PRINT#41,"WORK/JO
B";
11110 PRINT#96,"work"CHR$(128)"p
hone":PRINT#160,"place"CHR$(128)
"of"CHR$(128)"work":PRINT#224,"j
ob"CHR$(128)"position"
11120 LP=128:LN=10:GOSUB30:LSETB
P$=AC$:LP=192:LN=28:GOSUB30:LSET
PW$=AC$:LP=256:LN=18:GOSUB30:LSE
TWP$=AC$
11130 GOSUB 60:PRINT#41,"CHURCH
";
11140 PRINT#96,"date"CHR$(128)"o
f"CHR$(128)"membership":PRINT#16
0,"church"CHR$(128)"position 1":
PRINT#224,"church"CHR$(128)"posi
tion 2":PRINT#288,"church"CHR$(1
28)"position 3"

```

# C.C.B.M.S. II



Jim DeStefano

Note: This program will not run without the program, "C FLMT", printed in the last issue. It is not the policy of CCM to "bait" new subscribers into purchasing back issues, however it would be impossible to print this series of programs in one issue. To get a copy of the program printed in the last issue, please send a self addressed business size envelope with \$.45 postage, US, to the author; RD 1 Box 375, Wyoming, DE 19934.

Last time, the first in the CoCo Clipboard Business Management System program series, we talked about the objective of the series, the most cost effective CoCo (-3 only) configuration and the program offered. Our objective is to write module 'spines' that can be modified for use in specific businesses. The given program user can do the modification themselves or send in a help request. Either I or another CCBMS Users Group member will make the mods. We just ask that you send in any mods you make. They will be kept on file for the use of the group.

Those interested in using the spines for their own business and those interested in making mods are encouraged to write making their wishes known.

Right now we could use a ML Chain routine. Chain can be accomplished in BASIC, but it would consume a lot of memory, be slow and be different for every program. As I envision it, a good ML Chain routine would get the variable names and values from an in memory program, store them while another program is loaded and set the variables to work with the new program.

The Chain routine would allow the modules to be written in many small programs, which would allow easier module modification; not to mention making it easier on the module programmer's head. Can you imagine many little programs in a ramdisk being called in at 'in memory' speed? Oh yes, the poor Old CoCo just ain't got the power or speed to do REAL work.

We discussed why I feel a CoCo-3, a monochrome monitor and most likely, a hard disk are needed for business use. That most people would like a floppy drive as well, but with a hard drive, no more than one would be needed.

The program offered last time is used to store the name address, etc. of each customer. Its strong point is the ability to

retrieve a customer record fast by either the customer number or name.

\* \* \* \* \*

The module offered the time is a Sales Order Entry, "SOE", program. It is only half of the story this time, but let's take one thing at a time. This second offering in the series was not easy to write and time was scarce; a bad combination. The result is an awkward field entry clearing action. If things get strange just hit Shift/Left Arrow.

Some of the screen printed instructions are too close to the field displays, but... the thing works!

The object of SOE is to have a record of sales. The display looks like a normal sales order ticket, so input should seem familiar. (SOE will also be used to reduce inventory and/or post to the Sales Journal and Accounts Receivable module.)

The operation of the module makes the CoCo sport its stuff. Once a sales order has been entered, it can be retrieved via the sales order number, the customer number or, by any part, or all, of the customer name. In addition, any line item of a previously committed, stored, sales order can be changed and allows item lines to be added.

As the last module had a neat thing (in memory key file search, as does this module), this module has a even more complex trick. We want fast program action and as little wasted external storage space (floppy or hard drive) as possible. In memory key file searching and direct access files get the speed, and a Triple File / Single Data storage method keeps wasted storage space to a minimum.

I guess there are many ways to get the desired results, but this TF/SD idea seemed like it would work and be fun to try. The logic goes this way, every sales order is composed of three sections, the customer data, the sales order heading data (together thought of as the sales order heading) and the line items.

There is no need to use storage space repeating the same customer information on every sales order in storage for the same

C.C.B.M.S. II continues on 18

customer. All that is needed is to identify the order's customer is the customer number.

The activity of calling up a given sales order just needs to sense the sales order's customer number, call in the number's data, blend the two together and display the result. (Each record of "CSFLMT" contains all the information needed about one customer.) That is the reason SOE won't work by itself. SOE gets the customer data from "CSFLMT". It was printed in the last issue.

Once the sales order Heading is blended, the third file, the sales order Body Data file, comes into play. Each record of this file is one line item of some sales order. Attaching the line item(s) to their heading gets a complete sales order displayed. Since all the files are Direct Access the display comes up quick and there is little wasted storage space.

The key to get everything to blend properly are 'tags'. The tag is put on each record when the sales order is written. To write a sales order, the program first asks for the customer's name. The customer data is displayed, then the program assigns and displays the new sales order identification number (It is just the Heading record number). The operator is then asked to input the balance of the heading data; date, etc. (The module wasn't written to use a system clock, but if one is in the system it could put in the date automatically.)

Finally the operator is asked to input the line item data; what was ordered, how many, price, etc. When finished, the operator is asked if all is okay, and if so, the sales order data is divided into records to be saved in two different files. The heading record is saved to the Heading Data file and the line item record(s) are saved to the Body Data file. This is where the record tagging is done.

The tagging process is neat to watch. First the Heading Data, less the customer information, except for the customer number is gathered to be saved. However, before saving the record, the program finds the first open record number in the Body Data file. That record number is attached, or 'tagged' to the heading record to be saved. The record is then saved in the Heading Data file.

Then the first line item of the sales order Body is gathered to make a record to be saved in the record number that was 'tagged' to the end of its Header record. Before saving the line, the program checks to see if there is another line item. If there is, the next open record number in the Body Data is tagged to the first record, and the first record is saved in the Body Data file.

The next line item is set to the record format and the above process is repeated until the last line item is found. It is tagged with a zero and it is saved. When the program is putting the sales order back together, the zero signals the last line

item, record, for the given sales order.

While programming the action, this zero caused me a lot of problems. First I had trouble sensing the difference between zero and nothing; there is a difference. Once I got that straighten out things worked fine, for a while. However, as soon as I had saved three or four orders the program wouldn't play back the line item correctly. I got missing line items and line items from one order in some other order. There seemed to be no rhyme or reason.

After about six hours I discovered that not only is a zero viewed as a zero, but ten, twenty, etc. contain a zero too. I was looking for a zero in the tag field and the old CoCo told me when it found one, just like I had asked it to; my, my. Next time I will use something other than a number, like an asterisk or back slash, to denote the last record.

To display any sales order the program just looks at the tags on the records as they are called in, and calls in the tag numbers. This gets the sales order in correctly as dictated by the tags. The number of the desired sales order number is first determined by inputting the desired sales order number or searching through the all sales orders for one customer and displaying each for the operator to choose or reject. Programming this action is enough 'fun' for me. However, consider what must happen when the operator wants to add a line to an order not only after it has been saved, but when a dozen other orders have been saved after it. Following a given order's records through the Body Data file is interesting to say the least.

So the complete sales order is contained in three different files, with no duplication of data in any of the files. Since the files are random access, the records are retrieved fast.

Note, don't ever make the mistake of using Sequential Access files to store random data. The allure of the sequential method is the economy of storage space used. However, the method's problem is, any given record can only be found by searching the file from the beginning, very time consuming. Normally to reduce the access time, the programmer breaks the single file into several files, say 24 files to contain one year's worth of data; 24 half months.

It is especially poor when using a Color Computer since its smallest disk storage unit is 2.3K. With 24 files, up to 55K of storage space could be wasted, with an expected average wasted storage space of 27K. That defeats the storage space saving intent and the action is still slow. In memory key file search and multi direct access files yield speed with acceptable wasted storage space.

\* \* \* \* \*

Since the last issue I've been having fun





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230 WIDTH40:LOCATE2,9:PRINT"- DI
D NOT FIND, (MORE); or There is
no":PRINT" Sales Order for:":
SOUND50,2:LOCATE4,15:RETURN
240 FG=0:FOR X=1 TO LOF(1):GET #
1,X:CS$(X)=CS$:CN$(X)=CN$:NEXTX:
RETURN
250 GOSUB1110:GOSUB1120:GOSUB113
0:RETURN
260 GOSUB1200:GOSUB1220:GOSUB123
0:RETURN
270 LOCATE33,11:PRINT"- SEARCHIN
G -":GOSUB1110:FOR Y=1 TO LOF(2)
:GET #2,Y:IF VAL(F$)=VAL(CN$) TH
EN4040 ELSE NEXTX:GOSUB230:PRINT
"Customer No "F$;:FOR X=1 TO 200
0:NEXTX:GOTO9040
280 LOCATE1,2:PRINTCS$;:LOCATE0,
3:PRINT" TR$:LOCATE1,4:PRINTCT$
", "TT$" "ZP$;:LOCATE0,5:PRINT"
"CN$:LOCATE1,6:PRINT">>> "CM$:R
ETURN
290 LOCATE57,2:PRINT"Sales Order
#": "SO$;:LOCATE65,3:PRINT"Date:
";DT$:LOCATE62,4:PRINT"Cus PO#":
"CP$:LOCATE66,5:PRINT"TA#": "TA$
:RETURN
300 LOCATE0,7:PRINTSTRING$(80,45
):LOCATE0,8:PRINT"LN"PI$" ITEM
# "PI$" DESCRIPTION
"PI$" QTY-UNIT "PI$" $
$/UNIT "PI$" EXTEN $$ ":LOCATE0,
9:PRINTSTRING$(80,45):C=1:Y1=10:
Y2=10
310 FOR X=10 TO 21:LOCATE0,X:PRI
NT:LOCATE3,X:PRINTPI$"
"PI$TS$TS$ "PI$TS$ "PI$"
"PI$:NEXTX:PRINT:LOCATE67
,X:PRINT"TAX ";:PRINTUSING"#####
.##";(.01*VAL(TX$))*VAL(SU$);:LO
CATE65,X+1:PRINT"TOTAL ";
315 PRINTUSING"#####.##";VAL(GT$
);:RETURN
320 F=VAL(FB$):C=1:GOSUB1210:FOR
X=10 TO 22:GET #3,F:RN$(C)=RN$:
LOCATE0,X:PRINTLE$;:LE$(C)=LE$:L
OCATE5,X:PRINTIN$;:IN$(C)=IN$:LO
CATE16,X:PRINTDS$;:DS$(C)=DS$:LO
CATE49,X:PRINTUSING"#####";VAL(QT
$);:QT$(C)=QT$
330 LOCATE54,X:PRINTUT$;:UT$(C)=
UT$:LOCATE60,X:PRINTUSING"#####.
##";VAL(DU$);:DU$(C)=DU$:LOCATE
71,X:PRINTUSING"#####.##";VAL(ED
$);:ED$(C)=ED$:F=VAL(NB$):NB$(C)
=NB$:C=C+1:F=VAL(NB$):IF F>0 THE
N NEXTX:C=1:RETURN ELSE CL=F:C=1
:RETURN
340 LOCATE0,8:PRINT:LOCATE32,8:P
RINT"- END OF FILE -":SOUND50,2
:FOR X=1 TO 1500:NEXTX:RETURN
400 LE$(1)=LE$(X):IN$(1)=IN$(X):
DS$(1)=DS$(X):QT$(1)=QT$(X):UT$(
1)=UT$(X):DU$(1)=DU$(X):ED$(1)=E
D$(X):RETURN
999 EXEC44539:STOP
1000 '***
1010 '*** Disk I/O ***
1020 '***
1030 OPEN"D",#1,"CUS FILE",152
1040 FIELD #1,6AS CN$,30AS CS$,2
5AS TR$,15AS CT$,2AS TT$,10AS ZP
$,45AS CM$,13AS PH$,3ASTY$,3AS C
L$:RETURN
1050 LSET CN$=CN$(1):LSET CS$=CS
$(1):LSET TR$=TR$(1):LSET CT$=CT
$(1):LSET TT$=TT$(1):LSET ZP$=ZP
$(1):LSET CM$=CM$(1):LSET PH$=PH
$(1):LSET TY$=TY$(1):LSET CL$=CL
$(1):RETURN

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1100 OPEN"D",#2,"SAL HEAD",91:RE
TURN
1110 FIELD #2,6AS CN$,30AS CS$,8
AS SO$,8AS DT$,8AS CP$,8AS TA$,8
AS SU$,2AS TX$,8AS GT$,5AS FB$:R
ETURN
1120 LSET CN$=CN$(1):LSET CS$=CS
$(1):LSET SO$=SO$(1):LSET DT$=DT
$(1):LSET CP$=CP$(1):LSET TA$=TA
$(1):LSET SU$=SU$(1):LSET TX$=TX
$(1):LSET GT$=GT$(1):LSET FB$=FB
$(1):RETURN
1130 PUT #2,VAL(SO$):RETURN
1200 OPEN"D",#3,"SAL BODY",70:RE
TURN
1210 FIELD #3,3AS RN$,2AS LE$,8A
S IN$,30AS DS$,4AS QT$,2AS UT$,8
AS DU$,8AS ED$,5AS NB$:RETURN
1220 LSET RN$=RN$(1):LSET SO$=SO
$(1):LSET LE$=LE$(1):LSET IN$=IN
$(1):LSET DS$=DS$(1):LSET QT$=QT
$(1):LSET UT$=UT$(1):LSET DU$=DU
$(1):LSET ED$=ED$(1):LSET NB$=NB
$(1):RETURN
1230 PUT #3,SR:RETURN
1250 IF F>LOF(2) OR F<1 THEN SOU
ND50,1:LOCATE14,22:PRINT"- NUMBE
R is larger or smaller than exis
ting numbers. "TS$;:FOR X=1 TO
1599:NEXTX:GOTO 9040 ELSE RETUR
N
1999 EXEC44539:STOP
2000 '***
2010 '*** Inquire Identify ***
2020 '***
2030 WIDTH80:GOSUB1030:GOSUB1100
:GOSUB1200:GOSUB2040:IF FG(1)=1
THEN RETURN ELSELOCATE33,0:ATTR0
,0,U:PRINT" - INQUIRE - ";:LOCAT
E0,1:PRINT"";:ATTR0,0:GOSUB2200
2040 LOCATE0,0:ATTR0,0,U:PRINT"S
ales Order":LOCATE35,0:PRINT"- C
CB -";:LOCATE74,0:PRINT"SLORNT";
:ATTR0,0:RETURN
2050 LOCATE0,3:PRINT"Customer. .
. "STRING$(30,46)
2060 LOCATE50,3:PRINT"Cus No . .
. ":RETURN
2070 STOP:'*** don't delete
2130 PRINT:PRINTSTRING$(80,45);
2140 SOUND224,1:PRINT"EDITOR COM
MANDS: BACKSPACE - L Arrow, CL
EAR - SF/L Arrow, END INPUT - <
ENTER>";:ATTR0,0,U:PRINTSTRING$(
80,32);:ATTR0,0:RETURN
2200 LOCATE0,3:PRINT"Sales Order
No .....":LOCATE25,3:PRINT"
Cus No .....":LOCATE40,3:PRINT"
Cus Name "STRING$(30,46):GOSUB21
30
2210 X$=TG$(2)+TG$(3):LOCATE14,2
2:PRINT"- INPUT: Sales Order NUM
BER or <ENTER> for Customer NUMB
ER Choice.";X1=15:X2=15:Y1=3:LN
=0:LN(1)=8:GOSUB100:IF F$>" THE
N F=VAL(F$):GOSUB1250:GOTO4030
2220 X$=TG$(2)+TG$(3):LOCATE23,2
2:PRINT"Customer NUMBER or <ENTE
R> for Customer NAME.":X1=32:X2=
32:Y1=3:LN=0:LN(1)=6:GOSUB100:IF
F$>" THEN F$=RIGHT$("00000"+F$
,6):GOSUB270:GOTO4040
2230 LOCATE31,11:PRINT"- LOADING
DATA -":GOSUB240:LOCATE0,11:PRI
NT:LOCATE33,22:PRINT"ame.":X1=49
:X2=49:Y1=3:LN=0:LN(1)=30:SOUND2
25,1:GOSUB50:IF F$>" THEN CS$=F
$:FG=1:GOTO3070 ELSE9040
2999 EXEC44539:STOP
3000 '***

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3010 '*** Add new sales order **
*
3020 '***
3030 GOSUB220:GOSUB240:GOSUB1100
:GOSUB1200
3040 WIDTH80:GOSUB2040:LOCATE35,
0:ATTR0,0,U:PRINT" - ENTRY -";:L
OCATE0,1:PRINT"";:ATTR0,0:GOSUB2
050:LOCATE0,5:PRINT" ";:FOR X=1
TO 26:PRINTSD$;:NEXTX:PRINT:GOSU
B2140
3050 N$="":LOCATE25,22:PRINT"- I
NPUT: Customer Name or <ENTER> f
or Customer NUMBER.":X1=14:X2=1
4:Y1=3:LN=0:LN(1)=30:GOSUB50:IF
F$>" THEN CS$=F$:GOTO3070
3060 X$=TG$(2)+TG$(3):LOCATE25,2
2:PRINT"- INPUT: Customer NUMBER
":X1=57:X2=57:Y1=3:LN=0:LN(1)=6:
GOSUB100:F=VAL(F$):IF F=0 THEN90
40 ELSE3120
3070 LOCATE23,22:PRINT"Number of
Customer";:C=0:A1=0:B1=9:X1=42:
FOR X=1 TO LOF(1):IF C=12 THEN A
1=40:B1=9
3080 IF C=24 THEN PRINT" or 'M',
More";:C=0:FL=1:X1=53:A1=0:B1=9
:LN=0:LN(1)=6:X1=66:Y1=22:X2=66:
F$="":GOSUB50:IF F$="M" THEN3090
ELSE F=VAL(F$):IF F=0 THEN3140
ELSE 3120
3090 IF INSTR(CS$(X),CS$)>0 THEN
LOCATEA1,B1:Y=X:PRINTUSING"####
#";X;:PRINT". "CS$(X):B1=B1+1:C=
C+1
3100 NEXTX:IF C=0 THEN3140 ELSE
IF FL=0 AND C=1 THEN X=Y:F=X:GOT
O3130
3110 LOCATEX1,22:PRINT" F$="":L
N=0:LN(1)=6:Y1=22:X2=X1:GOSUB50:
IF FG=1 THEN FG=0:GOTO270 ELSE F
=VAL(F$):IF F=0 THEN9040
3120 IF F>LOF(1) OR F<1 THEN SOU
ND50,1:LOCATE25,22:PRINT"- NUMBE
R is larger or smaller than exis
ting numbers.":FOR X=1 TO 999:NE
XTX:GOTO 9040
3130 GOSUB1040:GET #1,F:LOCATE0,
6:PRINT:IF F$>" THEN F$=CN$:GOT
O3150
3140 GOSUB230:PRINT" "CS$;:FOR X
=1 TO 750:NEXTX:GOTO9040
3150 GOSUB280:IF FG=1 THEN270
3200 CN$(1)=CN$:CS$(1)=CS$:LOCAT
E66,2:PRINT"SO#";:SO$(1)=STR$(L
OF(2)+1):PRINTSO$(1);
3210 LOCATE65,3:PRINT"Date:"
3220 LOCATE62,4:PRINT"Cus PO#:"
3240 LOCATE66,5:PRINT"TA#": "TA
$(1)="-"
3250 X$=TG$(2)+TG$(3)+"/":LOCATE
24,22:PRINT"- INPUT: Order Date.
(Only mm/dd needed);:F$=DT$(1)
:X1=71:X2=71:Y1=3:LN=0:LN(1)=8:X
1=X1+LEN(DT$(1)):GOSUB100:LN=LEN
(F$):IF LN<5 THEN3250 ELSE IF LN
=5 THEN DT$(1)=F$+"/89" ELSE DT$(
1)=F$
3260 F$=RIGHT$(F$,3):IF LEFT$(F$
,1)<>"/" THEN3250 ELSE LOCATE71,
3:PRINTDT$(1):DT$=DT$(1)
3270 LOCATE33,22:PRINT"Customer
Purchase Order Number.":F$=CP$(
1):X1=71:X2=71:Y1=4:LN=0:LN(1)=8
:X1=X1+LEN(CP$(1)):GOSUB50:IF F$
>" THEN CP$(1)=F$:CP$=F$
3280 IF FG(2)=1 THEN FG(2)=0:Y1=
Y2:GOTO3300 ELSE GOSUB300

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3300 LOCATE9,22:PRINT"Line Number"
" " - INPUT: ";Y1=Y2:LOCATE0,Y
1:LE$(C)=STR$(C):PRINTUSING"##";
C;Y2=Y1
3310 LOCATE33,22:PRINT"Item / Part
Number. "TS$;F$=IN$(C):X1=5:
X2=5:LN=0:LN(1)=8:X1=X1+LEN(IN$(
C)):GOSUB50:IN$(C)=RIGHT$(TS$+F$
,8):LOCATE5,Y1:PRINTIN$(C);
3320 LOCATE33,22:PRINT"Item Desc
ription. "TS$;F$=DS$(C):X1=16:X
2=16:LN=0:LN(1)=30:X1=X1+LEN(DS$
(C)):GOSUB50:DS$(C)=F$
3330 X$=TG$(2)+TG$(3):LOCATE33,2
2:PRINT"Quantity sold. "TS$;
F$=STR$(VAL(QT$(C))):X1=49:X2=49
:LN=0:LN(1)=4:X1=X1+LEN(QT$(C)):
GOSUB100:QT$(C)=F$:LOCATE49,Y1:I
F F$="" THEN F$="0":PRINTRIGHT$(
TS$+F$,4); ELSE PRINTRIGHT$(TS$+
F$,4);
3340 LOCATE33,22:PRINT"Sale Unit
; EA, PR, Etc. ";F$=UT$(C):X1=54
:X2=54:LN=0:LN(1)=2:X1=X1+LEN(UT
$(C)):GOSUB50:UT$(C)=F$:LOCATE54
,Y1:IF F$="" THEN UT$(C)="EA":PR
INTUT$(C); ELSE PRINTUT$(C);
3350 X$=X$+" ":LOCATE33,22:PRINT
"Price per Unit. "TS$;F$=STR$(VA
L(DU$(C))):X1=60:X2=60:LN=0:LN(1
)=7:X1=X1+LEN(DU$(C)):GOSUB100:F
$=F$+" ":IF INSTR(F$,".")>5 THEN
SOUND24,2:GOTO3350 ELSE DU$(C)=
LEFT$(F$,LEN(F$)-1):F=VAL(F$):LO
CATE60,Y1
3360 PRINTUSING"#####.##";F;F=V
AL(QT$(C))*VAL(DU$(C)):ED$(C)=ST
R$(F):LOCATE71,Y1:PRINTUSING"###
###.##";F;
3370 SOUND225,1:LOCATE26,22:PRIN
T"Correct ?, (N/Y) ";X1=4
3:Y1=22:GOSUB200:SOUND224,1:ATTR
0,0:IF I$<>"Y" AND I$<>"y" THEN
FG(2)=1:GOTO3250 ELSE IF FG(1)=1
THEN5040 ELSE C=C+1:Y2=Y2+1:Y1=
Y2
3371 SOUND225,1:LOCATE4,22:PRINT
TS$TS$"Enter Another Line ?, (N/Y
) ";X1=51:Y1=22:GOSUB200:SOUND2
24,1:ATTR0,0:IF I$<>"Y" AND I$<>
"y" THEN FG(2)=1:GOTO3380 ELSE33
00
3380 CT=0:FOR X=1 TO 12:CT=CT+VA
L(ED$(X)):NEXTX:SU$(1)=STR$(CT)
3390 X$=TG$(2)+TG$(3):LOCATE8,22
:PRINTTS$ " Percent Tax ?
"TX$(1) " TS$TS$;F$=TX$(1):X1=
41:X2=41:Y1=22:LN=0:LN(1)=2:X1=X
1+LEN(TX$(1)):GOSUB100:TX$(1)=F$
:F=(VAL(F$)*.01)*CT:PRINT"%":LOC
ATE67,22:PRINT"TAX ";:PRINTUSIN
G"#####.##";F;
3400 CT=CT+F:LOCATE71,23:PRINTUS
ING"#####.##";CT;:GT$(1)=STR$(CT
):LOCATE25,22:PRINT"- COMMIT ORD
ER ?, (N/Y); or F1 to CANCEL";:X
1=65:GOSUB200:ATTR0,0:IF I$="g"
THEN9040
3405 IF I$<>"Y" AND I$<>"y" THEN
FG(2)=1:Y2=10:C=1:CT=0:GOTO3250
3410 IF FG(1)=1 THEN5060 ELSE FB
$(1)=STR$(LOF(3)+1):GOSUB250:SR=
VAL(FB$(1))
3420 GOSUB1210:FOR X=1 TO 12:RN$(
1)=STR$(SR):LE$(1)=LE$(X):IN$(1
)=IN$(X):DS$(1)=DS$(X):QT$(1)=QT
$(X):UT$(1)=UT$(X):DU$(1)=DU$(X)

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:ED$(1)=ED$(X):IF LE$(X+1)="" TH
EN NB$(1)="0":GOSUB1220:GOSUB123
0 ELSE NB$(1)=STR$(SR+1):GOSUB12
20:GOSUB1230:SR=SR+1:NEXT
3430 GOTO9040
3999 EXEC44539:STOP
4000 '***
4010 '*** Field Display ***
4020 '***
4030 GOSUB1110:GET #2,F:GET #1,V
AL(CN$):GOSUB280:GOSUB290:GOSUB3
00:GOSUB320:IF FG(1)=1 THEN GOTO
5040 ELSE LOCATE25,23:PRINT"- Pr
ess Any Key to Continue";:X1=52:
Y1=23:SOUND224,1:GOSUB200:GOTO90
40
4040 GET #1,VAL(CN$):GOSUB280:GO
SUB290:GOSUB300:GOSUB320:LOCATE2
7,23:SOUND224,1:X1=46:Y1=23:IF F
G(1)=1 THEN5150 ELSE PRINT"- Con
tinue ?, (Y/N)";:GOSUB200
4050 IF I$="N" OR I$="n" THEN904
0 ELSE NEXTY:GOSUB340:GOTO9040
4999 EXEC44539:STOP
5000 '***
5010 '*** Change Record ***
5020 '***
5030 FG=1:FG(1)=1:FG(2)=1:GOSUB2
030:LOCATE33,0:ATTR0,0,U:PRINT"
- CHANGE - ";:LOCATE0,1:PRINT";
:ATTR0,0:GOTO2200
5040 TX$(1)=TX$:CN$(1)=CN$:CS$(1
)=CS$:SO$(1)=SO$:DT$(1)=DT$:CP$(
1)=CP$:TA$(1)=TA$:FB$(1)=FB$:LOC
ATE9,22:PRINTTS$ " - Change,
Add or End ? (C/A/E) ";:X1=54:Y1
=22:SOUND225,1:GOSUB200:FG(2)=1:
IFI$="A" OR I$="a" THEN5046
5041 IF I$="E" OR I$="e" THEN338
0 ELSE F$="" :LOCATE9,22:PRINTTS$
 " - Which Line ?"TS$TS$;:X1=
39:X2=39:GOSUB100:C=VAL(F$):IF C
<1 OR C>12 THEN5042 ELSE IF LE$(
C)="" THEN5042 ELSE Y2=C+9:Y1=Y2
:GOTO3250
5042 SOUND25,2:GOTO5041
5046 SOUND225,1:LOCATE4,22:PRINT
TS$TS$"Enter Another Line ?, (N/Y
) "TS$;:X1=51:Y1=22:GOSUB200:SOU
ND224,1:ATTR0,0:IF I$<>"Y" AND I
$<>"y" THEN FG(2)=1:GOTO3380
5047 FOR X=1 TO 12:IF LE$(X)>""
THEN NEXT ELSE C=X:Y2=C+9:GOTO33
00
5060 CLOSE2:GOSUB1100:GOSUB1110:
GOSUB1120:GOSUB1130
5061 FOR X=1 TO 12:IF LE$(X)=""
THEN9040
5062 IF INSTR(NB$(X),"0")>0 AND
LE$(X+1)="" THEN IF VAL(NB$(X))>
0 THEN5063 ELSE GOSUB5080:NB$(1)
="0":GOSUB400:GOSUB1220:PUT #3,V
AL(RN$(X)):NEXT
5063 IF INSTR(NB$(X),"0")>0 AND
LE$(X+1)="" THEN IF VAL(NB$(X))>
0 THEN5064 ELSE GOSUB5080:NB$(1)
=STR$(LOF(3)+1):GOSUB400:GOSUB12
20:PUT #3,VAL(RN$(X)):NEXT
5064 IF NB$(X)="" AND LE$(X+1)=""
THEN GOSUB5080:NB$(1)="0":GOSU
B400:GOSUB1220:PUT #3,VAL(RN$(X
)):NEXT
5065 IF NB$(X)="" AND LE$(X+1)>""
THEN GOSUB5080:NB$(1)=STR$(LOF
(3)+2):GOSUB400:GOSUB1220:PUT #3
,VAL(RN$(X)):NEXT
5068 IF NB$(X)>"" AND LE$(X+1)>""
THEN GOSUB5080:NB$(1)=NB$(X):G
OSUB400:GOSUB1220:PUT #3,VAL(RN$
(X)):NEXT
5069 STOP

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```

5080 IF RN$(X)="" THEN RN$(1)=ST
R$(LOF(3)+1):RN$(X)=RN$(1):RETUR
N ELSE RN$(1)=RN$(X):RETURN
5150 LOCATE24,22:PRINT"- Change
This One ? (Y/N) ";:X1=49:Y1=22:
GOSUB200:IF I$="N" OR I$="n" THE
N NEXTY:GOSUB340:GOTO9040 ELSE 5
040
5999 EXEC44539:STOP
6000 '***
6010 '*** Report/Printer Routine
***
6020 '***
6030 CLS:PRINT:PRINT" REPORTS,
NEXT ISSUE, TIME IS TIGHT":FOR X
=1 TO 1999:NEXTX:GOTO9040
7000 '***
7010 '*** Hints ***
7020 '***
7030 WIDTH80:GOSUB2040:PRINT:PRI
NT:PRINT" ";:ATTR0,0,U:PRINT
"GENERAL";:ATTR0,0:PRINT":PRIN
T:PRINT" -The operator i
s often requested to make a Yes/
No choice,":PRINTTS$;"noted by (
Y/N) or (N/Y). The first letter
, N or Y, is the "
7040 PRINTTS$;"default choice an
d will work with any key. The s
econd":PRINTTS$;"letter must be
pressed directly.":PRINT:PRINT"
-Upon an irreversible ch
oice, the operator will be asked
to":PRINTTS$;"spell the choice;
such as, (N/YES). "
7050 PRINT:PRINT" -Menu
items 4 through 7 are reserved f
or use with later":PRINTTS$;"rev
isions."
7060 PRINT:PRINT:PRINT" ";:A
TTRO,0,U:PRINT"INQUIRE";:ATTR0,0
:PRINT":PRINT:PRINT"
-
ENTER a Sales Order before runni
ng INQUIRE. Otherwise":PRINTTS$
;"an Error will result.":GOSUB79
98
7070 PRINT:PRINT:PRINT"
-INQUIRE searches on lowercase";
7080 PRINT" and uppercase letter
s separately.":PRINTTS$;"If you
have input any thing using lower
case, don't forget to use":PRIN
TTS$;"lowercase during INQUIRY.
7090 PRINT:PRINT:PRINT" ";:A
TTRO,0,U:PRINT"DISPLAY";:ATTR0,0
:PRINT":PRINT:PRINT"
-
If you are using a monochrome co
mposite monitor, insert in prog.
":PRINTTS$;"SYSMENU, in Line Numbe
r 10, between poke & goto, ':GOS
UB2222" and"
7100 PRINTTS$;"change 'STOP' in L
ine 2222 to 'RETURN'; or in this
prog., insert":PRINTTS$;"at end
of Line 9035 ':GOSUB10111" and c
hange the end of Line":PRINTTS$
"10111 from 'RUN' to 'RETURN'."
7110 PRINT:PRINT" -If yo
u are using a RGB monitor, turn
it ON in Line 9035.":GOSUB7998
7997 GOTO9040
7998 LOCATE27,23:PRINT"Press Any
-Key to continue.":EXEC44539:CL
S:GOSUB2040:PRINT:PRINT:RETURN
7999 EXEC44539:STOP
9000 '***
9010 '*** Setup and Menu ***

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9020 '***
9030 PCLEAR1: CLEAR2999: FILES 3,3
50: DIM CS$(101), CN$(101), RN$(101)
, LE$(13), IN$(12), DS$(12), QT$(12)
, UT$(12), DU$(12), ED$(12), NB$(13)
: CLS1: POKE&HFF94, 2: TG$(1)=CHR$(
1)+CHR$(4)+CHR$(8)+CHR$(9)+CHR$(
10)+CHR$(12)+CHR$(13)+CHR$(21)+C
HR$(189)+CHR$(214)
9035 TG$(2)="123456789": TG$(3)="
0"+CHR$(8)+CHR$(21)+CHR$(13): LD$
=CHR$(127): SD$=" - ": TS$="
": PI$=CHR$(124): GOSUB10111
9040 CLOSE: CT=0: C=0: FG=0: FG(1)=0
: FG(2)=0: F$="": CN$(1)="": CS$(1)=
"": SO$(1)="": DT$(1)="": CP$(1)="
: TA$(1)="": FB$(1)="": SU$(1)="": T
X$(1)="": GT$(1)="": SU$="": TX$="
": WIDTH40: PRINT"Sales Menu
-
CCBMS -": LOCATE34, 0: PRINT"SLORN
T"
9045 FOR X=1 TO 12: LE$(X)="": IN$(
X)="": DS$(X)="": QT$(X)="": UT$(X)
)="": DU$(X)="": ED$(X)="": NB$(X)=
"": NEXT X
9050 LOCATE8, 3: PRINT"1. ENTER Ne
w Sales Order.": LOCATE8, 5: PRINT"
2. INQUIRE on Old Sales Order.":
LOCATE8, 7: PRINT"3. CHANGE Old Sa
les Order.": LOCATE8, 9: PRINT"4.":
LOCATE8, 11: PRINT"5.": LOCATE8, 13:
PRINT"6.": LOCATE8, 15: PRINT"7. "
9060 LOCATE8, 17: PRINT"8. REPORTS
, Sales Order.": LOCATE8, 19: PRINT
"9. HINTS.": LOCATE7, 21: PRINT"F2.
RETURN to Main Menu.": LOCATE9, 2
3: PRINT"- SELECT (1 to 9 or F2)
": SOUND245, 1: X1=32: Y1=23
9070 LOCATEX1, Y1: ATRO, 0, B: PRINT
"": I$=INKEY$: IF I$="" THEN9070
ELSE ATRO, 0: ON INSTR(TG$(2)+CHR
$(4), I$)+1 GOTO9070, 3030, 2030, 50
30, 9080, 9090, 9100, 9110, 6030, 7030
, 9140
9080 SOUND224, 1: GOTO9070, ****4
9090 SOUND224, 1: GOTO9070, ****5
9100 SOUND224, 1: GOTO9070, ****6
9110 SOUND224, 1: GOTO9070, ****7
9140 WIDTH40: CLS: LOCATE10, 9: PRIN
T"- LOADING SYSTEM MENU -": RUN"S
YSMNU.BAS"
10000 '***
10010 '*** Composite Screen Setu
p ***
10020 '***
10030 EXEC44539: STOP
10111 GOSUB10112: WIDTH80: PALETTE
0, 0: PALETTE 8, 63: POKE&HFF98, 4: P
OKE&HFF99, &H75: POKE&HE045, 4: POKE
&HE046, &H75: POKE&HFE05, 24: POKE&H
FE06, 47: POKE&HFE07, 160: CLS1: POKE
&HFE07, 0: RETURN
10112 WIDTH32: PRINT: PRINT" IF YO
U ARE NOT USING A MONO- CHROM
E TERMINAL, DELETE 'GOTO
10111' IN LN9035. IF YOU ARE,
DELETE 'GOSUB10112' IN LN 10
111. (PRESS ANY KEY)": EXEC44539
: RETURN
11000 '***
11010 '*** Easy SAVE ***
11020 '***
11111 POKE65496, 0: CLOSE: SAVE"SL1
: 0": POKE65497, 0: ATRO, 0
11121 STOP
11125 SAVE"SLORNT": STOP
20000 GOSUB1200: GOSUB1210
    
```

```

20010 FOR X=1 TO 25: GET #3, X: PRI
NT:: PRINTRN$ - "LE$", "IN$", "D
S$", "QT$", "UT$", "DU$", "ED$",
"NB$": EXEC44539: NEXT: EXEC44539: S
TOP
40000 COPY"SAL BODY.DAT: 0" TO4: CO
PY"SAL HEAD.DAT: 0" TO4: RUN
50000 KILL"SAL BODY.DAT: 4": KILL"
SAL HEAD.DAT: 4
    
```

ChurchBase II

```

11150 LP=128: LN=6: TY=1: GOSUB30: L
SETDM$=AC$: TY=0: LP=192: LN=28: GOS
UB30: LSETCP$(1)=AC$: LP=256: GOSUB
30: LSETCP$(2)=AC$: LP=320: GOSUB30
: LSETCP$(3)=AC$
11160 GOSUB 60: PRINT@41, "HISTORY
";
11170 PRINT@96, "most"CHR$(128)"r
ecent"CHR$(128)"church": PRINT@16
0, "name"CHR$(128)"of"CHR$(128)"t
he"CHR$(128)"pastor": PRINT@224, "
previous"CHR$(128)"church": PRINT
@288, "name"CHR$(128)"of"CHR$(128)
)"the"CHR$(128)"pastor": PRINT@35
2, "previous"CHR$(128)"chu
11180 PRINT@416, "name"CHR$(128)"
of"CHR$(128)"the"CHR$(128)"pastro
r"
11190 LP=128: LN=30: GOSUB30: LSETP
C$(1)=AC$: LP=192: GOSUB30: LSETPP$(
1)=AC$: LP=256: GOSUB30: LSETPC$(2
)=AC$: LP=320: GOSUB30: LSETPP$(2)=
AC$: LP=384: GOSUB30: LSETPC$(3)=AC
$: LP=448: GOSUB30: LSETPP$(3)=AC$
11200 GOSUB 70: SOUND 55, 1: SOUND
100, 1: SOUND 150, 1: SOUND 200, 1: GO
TO 11010
12000 CLS: PRINT"NOT AVAILABLE.":
: EXEC34442: GOTO10060
13000 CLS: PRINT"NOT AVAILABLE.":
: EXEC34442: GOTO10060
14000 CLS: PRINT"NOT AVAILABLE.":
: EXEC34442: GOTO10060
15000 CLS: PRINT"NOT AVAILABLE.":
: EXEC34442: GOTO10060
49999 POKE FP-1, 0: CLOSE: END 'THI
S PREVENTS REDUNDANCLY OF THE IN
ITIALIZATION ROUTINE
50000 '***** DATA STATEMENTS ***
**
50010 DATA 26, 80, 190, 128, 0, 183, 2
55, 222, 166, 128
50020 DATA 183, 255, 223, 167, 31, 14
0, 224, 0, 37, 241, 57
60000 '***** INITIALIZATION *****
*
60010 LOADM "CBTITLE.BIN" '*** CHU
RCHBASE TITLE SCREEN
60020 POKE960, 95: POKE961, 92: POKE
962, 150: POKE963, 188: POKE964, 31: P
OKE965, 2: POKE966, 126: POKE967, 150
: POKE968, 163: EXEC960 '***PCLEAR 0
ROUTINE
60030 CLEAR 1000, 32767
60040 FILES 1, 500
60060 FOR I=1 TO 21: READ A: A$=A$
+CHR$(A): NEXT '*** ROM-RAM TRANSFER
60070 P=VARPTR(A$)+1: POKE P, 126:
EXEC P
60080 F$="CONFIG.CB": GOSUB 5010
60090 IF EX=0 THEN CLS: PRINT"YOU
MUST RUN THE 'CONFIG' PRO
GRAM BEFORE RUNNING CHURHBASE": N
EW
60100 OPEN"I", #1, F$: INPUT #1, DN,
    
```

```

MD, DD, SR, BR, R$, CT
60110 POKE 55232, 0: POKE55318, 20+
SR: POKE150, BR
60120 DRIVEMD
60130 POKE 282, 1 '*** LOCKS ALL-CA
PS MODE
60140 POKE 41598, 248: POKE 41599,
248 '*** REDEFINES BREAK KEY
60150 POKE 41596, 250 '*** REDEFINE
S CLEAR KEY
60160 POKE 42346, 177 'CURSOR WIT
H INKEY$
60170 IF CT=2 THEN FP=65497 ELSE
FP=65495 '*** HI-SPEED POKE
60180 CLOSE#1
60190 GOSUB 20
60200 GOTO 10010
    
```

ADVERTISER INDEX

Gimmesoft .....	IFC
E.Z. Friendly Software .....	7
Alpha Software Technologies .....	7
Delmar Co. ....	8
Clipboard's Shop & Save .....	10
CoCo Clipboard Magazine .....	11
ClipDisk .....	12
Jr & Jr Softstuff .....	24
Bob van der Poel Software .....	24
Sigma Software .....	26
CoCo Connection .....	26
Freedom Village .....	26
CRC/Disto .....	28
S.D. Enterprises .....	31
Orion Technologies .....	32
Orion Technologies .....	34
Cer-Comp Ltd. ....	36
Somethings Special .....	38
Brian Stretch .....	43
Granite Computer Systems .....	43
Puritas Springs Software .....	44
Clearbrook Software Group .....	45
Burke & Burke .....	48
RGB Computer Systems .....	51
Rulaford Research .....	53
Simply Better Software .....	56
NUAGE Computer Fair .....	IBC
Kenton Electronics .....	OBC

# Machine Language and OS9

Bob van der Poel



As nice as Basic09 is there are times when it just isn't fast or compact enough. At times like this we can either grin and shrug it off, or we can pull out the old assembler and slug out some ML code. I can see some of you going into a cold sweat at the very thought . . . but it really isn't all that bad -- just a matter of being very careful and double checking everything.

When you tell Basic09 to use a ML subroutine you use the RUN command, just like you do for another Basic09 procedure. This is nice for two reasons: first it's easy to remember; second it means we can write our program using only Basic09 and then later we can replace certain routines with ML subroutines as we get them written.

So let's get right into it! Here's the scenario: You've just written a BBS program. As part of the log-on procedure you ask the user for his name, look in a text file for a match, ask for a password and then check for another match. All the users and their passwords are kept in a file called "users". Its format is:

```
"LastName,FirstName@Password."
```

Here is a short sample user file:

```
vanderpoel,Bob@Writer  
Smith,Roy@Pastword  
Jones,Jim@Preacher  
Frog,Kermit@BigBird
```

Notice that both names and passwords use a combination of upper and lower case letters. Also, we are using commas and "@"s as delimiters in the file. One potential problem with names like mine is that we may sometimes skip a space -- our program must either prompt the user not to use spaces or strip out spaces. Being "user friendly" we'll do the latter. And in the same manner we'll convert everything to uppercase before doing comparisons. By the way, our user file has the last name first in anticipation of a better search method which will utilize a sorted file -- some thinking ahead.

First, we will code this entire program segment in Basic09. Then we'll see if certain parts need to be converted to ML.

Listing 1 is the segment which does the prompting, and the Basic09 code for ToUpper. If this were a "real" example we'd probably call GetName from a main program and return

an error value . . . but that's for you.

The only real problem we have with this program (and the reason for this article) is that the procedure ToUpper is much to slow for regular usage. I've done some testing with other Basic09 versions of the program and the Peek/Poke version presented here is the fastest I've been able to come up with. Converting 100 strings to uppercase takes about 7 seconds . . . the ML version we're going to develop does the same thing in less than a second!

For those of you who do not have access to the OS-9 RMA Assembler this months issue of ClipDisk has both the source files and assembled code.

If you have a look at page B-1 of the Basic09 reference manual which comes with Level II OS-9 you'll see an assembly language listing for the INKEY program. We'll use this as a frame for our program. (Note that the INKEY example is for the Level I assembler, ASM; we are going to use the Level II assembler, RMA.). Listing 2 shows our assembly language ToUpper routine.

When Basic09 runs a ML subroutine it places the following information on the "S" stack:

```
0,s return address  
2,s number of parameters passed  
4,s address of 1st parameter  
6,s size of 1st parameter  
8,s address of 2nd parameter (if present)  
10,s size of 2nd parameter (if present)  
continue till last parameter....
```

To access the string we're going to pass we simply load the X register with the parameter and start converting characters to uppercase. We load the Y register with the size of the string and count down until the entire string has been processed.

If you examine the assembler source code you'll see that we check to see that only one parameter has been passed to our program. If any other number of parameters is specified the B register is loaded with a \$38 and the carry flag is set (with a COMA instruction). If the carry flag is set when we return from a subroutine Basic09 will report the error contained in the B register

-- in this case a parameter error. If our conversion is successful we clear the A register; this clears the carry flag and signals Basic09 that no errors are to be reported.

If you write your own assembler routines for use with Basic09 you should be aware of a couple of things:

1. The type/language byte must be set to reflect that this is a subroutine module. If you are using ASM you can do this with "SBRTN+OBJCT". For RMA just use the value \$21.

2. Since you are writing a subroutine module you can not specify any variables except for those that use stack storage. If I need variables or buffers for my routines I usually set them up as follows:

csect

Buffer rmb 10
Myvar rmb 2
Return rmb 2 return address
Pcount rmb 2 number of params
Param1 rmb 2
P1Size rmb 2

endsect

start

leas -Return,s make room for more vars
tfr s,u point u to vars

....

exit

leas Return,s reset stack pointer
rts

Now all the variables can be accessed with the "Name,u" notation. It is important that you only leave the routine through "exit", otherwise the stack will not be reset and your program will crash.

Another advantage (other than speed) of assembler subroutines is that we can pass a variable number of parameters to our routines. If you think that an example of this might be useful let me know and we'll cover it in a future column. Next issue we'll look at interfacing 'C' functions with Basic09.

And don't forget to write! We've moved, so make note of the new address:

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Machine Language and OS9 continues on 25

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```

029A Count=0
02A1 LOOP
02A3 PRINT "Please enter your password: ";
02C4 READ #1,Compare
02CD RUN ToUpper(Compare)
02D7 EXITIF Compare=Password THEN \\ ENDEXIT
02E8 Count=Count+1
02F3 IF Count>4 THEN
02FF PRINT "Access denied!"
0311 END
0313 ENDIF
0315 ENDOLOOP
0319
031A PRINT "Access granted...."
0330 (* main program continues....
0331
034E
PROCEDURE ToUpper
0000
0001 PARAM Stuff:STRING[1000]
000D DIM T,Char
000E
0017
0018 FOR T=ADDR(Stuff) TO ADDR(Stuff)+LEN(Stuff)-1
0038 Char=PEEK(T)
0043 IF Char>96 AND Char<123 THEN
0058 Char=Char-32
0064 POKE T,Char
006F ENDF
0071 NEXT T
Listing 2
* Assembler source file for ToUpper.
* This subroutine interfaces with Basic09,
* Usage: Run ToUpper(string)
* Requires the RMA assembler.
nam ToUpper
psect ToUpper,$21,$81,0,0,start
csect
Return rmb 2 return address
Pcount rmb 2 number of params
String rmb 2
StrLen rmb 2
endsect
start
ldd Pcount,s get # of params
cmpd #1 only 1 param permitted

```

```

PROCEDURE GetName
0000
0001 DIM Userinput,Compare,Name,Password:STRING[30]
0019 DIM Count,T:INTEGER
0024 DIM Path:BYTE
002B Count=0
002C (* first get the name
0033
0034
0049
004A 10
004E LOOP
0050 PRINT "Please enter your complete name: ";
0076 READ #1,Userinput
007F T=SUBSTR(" ",Userinput)
008B EXITIF T>0 THEN \\ ENDEXIT
009B PRINT "Enter both first and last names!"
00BF Count=Count+1
00CA IF Count>4 THEN
00D6 PRINT "You don't seem to know how to type!"
00FD END
00FF ENDF
0101 ENDOLOOP
0105
0106 (* now convert name to proper format
012A
012B Compare=MID$(Userinput,T+1,100)+", "+LEFT$(Userinput,T-1)
014B RUN ToUpper(Compare)
0155 LOOP
0157 T=SUBSTR(" ",Compare)
0163 EXITIF T=0 THEN \\ ENDEXIT
0173 Compare=LEFT$(Compare,T-1)+MID$(Compare,T+1,100)
018F ENDOLOOP
0193
0194 (* search file for name
01AB
01AC OPEN #Path,"users":READ
01BC WHILE NOT(EOF(#Path)) DO
01C7 READ #Path,Name
01D1 T=SUBSTR("@",Name)
01DD Password=MID$(Name,T+1,100)
01EE Name=LEFT$(Name,T-1)
01FD RUN ToUpper(Name)
0207 EXITIF Name=Compare THEN T=0 \\ ENDEXIT
021E ENDF
0222 CLOSE #Path
0228
0229 IF T<>0 THEN
0235 PRINT "Sorry "; Userinput; " but we you don't seem to"
0264 PRINT "be in the user file. Please try again."
0288 GOTO 10
028C ENDF
028E RUN ToUpper(Password)
028F
0299

```

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Machine Language and OS9 continued from 25

```
beq convert
ldb #38 param error
coma set carry
rts
```

```
convert
ldx String,s pointer to string
ldy StrLen,s size of string
```

```
loop
ldb ,x get char from string
cmpb #'a is it lowercase
blo okay no, just put it back
cmpb #'z could be graffic/control
bhi okay yes, skip conversion
subb #'a-A convert to upper
okay
stb ,x+ replace
leay -1,y count down
bne loop
```

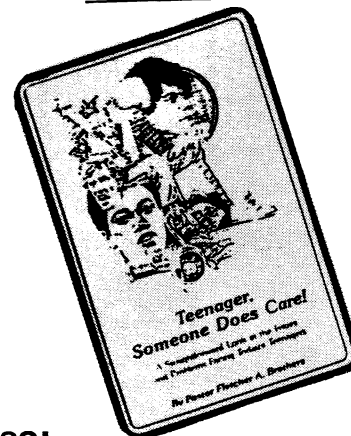
```
clra clear carry, no errors
rts return to Basic09
```

```
endsect
```

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# Painless OS9

Randy Krippner

Craig Nelson from Brighton Michigan called to report he'd found some bugs in the Icon Editor from the Nov/Dec. issue of CCM. Craig spent a lot of time tracking down and fixing the problems, and I really appreciate his help.

I neglected to take into account the fact that Multi-View uses palette register 2 for the color of the icons. Since on my system I have registers 1 and 2 set to the same color I didn't have a problem, but a lot of people have their systems set up differently and could end up with icons that are invisible. The fix is simple.

In the EditIcon procedure, the line that says "t=1" should read "t=2". The line "number" (those numbers you see to the left of Basic09 listings are actually addresses) is 00F4.

Once you make this change, the icon will be set to the correct color.

Some of the coordinates given in the program were wrong, which causes the icon file to be larger than it should be and which can cause part of the icon to be lost. Make these changes to correct this:

Procedure UpdateIcon: Two lines need to be changed here.  $X=X+247$  should be  $X=X+248$ .  $Y=Y+103$  should read  $Y=Y+104$ .

Procedure SvIcon: The line that reads RUN gfx2 ("get", 19, 1, 248, 103, 23, 24) needs to be changed. The 103 should be a 104. This is line 0083.

Finally, also in SvIcon, there is a problem with one of the Syscalls. You need to add a line here. Find line 00DC which reads  $regs.a=path$ . Immediately after this line, add this line:  $regs.y=\$90$ .

Another problem I discovered was that the phone line gremlins struck and messed up the version of the Icon Editor on the ClipDisk for that month when I uploaded it. So if you've been tearing your hair out trying to get it to work, I humbly apologize.

If you purchased that edition of Clipdisk and want a working copy of the Icon Editor, send me a blank, OS9 formatted disk and a self addressed disk mailer or envelope big enough to hold a disk, with sufficient postage affixed (usually fifty to seventy-five cents) and I'll send you a working copy of the program.

And now, on with the show...

Today we're going to look at one of OS9's characteristics that most RS-DOS users find confusing, the directory structure.

You're all familiar with the RS-DOS DIR command. After you enter the command the operating system reads the directory and lists everything stored on the disk. And that's the problem.

Back in the Dark Ages, disk drives could store only 80,000 bytes on a disk. Since the capacity was so limited a simple list of the files on the disk was good enough. But as the storage capacity went up the simple directory listing became downright frustrating. I'm sure you've all experienced the problem of having a directory listing scroll up off the screen before you could read it. If you think that's bad, imagine what it would be like if you had a 10 meg hard drive. You could be scrolling through hundreds or even thousands of files before you found what you wanted. There had to be a better way. And there is.

The basic idea is this: Instead of having one directory that contains a listing of every program on a disk, subdirectories could be created. Similar files could be grouped together under a subdirectory instead of being scattered throughout the main directory.

You would have a main directory, usually called the root directory, similar to the standard RS-DOS directory. You could just stick everything here if you wished. You could also have subdirectories inside of the root directory. You could create a subdirectory called GAMES and store all of your game programs in it. Then you could create a subdirectory called WORDPRO and store all of your word processing files in it.

When you do a directory of that disk what you would see would not be a confusing, lengthy listing of every file on the disk, but something like this:

GAMES      WORDPRO

Instead of digging through a listing of dozens of files to pick out the one you wanted, you would simply move to the subdirectory you wanted and look at just the files you were interested in.

Painless OS9 continues on 28

That's how the OS9 works. Let's take a look at an example. Start up OS9 as we described last time. When the OS9: prompt appears, type this:

```
dir <ENTER>
```

If you are using a backup copy of the OS9 master disk, you should see something like this:

```
Directory of . 18:28:30
OS9Boot      CMDS      SYS
startup      window.t38s  window.t80s
window.glr4
```

Last time we used two OS9 functions; Format and Backup, which are actually OS9 programs that must be loaded from the disk.

But if they are programs stored in disk, where are they? They weren't listed when we did a DIR of this disk.

If you look at the directory printed above, you'll see two files called CMDS and SYS which are in upper case letters only. This is because they are subdirectories. To help distinguish between subdirectories and ordinary files, subdirectories are always given names in upper case letters only, even

though they could be given in lower case, or a combination of upper and lower case letters. The names printed in lower case are ordinary files.

How do you see what's in a subdirectory? You have to tell OS9 how to reach the subdirectory with what is called a pathlist. This is simply the path you tell OS9 to follow to reach the desired directory or file. Here's how you can find what is stored in the CMDS directory:

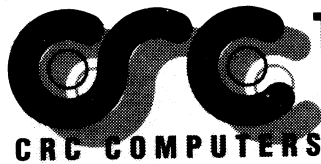
```
dir /d0/cmds <ENTER>
```

The "/d0/cmds" is the pathlist that tells OS9 where you want it to go. The "/d0" tells OS9 you want to look at drive 0. The "/cmds" tells it you want to look in the CMDS directory. If you type in this line what you get a listing of the files stored in the CMDS directory.

When we used the Format and Backup, which are programs stored in the CMDS directory, we didn't type in the full pathlist, we just entered the name of the program. Try it and see what happens. Put a blank disk in drive 1 and type:

```
format /d1 <ENTER>
```

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Drive 0 will turn on as OS9 loads the format program from the CMDS directory, and then proceed to format the disk in drive 1.

Now let's try it a little differently. Leave the blank disk in drive 1 and try this line:

```
/d0/cmds/format /d1 <ENTER>
```

Here we entered the complete pathlist to the program we wanted, format, starting with the root directory, /d0, through the /cmds directory, and finally specifying the name of the program we want to execute, /format. When we typed in this line, exactly the same thing happened as it did when we typed in just the name of the program.

How the did OS9 find the Format program in the first example when we didn't type in the full pathlist?

When you type a program name such as Format without the pathlist, the first thing OS9 does is search memory to see if the program is already loaded. If it is, it goes ahead and executes it. If it is not in memory, as is the case with Format, OS9 then looks at the Execution Directory.

The execution directory is where OS9 looks to find programs that are not already in the computer's memory. You can set the execution directory to any subdirectory you wish. When you first boot up OS9 the execution directory is automatically set to CMDS. So when you type the word Format at the OS9: prompt, OS9 automatically goes to the CMDS directory, finds Format, loads it and executes it. Now try this command:

```
/d0/sys/format <ENTER>
```

After a half a second or so, OS9 responds with an error # 216, or path name not found. This means that OS9 could not find the program you specified.

What we did here was override the default pathlist OS9 uses to find programs. Instead of going to the CMDS directory to get Format, OS9 tried to find it in the SYS directory. Since it's not there we got the error.

You can change the execution directory with a function called CHX. Try typing this line:

```
chx /d0 <ENTER>
```

Now try using Format again as you normally would. Got the 216 error again, eh? That's because we changed the execution directory from CMDS to /d0, the root directory. Change the execution directory back to CMDS by typing: chx /d0/cmds.

This brings up another question: Since CMDS is the default execution directory, why didn't we get a listing of the files in CMDS when we did the DIR earlier without specifying a pathlist? You'd think that the DIR would give a listing of what was in the default directory, right?

It did give us a listing of the default directory. But the list of files we got was from the default Data Directory.

There are always two directories active

at the same time; the current execution directory and the current data directory. When you first boot OS9, the current data directory is set to /d0.

The idea behind having separate directories for programs and data is logical. Most people don't like to store their programs and their data in the same place, so OS9 was designed to keep data files and programs in separate directories.

You can change your data directory as well as the execution directory. This is done with the Chd command. Try typing this line:

```
chd /d0/cmds <ENTER>
```

Now type Dir at the OS9: prompt. What you got was a listing of the files in the CMDS directory instead of the files in the original data directory, /d0. This command set our data directory to CMDS.

Let's conclude with two more commands; makdir and deldir.

Makdir lets you make your own subdirectories. Let's say you want to create a subdirectory to hold your word processing files, and you want to call it TEXT\_FILES. (An OS9 file or directory name can contain up to 29 characters, in either upper or lower case, and may contain a period or the underline character.)

To make this directory, all you have to do is type this:

```
makdir /d0/TEXT_FILES <ENTER>
```

That will create another subdirectory in your root directory on drive 0.

To use this directory to save your word processing files, you specify the complete pathlist when asked for the file name to save your file, such as "/d0/text\_files/filename", or, before you run your word processor, you could use the chd function to change the default data directory to TEXT\_FILES by typing "chd /d0/text\_files".

There are times when you may want to get rid of a subdirectory entirely. You can't just use the Del command to remove a directory. You can only use Del with ordinary files. OS9 provides a special function called Deldir that does this job.

To delete the TEXT\_FILES directory we created above, you'd type this:

```
deldir /d0/text_files <ENTER>
```

OS9 would respond like this:

```
Deleting directory file.
List directory, delete directory, or quit?
(l/d/q)
```

This is a safety feature to make sure you really want to delete this directory. Pressing "L" will cause the files stored in the directory to be listed. Pressing "q" will abort the operation. Pressing "d" will go ahead and delete the directory and all of the files contained in it.



## VIP Terminal

RATED BEST IN JANUARY  
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For your important communications needs you've got to go beyond software that only lets you chat. You need a smart terminal so that you can send and receive programs and messages and print them! The VIP Terminal features 32, 51, 64 or 85 characters by 21 or 24 lines on the screen and has a 43K byte buffer to store information.

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APRIL 1983 "RAINBOW"

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FEBRUARY 1985 "RAINBOW"

VIP Calc has all the features of VIP Calc III described elsewhere in this magazine except the screen widths are 32, 51, 64 & 85. Screen colors are black, green and white, double clock speed and Spooler are not supported. Even so, VIP Calc is the most complete calc for the CoCo 1 & 2! Version 1.1 has FASTER and more RELIABLE disk access and vastly improved display speed.

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VIP Speller works with ANY ASCII file created by most popular word processors - even Telewriter 64. It automatically checks text files for words to be corrected, marked for special attention or even added to the 50,000 word Dictionary. You can even view the word in context. Words can be added to or deleted from the dictionary or you can create your own dictionary! New features of version 1.1 are FASTER and more RELIABLE disk access and printing at 9600 BAUD.

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"ONE OF THE BEST" JUL '84 "RAINBOW"

VIP Database has all the features of VIP Database III described elsewhere in this magazine except the screen widths are 51, 64 & 85. Screen colors are black, green and white, double clock speed and Spooler are not supported. Even so, VIP Database is the most complete database for the CoCo 1 & 2! Version 1.1 has FASTER and more RELIABLE disk access and single spaced reports.

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## VIP Writer 1.1

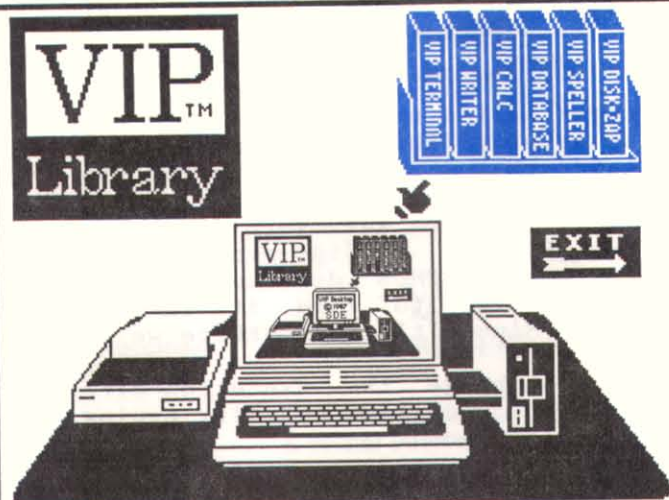
RATED "BEST" IN SEPT '88 "RAINBOW"

VIP Writer has all the features of VIP Writer III described elsewhere in this magazine except the screen widths are 32, 51, 64 & 85. Screen colors are black, green & white, double clock speed is not supported, Spooler and menus are unavailable because of memory limitations. Even so, VIP Writer is the BEST word processor for the CoCo 1 & 2! Version 1.1 includes the configuration/ printer installation program and RGB Hard Disk support. Available thru Radio Shack Express Order #90-141.

Includes VIP Speller 1.1 DISK \$69.95

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VIP Integrated Library owners: upgrade to the VIP Integrated Library 1.2 for \$45 + \$3 S/H. Send only ORIGINAL disk and \$48 Total.

## SD ENTERPRISES

(503) 663-2865 P. O. BOX 1233. Gresham, OR. 97030  
Non VIP Library orders add \$3 for shipping in USA, Canada \$4,  
Foreign \$6. COD orders add an additional \$2.25. Personal checks  
allow 3 weeks for delivery. All other orders shipped the same day.



*"In the beginning there was VIP Writer and users saw that it was good, But it's not the best anymore. There's a new word processor to claim the crown..."*

## VIP Writer III -Setting the Standard"

—RAINBOW SEPT. 1988

### MORE SCREEN DISPLAY OPTIONS

VIP Writer III offers screen widths of 32, 40, 64 & 80 - all with 24 lines and actual lower case letters using the CoCo 3's hardware display. It runs at double clock speed and has 4-color menus making VIP Writer III FAST and EASY to use! You can choose foreground, background, hilite and cursor colors from up to 64 hues. Color can be turned ON or OFF for the best possible display using a monochrome monitor or TV set. VIP Writer III has a context sensitive help facility to display command usage in easy to read colored windows.

### CUSTOMIZER & PRINTER INSTALLER

VIP Writer III comes with a configuration / printer installation program which lets you customize VIP Writer III to suit your own liking. You can set screen width and colors as well as margins and more. You can also install your own printer and set interface type (serial, parallel or J&M), baud rate, line feeds, etc. Once done, you never have to enter these parameters again! VIP Writer III will load n' go with your custom configuration every time!

### MORE TOTAL TEXT STORAGE

VIP Writer III has 106K total text storage in a 128K CoCo 3 (495K in 512K). VIP Writer III creates ASCII text files which are compatible with all other VIP Programs as well as other programs which use ASCII files. You can use VIP Writer III to even type BASIC programs! There is a 48K text buffer (438K in a 512K CoCo 3) and disk file linking allowing virtually unlimited text space. VIP Writer III works with up to four disk drives and lets you display directories and free space as well as rename or kill disk files. In addition VIP Writer III is 100% compatible with the RGB Computer Systems Hard Disk.

### POWERFUL EDITING FEATURES

VIP Writer III has a full featured screen editor which can be used to edit text with lines up to 240 characters long with or without automatic word wrap around. You can select type-over mode or insert mode. There is even an OOPS command to recall a cleared text buffer. Other editing features include: Type-ahead • typematic key repeat and key beep for flawless text entry • end of line bell • full four way cursor control with scrolling • top of textfile • bottom of textfile • page up • page down • top of screen • bottom of screen • beginning of line • end of line • left one word • right one word • DELETE character, to beginning or end of line, word to the left or right, or entire line • INSERT character or line • LOCATE and/or CHANGE or DELETE single or multiple occurrence using wildcards • BLOCK copy, move or delete with up to TEN simultaneous block manipulations • TAB key and programmable tab stops • word count • line restore • three PROGRAMMABLE FUNCTIONS to perform tasks such as auto column creation and multiple copy printing.

Writer III or Library /W owners: Upgrade to the VIP Writer III 2.0 for \$10 + \$3 S/H. Send ORIGINAL disk and \$13 total.

### AUTOMATIC TEXT FORMATTING

VIP Writer III automatically formats your text for you or allows you to format your text in any way you wish. You can change the top, bottom, left or right margin and page length. You can set your text flush left, center or flush right. You can turn right hand justification on or off. You can have headers, footers, page numbers and TWO auxiliary lines which can appear on odd, even or all pages. You can also select the line on which they appear! You can even change the line spacing! Parameters can be altered ANYWHERE!

### PREVIEW PRINT FORMAT WINDOW

VIP Writer III features an exclusive format window which allows you to preview your document BEFORE PRINTING IT! You are able to move up, down, left and right to see centered and justified text, margins, page breaks, broken paragraphs, orphan lines etc.

### PRINTING VERSATILITY

VIP Writer III prints TWICE as fast as any other CoCo word processor! It supports most serial or parallel printers using J&M JFD-CP or Rainbow interface and gives you the ability to select baud rates from 110 to 19,200. You can imbed printer control codes anywhere in your text file EVEN WITHIN JUSTIFIED TEXT! VIP Writer III also has TWENTY programmable printer macros which allow you to easily control all of your printers capabilities such as bold, underline, italics and superscript using simple key strokes. Other features include: multiple copy printing • single sheet pause • line feeds.

### BUILT IN PRINT SPOOLING

VIP Writer III has a print spooler with a 57,000 character buffer which allows you to print one document WHILE you are editing another. You don't have to wait until your printer is done before starting another job! Some word processors DO NOT include this feature!

### 50,000 WORD SPELLING CHECKER

VIP Writer III includes VIP Speller (not FREEWARE) to check your text for misspelled words. It has a 50,000 (not 20,000) word dictionary that can be added to or edited.

### QUALITY DOCUMENTATION

VIP Writer III comes with a well written 125 page manual which is Laser printed, not dot-matrix like the competition. It includes a tutorial, glossary of terms and examples for the beginner as well as a complete index! VIP Writer III is truly the BEST you can buy.

VIP Writer III includes VIP Speller 1.1.

DISK \$79.95

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## VIP Database III

VIP Database III features selectable screen displays of 40, 64 or 80 characters by 24 lines with choice of 64 foreground, background, hilite and cursor colors for EASY DATA ENTRY. It uses the CoCo 3's hardware screen and double clock speed to be the FASTEST database available! VIP Database III will handle as many records as will fit on your disks and is structured in a simple and easy to understand menu system with full prompting for easy operation. Your data is stored in records of your own design. All files are fully indexed for speed and efficiency. IN-MEMORY SORT of records is LIGHTNING FAST and provides for easy listing of names, figures, addresses, etc., in ascending or descending alphabetical or numeric order. Records can be searched for specific entries using multiple search criteria. The built-in mail-merge lets you sort and print mailing lists, print form letters, address envelopes - the list is endless. The built-in MATH PACKAGE even performs arithmetic operations and updates other fields. VIP Database III also has a print spooler and report generator which uses print forms you create. DISK \$69.95

Available through Radio Shack Express Order Cat. #900-0915

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## VIP Calc III

**FAST 4-color POPUP menus • PRINT SPOOLER  
32, 40, 64 and 80 Column HARDWARE display!  
Runs VERY VERY FAST at double clock speed!**

Now every CoCo 3 owner has access to a calculating and planning tool better than VisiCalc™, containing all its features and commands and then some. VIP Calc III allows a large worksheet with up to 512 columns by 1024 rows! In addition, VIP Calc III has up to 16 windows which allow you to compare and contrast results of changes. Other features include 8 AND 16 digit precision • trig. functions • averaging • algebraic functions • column and row ascending and descending SORTS • locate formulas or titles in cells • block move and replicate • global or local column width • limitless programmable functions • create BAR charts. Embed printer control codes for customized printing. Combine spreadsheet data with VIP Writer documents to create ledgers, projections, statistical & financial budgets and reports. DISK \$69.95

Available through Radio Shack Express Order Cat. #900-0916

VIP Calc owners: Upgrade to the VIP Calc III for \$29.95 + \$3 S/H. Send original disk and \$32.95 total.

## Buy RGB-DOS for \$29.95,

**Get Hard Disk support, new commands and a Disk Drive FREE!\***  
Sounds too good to be true? If you own a Radio Shack FD 502 or other double sided Disk Drive, using RGB-DOS, you can access the other side of your Disk Drive giving a second disk drive absolutely free! RGB-DOS also supports up to 2 Hard Drives that can be used by DISK BASIC as well as OS-9. RGB-DOS works with CoCo 1, 2 and 3 and supports double sided drives and faster stepping rates. Other features include: Full screen directory display shows drive #, free space and even a disk name! • RUN:M command and FLEXIKEY Last Command Recall and Edit system • EPROM version; executes any program when CoCo is turned on for hands free start-up. 64K Req'd.

All products run under RSDOS and are not copy protected.



# OS9 Comments

Shelby LaMont

*Dear Readers: We are pleased to bring you a new column on OS9 by a new writer, Shelby LaMont. Mr. LaMont is our "roving reporter" who travels the CoCo world looking for the unusual, the interesting the unexplored pathways to bring you a different perspective concerning the CoCo. His reports will be appearing on a semi-irregular basis as Shelby often finds himself in far flung areas and is not always near a post office or a modem. Your comments are encouraged.*

## ASSEMBLY LANGUAGE PROGRAMMING FOR OS9

By Shelby LaMont - Reporting from The Bay of Fundy

Some 6809 assembly language programmers feel there is a vast difference between programming for RS-DOS and OS9. Although there are some differences and additional 'rules' that must be followed if one chooses to program in assembly for OS9, the programming methods are quite alike.

The finished product of the OS9 assembly language program is called a MODULE. Why MODULE? I suppose we could call it most anything we wanted, but the OS9 operating system is based on the idea that memory is modular. On a CoCo 3, with OS9 Level 2, any module (and it's data area) must take no more than 63.75 kilobytes. (The additional .25K is needed for device memory which is mapped in every 64K area of memory.) With this in mind, that module can fit into any of 64K areas of memory available to the OS9 system. For the Color Computer 3, the memory management unit (MMU) breaks a 64K area into eight 8K pages. For that reason it is a module, because it can fit in any area of memory (if it's available) within the system. A module, loaded separately, will use one of the 8K pages for every 8K of module's program space or portion thereof. A 1K program will use a full 8K page, while a 9K program will use 16K worth of memory.

Modules created for the OS9 system do have a few distinct rules. First, it can't modify itself. Second, and most important, it must be position-independent code and should not refer to direct memory locations.

The first rule is necessary because OS9 allows modules to be used by more than one process. This is referred to as a re-entrant

module. If one process modifies the code for itself, it will also modify it for all the other processes which may be using the same module. I guess you could call that 'changing the rules in the middle of the game', but it could also be destructive to the other processes. The second rule, making references to direct memory locations, is exempt in the case of system modules, device drivers, device descriptors, and file managers. These modules must let the OS9 operating system know where the device is located, but should never be broken for normal applications. The 6809 is an excellent choice as a CPU chip, because it contains instructions which allow for both position dependent and position independent coding.

Every program module contains three different areas of interest to the programmer and the OS9 system itself. The module header, the actual program code, and the CRC (Cyclic Redundancy Check) value of the module.

The header is 9 bytes long and contains information which the OS9 operating system needs to know in order to properly load and execute the module. Bytes 1 and 2 of the header are what is known as Sync Bytes. Program module Sync Bytes always contain the hexadecimal value of \$87CD. Bytes 3 and 4 contain the size of the module from beginning to finish and include the bytes used for the header and the CRC. Bytes 5 and 6 contain the value (hexadecimal) of the offset to the module's name. This is the number of bytes from the beginning of the module's memory to the location where the module's name is stored. Byte 7 is the Module/Language type. This is necessary, as in the case of a Basic09 packed module. If the OS9 system sees the type as packed Basic09 module, it knows to call in the RunB program module and link to it, and then execute the packed module. There are several different module and language types and are listed in your OS9 manual. Byte 8 contains the attributes and revision number of the module. This contains information as to whether the module is for the public or the owner of the module and whether it is to be read from, written to, or executed, or s

OS9 Comments continues on 37

# Wegert Report

Steve Wegert

Regular readers of this space no doubt by now have seen many references to the Clipboard Conferences held the second weekend during the month. But many of you perhaps aren't familiar with exactly what the CONFERENCE area is and how it works.

Much like it sounds, the CONFERENCE area is a 'place' where forum members can gather in "real time" for quick informal chats or for more organized, scheduled presentations with guest speakers and a protocol to follow. The Clipboard Conferences fall into the later category.

However handled, conferences are more enjoyable if a few simple guidelines are followed. First of all, unless it's been previously reserved, the conference rooms are available to anyone. But, it's a rare occasion to simply enter a CONFERENCE room and chat with someone. Generally, these informal get togethers are prompted by a common desire and the parties have agreed to meet in a specific room at a specified time.

For instance, forum regular Mark Griffith [76070,41] and I were heavily involved in the testing of the now popular OS9 terminal program STERM. While the telephone afforded us the ability to be in almost immediate contact by voice, we preferred the conference facilities to handle many of our conversations. The line by line nature of the "conversations" allowed us to easily refer to notes and compose our thoughts before responding. If a doorbell rang during a session, we could walk away, attend to business and return to find the topic still present on the screen for a quick re-reading. It suited the situation and we made use of the feature.

Another way to set up a quick chat is with the SEND command. Once you have entered your favorite forum, a quick check of who's there can be made with a USER command entered at the forum prompt. The result might look something like this:

User ID	Node	Area
42	73517,3213	T06NWL Messages
45	75256,246	T07AMA Libraries
48	76703,4255	T06SLR Messages
55	72757,3527	T03CBS Messages
60	72235,1530	T02FTL Messages

There I am, [76703,4255], as job 48. I could do a WHO 60 and find out that Barry Bond is in the message base. Knowing this, I can now

SEND a private message to Barry, which could go like this:

```
SEND 60 Hi Barry <steve> ... how about a few minutes in CO? <Enter>
```

Barry would hear a bell and see:

```
;;S_COCO: - Job 48: Hi Barry <steve> ... how about a few minutes in CO?
```

I have always considered it good manners to identify yourself within a SEND string. As you can tell from what Barry sees on his screen, had I not, all he would know is JOB 48 had just sent him a message. Well, maybe just a little bit more. The gibberish at the start of his message gives you some information. The ";;S" is a hold over from the old days and says the message came from within the SIG (now message area) of the forum. You might also see ";;A" or ";;C" which indicates ACCESS (libraries) or CONFERENCE. Trust me on this: Include your name.

Assuming Barry has a few minutes, he'd SEND back his affirmative and we'd scoot off to the CONFERENCE area by typing CO. The system would dutifully present us with this menu:

```
Conference Rooms Available:
 1 General Conferences
 2 General Conferences
 3 Private Parties
```

Enter choice !

Both CoCo Forum and OS9 Forum have set aside two rooms for informal patter and call them General Conference 1 and 2. Room 3 has been set aside for those conferences that are more formal in nature and generally requires special access to gain entry. The Clipboard Conferences are held in this semi-private area to help hold down the inevitable interruptions as folks happen to see a party in progress and can't help but drop in.

Choosing a room, you're moved into the actual CONFERENCE area and welcomed with a blurb that might look like this:

Welcome to room 1, Steve Wegert Entering  
General Conferences room...  
Key /HELP for assistance

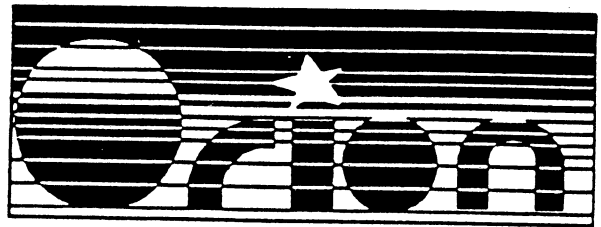
This three line welcome mat actually accomplishes quite a lot. Line #1 tells you what room you have selected and how your name will be presented to others as you type. This is referred to as your "handle". The default is the way your name is recorded in the forum. Don't worry, it's easily changed.

Line #2 gives you a status report. Even CompuServe suffers from the "slows" occasionally. This line lets us know things are happening.

Line #3 is your ticket to the world ... at least the CONFERENCE world. Try it. Be sure to start on a new line and include the slash. All commands in CONFERENCE will begin with a slash. Otherwise what follows goes out over the cpen channel as text for all to see.

Prefix commands with a "/"

/ROOM #	Enter room #
/CHANNEL #	Same as /ROOM
/MONIT # #	Listen to conversation in rooms # #
/UNMON # #	Cease listening to conversation in rooms
/TALK #	Private talk w/ user #
/BREAK	Exit private talk
/NOTALK	Suppress /TALK's from others
/PAGE #	Page user #
/NOPAGE	Suppress /PAGE's from others
/DISPL inf	Control info shown w/ msgs UID or NOUID for User ID JOB or NOJOB for user
/STATUS	Display room status
/USERS	List on-line users
/USERS CO	List CO users only
/USERS SIG	List SIG users only
/USERS #	List users in room #
/USERS TLK	List users in /TALK
/WHO	Show info about last sender
/WHO #	Show info about job
/WHO #, #	Show info about jobs with specified User ID
/WHO xxx	Show info about users with specified name "xxx"
/DAY	Display time, day and date
/JOB	Displays your user #
/NAME xxx	Change name to "xxx"
/HANDLE xxx	Same as /NAME xxx
/SCR xyz	Scramble on "xyz"
/SMC xyz	Scr & Monitor Clear on "xyz"
/XCL xyz	Xmt Clear & monitor scr
/UNS	Unscramble (xmt & rcv clear)
/SQU xxx	Squelch by name "xxx"
/SQU uid	Squelch by User ID
/SEND # msg	Send "msg" to specified job # and restore receiving
/SEND's	Restore receiving /SEND's
/SEND	Suppress receiving /SEND's
/NOSEND	Turn off input echoing
/NOECHO	Restore input echoing
/ECHO	



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```

/EXIT      Leave conference
/MENU      Leave conference
/TOP       Leave conference
/TT        Go to your TOP page
/MAIN      Go to page CIS-1
/GO mm-n   Go to Page "mm-n"
/FIND xxx  Find topic "xxx"
/OFF or /BYE  Log off CompuServe
/VERSION   Displays CO version number
    
```

Don't let the length of the command list scare you. Most of these commands are self explanatory, but we'll cover the couple you will need to get started in more detail. The rest make for good material in another column. Feel free to experiment on your own, however. You can't break anything.

The first thing you should always do when going into CONFERENCE is to change your name (handle) to something short. It makes for a cleaner display. In both CoCo and OS9 the practice has been to use our first names. Nicknames are fine too, so long as you're not called ROBOCOP or PIRATE. Common sense solves a lot of problems.

A /NAME on a clean line will prompt your for your new name. Type it in and hit enter. The system will acknowledge your change. You don't trust it? Type /USERS. That will return all users of the forum, including handles, regardless of their location. /USERS CO will show only conferencing members while /USERS SIG excludes those in conference.

Conferencing tends to draw a crowd. If things start to get too hectic, move to another room with the /ROOM command. Just specify what room you wish to enter. Also, all CompuServe navigation commands are supported within CONFERENCE. To exit back to the forum a /EXIT will do the trick. To move to anywhere else on the system the /GO command will work it's usual magic.

You're in! Now what?

Just type. Type as you would talk. Keep your line lengths under 80 characters and when you thump <ENTER> everyone in that particular room will see what you have typed. It could look something on this order:

```

Hi everyone. I'm new to the forum. Am I
doing this right?
(1,Bill) Looks good on this end, Jay.
(1,Sam) Loud and clear here too!
    
```

The system will 'tag' your lines with the room number as well as your name so folks will know who's talking. But what if what you're trying to say is lengthy in nature and needs to exceed the 80 character guide? A small excerpt from the last Clipboard conference might better explain:

```

(Steve) Ted .. Question?
(Ted-Clipboard Mag) Yes, Tony for the folks
who might be unfamiliar with the Super
Controller ...
    
```

(Ted-Clipboard Mag) why not take a minute and give us a little background on what it does ...

```

(Ted-Clipboard Mag) and what makes it
special!...ga (Tony) Well, first it is a
normal RS compatible controller ...
(Tony) It can take a 24 or 28 pin DOS ...
(Tony) Then, in a second mode, under OS-9
...
(Tony) It can buffer 1 complete sector ...
(Tony) Reading or writing, without the help
of the CPU.
(Tony) It does not use the halt line ...
(Tony) therefore, does not stop the CPU from
doing ...
(Tony) other things, while reading or
writing a sector.
(Tony) When the FDC is finished, it sends an
IRQ to the CPU ...
(Tony) and the CPU can then process the
sector at high speed ...ga
    
```

The ellipsis (the practice of appending three periods at the end of a line that continues) has come in very handy in this mode of communication. Both Ted and Tony made very good use of the ellipsis, indicating their intent to continue with the current topic. It's almost as if they had paused in speaking. Also, take note of the way they indicated they were finished. The short, two letter 'ga' means "Go ahead... I'm finished talking." These seemingly minor points are what keeps order in a conference with many participants.

With three or more folks jabbering away in a conference room, it's not too long before, as in real life, someone speaks at the same time you're trying to say something. The result on your screen is something akin to looking at a bowl of alphabet soup.

Don't panic. Stop right where you are. Resist the temptation to hit enter, but instead, try a <CTRL><V>. This command will re-display your line up to the point where you stopped typing. You can pick right up where you left off. A real lifesaver for me!

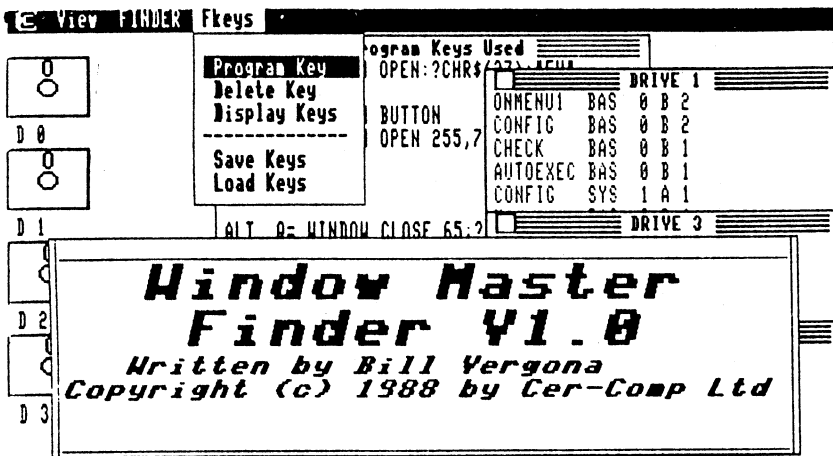
It's also not uncommon to find yourself at the end of a long line only to find what you're trying to say is no longer important to the conversation. Rather than thumping the backspace key until you're sure your finger is sure to go through the keyboard, try <CTRL><U>. Instant erase! (Don't trust me? Verify by issuing a <CTRL><V>).By the way, those two control sequences will work anywhere on the CompuServe system.

Next time, we'll delve into some of the more esoteric commands found in CONFERENCE. For the moment, you're armed with enough tips to get started chatting with your on-line buddies. For related reading, see HOW2CO.HLP and CONF.HLP found in LIB 1 of the CoCo Forum and CONFER.HLP in the OS9 Forum.

#### STATE OF THE LIBRARIES

With the onset of cooler weather, folks

# "Window Master"



## Screen Display Fonts

Window Master supports up to 54 different character sizes on the screen with 5 different character styles. You can have Bold, Italic, Underlined, Super-Script, Sub-script or Plain character styles or any combination of them in any character size. You can also change the text color and background at any time to get really colorful displays.

## Fully Basic Compatible

Window Master is fully compatible with Enhanced Color Disk basic with over 50 Commands & functions added to fully support the Point & Click Window System. Window Master does not take any memory away from Basic, so you still have all the Basic Program memory available.

## Hi-Resolution Displays

Window Master uses the full potential of the Color Computer 3 display by using the 225 vertical resolution display modes instead of the 192 or 200 resolution modes like most other programs. It uses either the 320/16 color mode or the 640/4 color display to give you the best display resolution possible, and can be switched to either mode at any time.

## Mixed Text & Graphics

Window Master fully supports both Text & Graphics displays and even has a Graphics Pen that can be used with HLINE, HCIRCLE, HSET and more. You can change the Pen width & depth and turn it on or off with simple commands. We also added Enhanced Graphics Attributes that allow graphics statements to use And, Or, Xor and Copy modes to display graphic information. With the Graphics enhancements added by Window Master, you could write a "COCOMAX" type program in Basic! In fact we provide a small graphics demo program written in Basic.

## Event Processing

Window Master adds a powerful new programming feature to Basic that enables you to do "Real Time" Programming in Basic. It's called Event Trapping, and it allows a program to detect and respond to certain "events" as they occur. You can trap Dialog activity, Time passage, Menu Selections, Keyboard activity and Mouse Activity with simple On Gosub statements, and when the specified event occurs, program control is automatically routed to the event handling routine, just like a Basic Gosub. After servicing the event, the sub-routine executes a Return statement and the program resumes execution at the statement where the event occurred.

## Enhanced Editing Features

Window Master adds an enhanced editor to Basic that allows you to see what you edit. It allows you to insert & delete by character or word, move left or right a word or character at a time, move to begin or end of line, toggle automatic insert on/off or just type over to replace characters. The editor can also recall the last line entered or edited with a single key stroke. You can even change the line number in line to copy it to a new location in the program.

## Window Master Features

### Multiple Windows

Window Master supports multiple window displays with up to a maximum of 31 windows on the screen. Overlapping windows are supported, and any window can be made active or brought to the top of the screen. Windows can be picked up and moved anywhere on the screen with the mouse. There are 6 different Window styles to choose from and the window text, border and background color is selectable.

### Pull Down Menus

Menus are completely programmable with up to 16 menus available. They can be added or deleted at any time in a program. Menu items can be enabled, disabled, checked or cleared easily under program control. Menu selection is automatically handled by Window Master & all you have to do is read a function variable to find out which menu was selected.

### Buttons, Icons & Edit Fields

Each Window can have up to 128 buttons, Icons or Edit fields active, if you can fit that many. Buttons, Icons and Edit field selection is handled automatically by Window Master when the mouse is clicked on one. All you have to do is read a Dialog function to find out which Button, Icon, or Edit field was selected, its very simple.

### Mouse & Keyboard Functions

Window Master automatically handles the Mouse pointer movement, display and button clicks. It will tell you the current screen coordinate, the local window coordinate, window number the mouse is in, the number of times the button was pressed, which window number it was clicked in and more. The Keyboard is completely buffered, and supports up to 80 programmable Function keys that can contain any kind of information or command sequences you can imagine. You can load and save function key sets at any time. So, you can have special sets of function keys for different tasks. The "Ctrl" key is supported so that you have a full control code keyboard available.

### Window Master Applications

Window Master pushes the Color Computer 3 far beyond its normal capabilities, into the world of a "User Friendly" operating environment. We are already planning several new programs for use with Window Master. So you don't have to worry about having to write all your own programs. And don't forget that many existing Basic and M.L. programs will run under Window Master with little or no changes. The Possibilities for Application programs are endless: Spread Sheets, Word Processing, Communications, Education, Games, Graphic Design, Desk Top Publishing and on and on.

### Hardware Requirements

Window Master requires 512K of memory, at least 1 Disk Drive, a Hi-Res Joystick Interface and a Mouse or Joystick.

### Technical Assistance

If you run into difficulty trying to use some of Window Master's features, we will be happy to assist you in any way possible. You can write to us at the address below or call us between 10am and 2pm Pacific Standard Time for a more timely response. Sorry, no collect calls will be accepted.

### Ordering Information

To order WINDOW MASTER by mail, send check or money order for \$69.95, plus \$3.00 for shipping & handling to the address below. To order by VISA, MASTERCARD or COD call us at (702)-452-0632  
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are staying by their computer with the results showing in the number of recent uploads. In the CoCo Forum, Giles [73347, 2651] continues his crusade for FORTH with and overview found in Library 1 in INTRO.4TH.

In the Graphics Library, Bob Wharton [74106,155] offers us a Thanksgiving greeting in THANKS.MGE. Conrad Kirksey [7157,1677] brings us the perennial Snoopy Calendar for the new year with SNOOPY.BAS.

Looking in the Gaming area, we find that Robert Neyman[75725,751] is responsible for uploading MARVO.BAS, an abstract strategy game of skill. An avid gamer, he has also uploaded a playing aid for the Avalon Hill game Rail Baron. See RAIL.BAS and RAIL.DAT. Always hard at work on some type of music project, Lester Hands [70135,430] submits the first CoCo MIDI 3 file, AVEMAR.CM3 as well as a full featured demo version of the new MIDI sequencer program, CM3DEM.BIN.

Orchestra 90 still proves to be popular with recent additions to Library 5 by Wild Will [72115,137] of PASO.A85, his rendition of "Paso en Do Major". Mark Brown [72315, 1162] uploaded ONLY.A85 - "Only in My Dreams". John Renfro Davis [74046,747] has been hard at work as told by his four recent efforts. SYTMON.A85 - "Still, You Turn Me On", KIEV.A85 - "The Great Gates of Kiev", FASCAR.A85 - "Fast Car", and LUCKY.A85 - "Lucky Man"

Library 8 offers us a Mac Finder imitation with CCFINDER.BAS by Scott Call [73447,3614] and it's associated files STAND.CUR and WATCH.BIN Richard Prentiss [73507,1420] has uploaded a Parabola set used for optical calculation of test specs. PAR57.BAS and related files PARABO.BAS and SCREEN.BIN will set you up. Robert Neyman [75725,751] offers HANDIC.BAS as a tool for handicapping Greyhounds, for those so inclined.

In the CoCo 3 specific library, Tommy Moore [72757,724] has a resistor value calculator in RESIST.BAS, while Eric Parish [72017,3024] presents Mandelbrot numbers in a new light with MANDLE.BAS, MOUNT3.BAS, and SHOW.SRC. Eric has also uploaded the Planetarium program SKYPLN.BAS for our enjoyment.

Meanwhile, in the OS9 forum, found in Library 7, Bill Brady [70126,267] has a fix and an addition to his Pro series. PROISN.I fixes a problem installing the Superboard and PROASB.BIN is the Superboard version of ProAcia.

In the CoCo specific Library 10, Dave Jenkins [72756,2213] helps us install Multi-View in MVUE.AR. Larry Olson provides some VEF graphics detailing how he repackaged his CoCo and MPI with MPIMOD.AR. Chris Burke [72240,304] posts a patch to RSB so it can deal with auto-linefeed printers. Look for RSBALF.AR. Bob Santy [76417,714] patches TSEDIT for windows in TSEDIT.AR. Lee Veal [74726,1752] patches OS9 PROFILE in PROFIL.AR to function properly in Lvl II. Also

contains Icons and two profile AIFs.

Eric Williams [71336,1424] posts source and object for the SEA ARC utility in ARC.AR and ARC.BIN while in Library 14 Art Doyle [71565,262] extols the virtues of the American Association of Individual Investors as they may relate to the UNIX/OS9 developers in AAII.TXT. Along with that he provides some thoughts on turnkey systems (targeted towards the same group) in TURNKE.AAI.

Be sure to check out the Library Announcement found in each forum for the most recent news on uploads.




With that said, we come to the end of yet another column. As always, your comments and suggestions are welcome. Drop me a note at [76703,4255] in either forum or via EasyPlex.

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OS9 Comments continued from 32

combination of these attributes. The revision number is used to keep track of the version of the module. Byte 9 contains a header check, which contains an integrity check of the previous 8 bytes.

The next section is the actual body of the program. This contains the actual machine language code that performs the duties of the module. The final three bytes of the module is called the CRC. We won't go into how the CRC is calculated, but this a three byte number which is derived by performing a cyclic redundancy check of the module from the first byte of the module to the memory location immediately before the area where the CRC is stored. The CRC is used by the OS9 system to check on the integrity of the entire module, unlike the header check which simply checks on the integrity of the header itself. If the CRC is bad, the system will not load the module and will issue an error to that effect.

These items explain the contents of the module and what they are. In our next article in CoCo Clipboard, we'll take a look at the differences in setting up an assembly language program for RS-DOS and one for OS9.

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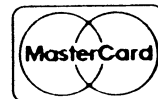
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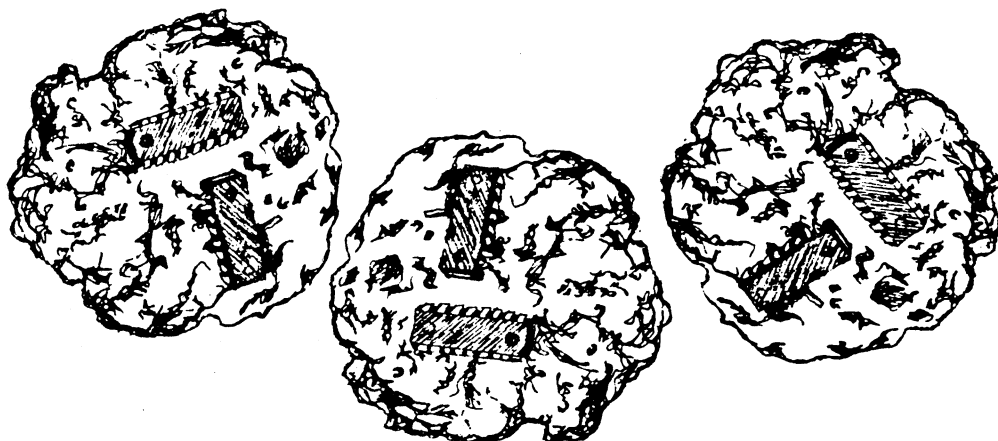
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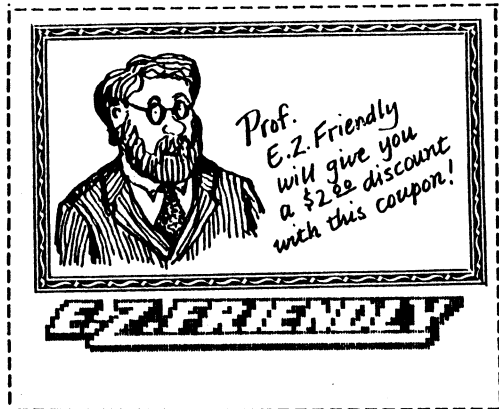
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
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CoCo Clipboard Magazine  
Reader Survey

We'd appreciate hearing from you about *CoCo Clipboard*. You can send in this sheet, or better yet just make a photocopy and send it in filled out. Knowing about you and what you'd like to see in our pages really helps us out. Our thanks in advance.

Age: \_\_\_\_\_ Under 20  
\_\_\_\_\_ 20 to 35  
\_\_\_\_\_ 36 to 50  
\_\_\_\_\_ 51 to 65  
\_\_\_\_\_ 65 and over

Sex: \_\_\_\_\_ Male / \_\_\_\_\_ Female

Education: \_\_\_\_\_ High School or GED  
\_\_\_\_\_ Junior college  
\_\_\_\_\_ College grad.  
\_\_\_\_\_ Post grad

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\_\_\_\_\_ business  
\_\_\_\_\_ educators  
\_\_\_\_\_ students

Income: \_\_\_\_\_ 10,000 to 20,000  
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\_\_\_\_\_ 31,000 to 40,000  
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How do you rate *CoCo Clipboard Magazine* overall?

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What improvements to *Clipboard* would you like to see?

\_\_\_\_\_  
\_\_\_\_\_

Thank you for your help. The first 200 people responding to the survey will receive a free blank disk in the mail as our token of appreciation.

# CoCo 'N Amateur Radio

Mike Dooley KE4PC

Jerry Murphy K8YUW

## S L O W - S C A N T V ! !

I'll Bet Ted thought he'd never get this article. I finally did it. I sat down and used the Slow-scan TV program I purchased last year from Spec-Com Software. It works pretty good, too.

Slow-Scan TV actually started back in 1958 when a group of amateurs led by Copthorne MacDonald (WA2BCW) started experimenting. Their idea was to transmit television pictures in the Amateur bands. The only problem was bandwidth. Normal television pictures have a bandwidth of 6 MHz, which includes the video and audio signals. None of the Amateur bands allow a signal with that bandwidth. Actually, none of our bands are that wide!

What did they do? Well, they had to meet bandwidth requirements or risk a run in with the FCC. Consequently, Slow-Scan TV or SSTV as we'll call it, isn't quite the same as normal television. The major difference is in the picture itself. SSTV sends one picture every 8 seconds. Normal television sends 30 pictures per second. SSTV sends 120 lines per picture. Normal TV sends 525 lines per picture.

Although these numbers may not mean much a picture, as they say, speaks a thousand words. I've included three SSTV pictures I received this past weekend here for you to see. The first shows the call sign of the sender, WA3W. The second is a picture of N1DYX with his daughter. The third is a picture of a young lady from a magazine... at least that's what the originator of this one said.

As you can see, the quality is not that great. SSTV certainly won't give any of the networks any worry. The neat part is in being able to send a picture over the air even with the restrictions placed upon us for bandwidth.

Now that you've seen a sample of what's in store, let me tell a little about the program. It's available from SPEC-COM Software, P.O. Box H, Lowden, Iowa 52255. It's included in a package of other CoCo programs collectively called COCORADIO.

COCORADIO includes all of the programs listed in Table 1. It's also not free. At \$59.95 the price may seem steep until you consider all of the software you're getting.

Table 1

CLOCK  
3D CHARACTER GENERATOR  
BANNER MESSAGE SCROLLER  
TESTPAT  
ATV SUBCARRIER TEST  
AMATEUR RADIO ANTENNA  
LOG/QSL  
MORSE CODE TRAINER  
SATELLITE LOCATER  
COCOSSTV  
OSCAR  
COCORTTY  
COCOFAX

The setup I used to receive these pictures is shown in Figure 1. The connection from the earphone jack of the radio is isolated by a transformer purchased at Radio Shack. Most any audio transformer will do. The transformer I used was RS Cat. # 273-1380. You'll also notice the secondary of the transformer is connected to the MIC input of a cassette recorder and to the Cassette Jack on the rear of the CoCo. This is done to allow me to record the audio being received at the same time I'm displaying the picture.

Once you're set up load the SSTV program by selecting it from the menu. All of the COCORADIO programs are selected via one of several menus. Select one of the scan rates (I prefer 120/67). Next, tune your radio around 14230 KHz. The ability to receive Upper Side Band via a switch selection or BFO is an absolute necessity. When you've found the Slow Scan Net (every Saturday and Sunday mostly all day long) listen for a while.

The members of the net have several types of SSTV equipment and will be sending and receiving various types of color (that's right) and black and white pictures. We're interested in the Black and Whites.

When you hear someone say they're going to send an '8 second black and white' start recording with the cassette recorder. While it's being sent, you can watch the picture on your monitor as it slowly appears (8 seconds.. remember?). When they've finished sending, stop the cassette recorder.

Now why did we record the audio of the picture we just saw on our monitor? If



## Coming Next Issue

If you enjoyed the reviews of hard drive software by Jim DeStafeno in this issue, then you'll LOVE his review of KEN-TON Electronics SCSI Card!

Also on deck will be the return of Bill Brady and MASTER BASIC 09 and Kraig Brockschmidt has put together a whopper of an article on the CoCo and SOUND - complete with the Assembler and RS-DOS listings - and graphs!

Randy Krippners "Painless OS9" will be here for his 3rd installment and we will have more product reviews!

Our CompuServe Conference continue into the spring as Dan Robins and CoCo Clipboard Magazine continue to offer the movers and shakers in the CoCo world - on line and LIVE for you to chat with....

We are working on some other special announcements that we are really excited about.

We will also be detailing the results of our reader survey! A survey form is printed again in this edition .... make your feelings known and return those survey sheets.

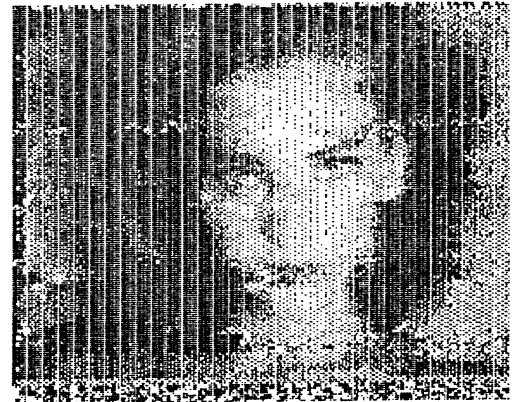
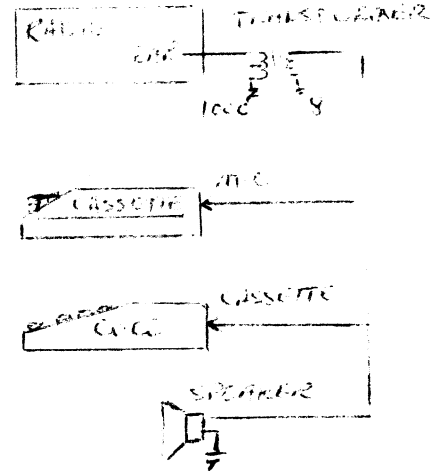
AND WE ARE VERY PLEASED TO ANNOUNCE A NEW WRITER TO OUR GROUP!

Mr. Robert Gault will be contributing his hardware and software expertise to our magazine. Many of you will remember Bob from his articles in Hot CoCo a couple of years ago. We're thrilled and Bob articles will continue to reflect our no nonsense approach to computing on your CoCo!

There's a subscription form here in the magazine, why not fill it out today to start your subscription today!

...Or you can phone in your order and use your credit card. We're open from 9am to 9pm Monday - Saturday so don't hesitate to call. (716) 679-0126. By the way we just took our second phone call from (read my lips) Australia! Spread the word!

Figure 1



# TUBBS V2.4

## The Tandy User's BBS

TUBBS is a fast, user-friendly RS-DOS based BBS for the CoCo3.

A few key features include:

- \*Fast 300/1200/2400 Baud
- \*1-32 Sysop-configurable menus/SIG's (1-24 commands each)
- \*1-9 Database menus
- \*Xmodem up/download and Ascii
- \*Voting Booth (1-9 topics)
- \*Burke & Burke HD Support
- \*And much, MUCH more!

### Requirements:

128k CoCo3, RS-232 Pak, 1+ disk drives, and auto-answer modem  
To order, send check or mo (no COD/credit cards) for \$49.95 to:

Brian Stretch  
272 Lawson  
Saline, MI 48176-1544

Call TUBBS HQ (The Falcon's Lair)  
at 313-429-2150, 3/12/2400 Baud

you're like me, it takes a little playing to get used to the SSTV program and I missed several neat pictures (they said they were!) while fooling with the computer. Also, although there is a method of saving the picture to disk, those guys on the radio won't wait for you to save it! Instead, they send another picture which you miss cause you're busy saving the first. Hence, I record all mine. After it's all over I can replay them for later viewing, saving to disk and then printing. I didn't mention printing? Where do you think the pictures shown here came from?

73's de Mike Dooley KE4PC

Do you have questions, comments or whatever? I can be reached in any of the following three ways:

1. Letter to this magazine
2. CompuServe 73367,632
3. Mike Dooley KE4PC  
3801 E 14th #1401  
Plano, Texas 75074

References for this article: 1986 ARRL Handbook

*Editors Note: We are pleased to introduce Jerry Murphy KY8UW as part of our amateur radio writing team. Jerry is a regular on GENIE and is currently using his CoCo 3 with his ham equipment. The hardware modifications he makes in this column should be done ONLY after you have turned off, AND un-plugged your CoCo. If you have any doubts about your ability to make these changes contact a qualified technician.*

In my amateur radio room, more commonly - and appropriately - called "the shack", there are several transmitters of radio frequencies. Most of them were designed to do just that, and they do it very well. But a few other pieces also generate radio frequencies, and it's been driving me buggy; they're supposed to be computers, not radio transmitters!

The current crop of computers includes 1 Model 16B, 1 Model 4, 1 CoCo 2, a pair of CoCo 3's, and a Model 100 laptop. My Model 1 is somewhere out in the garage, along with the other computers from yesteryear. I'm having to write this on the Model 4, because the pair of CoCo 3's are busy operating my ham radio station, and I'm not too thrilled with the word processor in the 16B. I keep the CoCo 2 here for the grandkids to play with when they come over. But I suspect Ted wanted me to write about the CoCo 3's; I better get back to that subject...

The radios here operate throughout the amateur radio spectrum, from 3 MHz to 449 MHz, inclusive. I relax by using good old fashioned CW on HF, but also spend considerable time monitoring UHF/VHF Packet and FM

## FILE TRANSFER UTILITIES

You asked for it at the Chicago RainbowFest -

### FILE TRANSFER UTILITIES NOW HANDLE RSDOS DISKS!

Need to transfer text files to and from PC (MSDOS), RSDOS and FLEX disks into your CoCo (OS-9) system? Have text files on a PC (MSDOS) system at work and want to work on them at home on your CoCo?

With GSC File Transfer Utilities you just place the PC (MSDOS), RSDOS or FLEX disk into your CoCo disk drive - enter a simple command and the file is copied into a CoCo OS-9 file. File transfer back to PC (MSDOS), RSDOS and FLEX disks is just as simple.

<b>PCDIR</b>	directory of PC disk	<b>RSDIR</b>	directory of RSDOS disk
<b>PCDUMP</b>	display PC disk sector	<b>RSDUMP</b>	display RSDOS disk sector
<b>PCREAD</b>	read PC file	<b>RSREAD</b>	read file from RSDOS disk
<b>PCWRITE</b>	write file to PC disk	<b>RSWRITE</b>	write file to RSDOS disk
<b>PCRENAME</b>	rename PC file	<b>FLEXDIR</b>	directory of FLEX disk
<b>PCDELETE</b>	delete PC file	<b>FLEXDUMP</b>	display FLEX disk sector
<b>PCFORMAT</b>	format PC disk	<b>FLEXREAD</b>	read FLEX file
		<b>FLEXWRITE</b>	write file to FLEX disk

**Extensive Options** Single, double sided disks. 40 or 80 track floppy drives. 8 or 9 sectors. First level sub-directories - PC (MSDOS). FLEX transfers binary files also.

**Requires** OS-9 (Level 2 for MultiVue), 2 drives (one can be hard), MultiVue for MultiVue version, SDISK (SDISK3 for MultiVue) - see D.P. Johnson ad for SDISK

GSC File Transfer Utilities for CoCo - MultiVue version \$54.95

GSC File Transfer Utilities for CoCo - Standard version \$44.95

All diskettes are CoCo OS-9 format. Orders must be prepaid or COD. VISA/MC accepted, add \$1.50 S&H, additional charge for COD.

## GRANITE COMPUTER SYSTEMS

Route 2 Box 445 Hillsboro, N.H. 03244  
(603) 464-3850



OS-9 is a trademark of Microware Systems Corporation and Motorola Inc.  
MS-DOS is a trademark of Microsoft Corp. FLEX is a trademark of TSC, Inc.

voice, and keep in touch with the Public Service communications that I am a part of, using HF RTTY and AMTOR. I selected the CoCo 3 to handle the digital modes for the unique and marvelous capabilities of OS-9, Level 2.

One of the CoCo 3's is equipped with a pair of 80-track floppies and a 40-Meg hard drive; the other has a pair of 40-track floppies and a pair of hard drives, one 20 Meg hard drive. I use Burke & Burke interfaces are in both units, and both use WizPro software for the terminal chores. Both generate a remarkable amount of RFI (Radio Frequency Interference), as will \*ANY\* device which depends on digital switching at such high frequencies; the crystal in the CoCo is 28+ MHz. Harmonics and sub-harmonics of this and other products are all over the spectrum anywhere close to the CoCo 3.

It's easy to find the things which radiate by attaching a length of coaxial cable to the antenna input on the HF receiver, and move the shorted end of it close to various things in the shack, and at the same time observing the S meter, and listening on a number of frequencies of your choice. I found some hot spots to be the cables between the various peripherals. The original TV I used as a monitor was completely unreliable due to interference. During disk I/O, the RFI was intolerable. Enough was enough; I removed all the RFI, and now enjoy a peaceful and reliable hobby in both areas of interest. How, you ask? Read on.

The TVI was easiest to cure. I placed an aluminum cookie sheet under the TV and above the CoCo 3, and then grounded it. This is called a Faraday shield, but removed only some of the TVI. Ferrite beads, size FB-8, mix 43, were then installed on each of the AC leads connected to the transformer in the CoCo 3, both 120 and 12 VAC, total of five beads. Goodbye to TVI. I have to confess I've since said goodbye to the TV as well. CM-11's had to be procured to properly display the high class graphics I have in my terminal programs!

Next was the attack on the RFI from the cables. You probably have ribbon cables like I used to have, going to the disk drives, the printer, etc. They are traditionally flat, with parallel conductors. Bad news! Change them to the type of cables which are either round and shielded (and grounded), or get the cable with twisted pairs. Individual pairs are twisted, but cabled in a flat configuration, with a flat place to attach connectors every couple of feet. The transpositioning of the conductors reduces the induced currents in adjacent wires, thereby reducing energy in them which might be radiated. Shielded cables are more expensive, and don't always fit through the rectangular slots in our equipment, but they are slightly more effective in reducing interference.

If you still have radiated energy causing problems, you can once again turn to ferrite. Both round and flat ferrite forms are

available to impede the energy floating on the outsides of your cables, including shielded coaxial cables and telephone wires. Palomar Engineers markets a wide variety of ferrite devices. I bought a number of their split-core devices, and applied them to nearly every cable in the shack, right at the source of the energy. The drive cables have a 2 1/2" flat ferrite device right next to the connector at the controller pack and there is another inside the drive cabinet. There's another pair of ferrite devices at each end of the printer cables. The cables to the monitors each have a pair of ferrite devices at the ends. Cables to the hard drives each have ferrite devices. All metal cabinets are bonded together and to ground. AC line cords make several turns through a ferrite toroid. Don't forget the telephone modem and cables; they might also be hot.

If I listen very carefully, I can almost hear the birdies on some of the frequencies where they used to be loud and wide.

If you have difficulty finding Palomar ferrite devices, or similar, try my local source which is adequately stocked in most sizes and mixes:

North Olmsted Amateur Radio Depot  
29460 Lorain Road  
North Olmsted, OH 44070  
Phone (216) 777-9460.

Tell Rick, K8SCI, I said "HI!".

73, de Jerry Murphy, K8YUW

## 1988 COCO FEDERAL TAX

BY PURITAS SPRINGS SOFTWARE

In his review of last year's edition, Ted Paul wrote: "This is an excellent program and manual and I was in awe when the mail carrier handed me this huge bundle." CoCo ClipBoard Magazine, Mar/Apr 1988

\*100+ page manual \*For the 64K CoCo 1, 2 or 3 w/1 Disk Drive. \*machine language user interface \*3 diskettes \*menu driven. \*loads & saves files to disk. \*prints to screen or prepares forms acceptable to IRS. \*easy to use format follows IRS forms. \*built-in calculator. \*self-checking for common errors and omissions. \*complete directory system for easy editing. \*disk directory function. \*Price - \$49.95

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Schedule C	Schedule D	Schedule E
Schedule SE	Form 2441	Form 4562
Form 8615	State/Local Tax	Pension/Annuity
Social Security	IRA	And More

## IRONSIDES & CRIMSON SAILS

softWAR Technologies

A two player naval game for the 512K CoCo running OS9 Level 2. It utilizes the 640x192 high resolution screen for brilliant graphic displays. It comes on a single diskette which contains 5 different naval battles, therefore, I&CS is really 5 completely separate games in one. Different game maps with different set-ups requiring different aspects of play. I&CS also has a game save or load feature. In addition to the master game system disk, 5 other collections each containing 8 other individual battle simulations are available.

I&CS is offered at a special rate of only \$8.95. Reviewer Ted Paul called it "a steal at this price ... one of the most interesting programs I've seen from a third party vendor ... a fine example of what third party vendors can produce to take advantage of the CoCo's graphics abilities in conjunction with the OS9 Operating System." Computer Shopper, 11/88

Puritas Springs Software/softWAR Technologies  
Ameritrust Building  
17140 Lorain Avenue  
Cleveland, Ohio 44111  
(216) 251-8085

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So to let you find out for yourself, we are offering a free demo copy of CSG IMS. Just send us a proof of purchase for Sculptor, or any other OS9 database product, and we'll send you a demo disk and full manual AT NO CHARGE! Please be sure to specify your system type, disk size, and OS9 version with your order.

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# Hard Drive Software Review

Jim DeStefano

Hyper-I/O  
Burke & Burke  
P.O. Box 58342  
Renton, WA 98058  
(208) 235-0917

Prog. Type : Software to run hard drive from BASIC  
Requires : CoCo 3 and OS9 Level II  
Price : \$29.95  
Note : Must specify Hyper-I/O, Disto Hyper-I/O or LR Hyper I/O when ordering

So you've been thinking about getting a Hard Disk, but aren't ready to tackle OS-9 and all it seems to entail. You've seen the ads talking about hard disk usage under RS-BASIC and are wondering which one is for you. Okay, by no means am I an expert on the subject, but I'll share what I've learned.

Keep in mind HYPER-I/O is software. Burke & Burke also sells a hardware item, a hard disk interface. It's just the software that is being reviewed, not the hardware item.

First, as we know, there are two Operating Systems used with the CoCo; normal RS-Basic and OS-9. RS-Basic allows just the use of a floppy disk, while OS-9 allows the use of both floppy AND hard disks.

The OS-9 hard disk implementation treats the hard disk as one huge memory "container". You, the operator and OS-9 divide the hard disk into sections by establishing directories. Given programs and files are saved "under", or in, given directories.

The contents of the directories, as well as the directories themselves are organized by OS-9 on levels. A "DIR" will only list what is on the "level" you have OS-9 on at the time of the request. That way the list of the many, many programs and files that could be on a hard disk don't come spewing out on the screen. You see only those things on the level you are on.

Any CoCo RS-Basic hard disk system is a add-on. There are three major suppliers of hard disk systems under RS-Basic. They all function at about the same speed. None of them turn off error checking, or anything like that to get faster speed. However, they all organize the hard disk differently.

They all use the operating system areas of memory not used by RS-Basic to store

their hard disk instruction-code. This causes a conflict with ML programs that use the same memory space. Also, if the programmer designed his own (floppy) disk I/O routine there will be a conflict. Of course these programs can still be run under unmodified RS-Basic. (TW-128 and the VIP series work just fine with the RGB-DOS system. They may work with HYPER-I/O.)

In relation to the ML program conflict, the RS-Basic hard disk systems that are on a floppy disk have an advantage. The CoCo can be fired up without the hard disk system floppy, and therefore the machine is in standard RS-Basic. That will allow running of conflicting ML programs. While, if the hard disk system is in an EPROM, one should have a two slot floppy drive controller. One slot for the standard RS-Basic and the other for the EPROM containing the RSDOS modified for hard disk.

As to hard disk directories under RSDOS, all three implementations setup the hard disk in many partitions. A DIR displays the contents of the partition called.

A way to overcome the problem of a file being longer than the space in one partition is by saving the file in two or more partitions. That can easily be done with a CoCo-3 by using the ON ERROR GOTO command. When a partition gets full a DF error is generated. The ON ERROR GOTO line is programmed to direct the program to put the data in the next partition.

When reading a file, if the program checks a partition that doesn't have the requested file's record, an error also results. The GOTO line just tells the program to check the next partition.

One might think jumping partition walls would slow things, but using the RGB-DOS system I crossed five partitions with no noticeable lost time. I tried just one partition with HYPER-I/O with the same result. Of course there must be some time lost, but with the -3 in the high speed mode combined with the natural speed of a hard disk, the delay is no longer than a blink of an eye.

One advantage of HYPER-I/O over the two other systems is that it is the only one that allows the user to change the size of the partitions. The smallest allowed is 2K and the largest allowed is 3 Mb.

Hard Drive Software Review continues on 47



Another major point to consider is the hard disk control "system". As there are two operating systems for the CoCo, there are two possible hard disk control systems; SASI and SCSI. SASI is the older "standard" and does little more than control the I/O of the hard disk.

SCSI is the newest standard, it affords control of peripheral devices; hard disk, CD drives, streaming tape drives, etc. When a hard disk is controlled under SCSI, it is automatically "multi-user"; the requests of several CoCo's connected to one hard disk don't get mixed; no multi-user code needed. Such a setup yields the bonus; each CoCo in the system runs independently; has its own memory, etc. There is no slowing of any of the computers when another one is added to the system.

To configure such a system, only one of the CoCo's needs a floppy controller and floppy drive. All the other CoCo's need only a hard disk interface; no floppy controller or special serial port. However there are some kinks to be ironed out. SCSI doesn't easily have record locking as OS-9 does, but a little programming should care for that matter. (I'll be working on that soon.)



**Burke & Burke**

SCSI's major problem is the maximum length of its cable, about 10 feet. However there is a fix. So using SCSI we have the possibility of multi-user with no slow down as OS-9 does, and easier streaming tape hook-up.

SASI and SCSI are coded into the hard disk controller; the interface can be compatible with either one or the other, not both. The hard disk controller should not be confused with the interface. The HD controller is in the hard disk housing, but is purchased separately from the hard disk. The interface looks like a floppy disk controller and plugs into a multi-pak or a "Y" cable. The CoCo "speaks" to the HD interface, the interface to the HD controller and the HD controller to the hard disk.

So... to run a hard disk we can choose between OS-9 or RS-Basic, and between the HD control standards of SASI and SCSI. HYPER-I/O works with RS-Basic and a SASI controller; but soon may be updated to work with SCSI. Of course if there are no plans to ever go to more than one user on a hard disk, the "standard" question, to quote Jessie Jackson, "is moot".

What is the advantage of HYPER-I/O over OS-9? Its easier to use. Once it is setup you run BASIC just about the same as you always have; except you can run a hard disk and have the advantages that implies.

However, HYPER-I/O should not be thought

of only in conjunction with hard disks. It works its special magic with floppy disks drives too. If your floppy drive is able to handle any of the following, HYPER-I/O will make your floppy do them. Things like changing the track to track rate to 6ms, take the normal floppy out to 40 tracks, run 80 track floppies, run a dual sided drive so the system sees it as one floppy, but double the one side size. HYPER-I/O also read quad-density floppies. Of course all the standard settings work as well. As you can see, the name of the game at Burke & Burke is FLEXIBILITY. Their motto could easily be, "If it don't flex it ain't Burke & Burke".

Although RS-Basic allows only 4 drives, HYPER-I/O allows 9 possible "drives". It uses OPEN and DRIVE in combination as a special command to switch the system from one of the "drives" to another. However, only 4 of the possible 9 "drives" sizes can be active at any one time.

By sizes I mean, as we know the normal 35 track floppy has 68 granules which will allow 68 programs and files to be stored providing they are no larger than one granule; 9 sectors, 2.3K. The HYPER-I/O 3Mb partition has 192 granules, 15.6K each. That allows 192 programs and files if they are no longer than 15.6K each.

The possible hard disk partition sizes are wild. All is based on sector size, always 256 bites, and the number of tracks. To use BACKUP the granule size of the source and destination "disks" must be the same. From there on everything is wholesale. But first, the partitions must be configured; defined and sized.

Get a good grip on your socks and we'll go through the setting of the HYPER-I/O partitions. You should have a good working understanding of sectors, granules and tracks. If you don't, re-read the CoCo Disk System manual.

The drives must be "defined" to size by the number of tracks and sectors. Then the "definitions" must be assigned to one of the possible 9 "drives". When the definitions are assigned to a drive you also specify how many of each of the "defined" drives you want. There are 26 possible for each size, A-Z.

Next the disk is "soft" formatted to conform to the "defined" drives and the number of each. Finally all this is saved to the HYPER-I/O master disk. The master disk is "run" upon each CoCo start up. That tells HYPER-I/O the hard disk configuration. Sounds easy in the telling, however it took me 30 plus hours and one call to Burke & Burke. As in any program, flexibility is a blessing and a curse. You can generally get what you want, but it requires knowledge and perseverance to get it.

Much like learning your first word processor, much trial and error will get what you want. I have only one floppy drive working. So I wanted drive 0 for the floppy, drive 1 for a hard disk 35 track RS-Basic



# Burke & Burke

... has relocated to Renton, Washington. We pledge to continue to offer Color Computer owners the high quality, affordable, and innovative products that have built our reputation.

To order, use our NEW TOLL FREE ORDER HOTLINE: 1-800-237-2409

## Real BASIC for OS9!

*There is nothing wrong with your Color Computer. Do not attempt to adjust it.*

Burke & Burke's new R.S.B. program gives you a complete, OS9-compatible version of Disk Extended Color BASIC. We've added new software for OS9-style graphics, sound, printer, and disk I/O. The BASIC you know and love is now running under Level 2 OS9 windows!

R.S.B. loads and saves files using OS9's file format, so we've also included utilities to transfer BASIC programs and data files between OS9 and BASIC disks. Of course, you can't use R.S.B. to run machine language programs, and some BASIC commands work slightly differently under R.S.B.

Your BASIC programs can take full advantage of great OS9 features like hard disks, no-halt floppies, multi-tasking, and 2 MHz operation.

R.S.B. requires a CoCo 3 with at least 128K RAM (512K recommended), a floppy controller with either Tandy Disk Extended Color BASIC or DISTO CoCo 3 CDOS, and Level 2 OS9.

OS-9 LEVEL TWO VR. OS9  
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ALL RIGHTS RESERVED

July 11, 1988 14:37:30

Shell

OS9: xmode /w5 type=0  
OS9: inlz /w5  
OS9: rsb <>>>/w5 &  
&007

Only \$39.95

© 1988 BURKE & BURKE  
DISK EXTENDED COLOR BASIC 2.1  
© 1982, 1986 BY TANDY  
UNDER LICENSE FROM MICROSOFT  
AND MICROWARE SYSTEMS CORP.

CLEAR

OK  
LOAD "DEMO"  
OK  
LIST  
10 PNODE 4:SCREEN 1,1  
20 X=RND(256)-1:Y=RND(192)-1  
30 A=RND(256-X)-1:B=RND(192-Y)-1  
40 LINE (X,Y)-(X+A,Y+B),PSET,BF

R.S.B. Version 1.2 \$39.95

## CoCo-XT Hard Disk Interfaces

We've sold hundreds of our affordable, high-performance hard disk interfaces to Color Computer enthusiasts worldwide!

Each includes a durable, fully enclosed metal housing, 100 page user manual, and software for use with OS9. The CoCo XT-RTC adds a battery-powered real time clock / calendar for OS9 and BASIC.

- A true "NO HALT" hard disk system
- Controls 1 or 2 hard drives, which may be different sizes
- Full ECC / CRC error correction
- Average access 30% faster than SASI systems
- Uses PC-type hard disk drives & controllers
- Full 5 Meg to 120 Meg storage per hard drive
- Does not use or disable interrupts
- Compatible with most RS-232 interfaces
- 20 Meg system cost: under \$450
- Requires Multi-PAK or "electric" Y-cable
- EZGen Boot File Editor software included with each interface
- Use with HYPER-I/O to share your hard disk between BASIC and OS9

Buy a hard disk kit and a case/power supply from the PC dealer of your choice. Plug them into the CoCo XT, plug the CoCo XT into your Multi-PAK, and install the OS9 or BASIC software. Presto!

CoCo XT \$69.95  
CoCo XT-RTC \$99.95

Handyman's note: A hard disk kit includes a hard drive, cable set, and Western Digital, DTC, Adaptec, or equivalent PC-compatible hard disk controller.

## The Professional Touch: XT-ROM 2.3

Install XT-ROM in your CoCo XT hard disk controller's BIOS ROM socket. It automatically boots and reboots OS9 from your hard disk.

Select among any of two different hard disk boot files, two different floppy boot files, or your BASIC ROM at power-up. XT-ROM gives your system that "professional touch". Great for unattended BBS, home security, or other fail-safe CoCo applications.

XT-ROM \$19.95

### Wild & MV Version 2.1

Use "wildcards" with most OS9 commands, or rearrange your directory tree. Features recursive directory searches. A hard disk must! \$19.95

### EZGen Version 1.06

Powerful OS9 bootfile editor. Change module names, add or delete modules, patch bytes, or rearrange modules. Works on other files, too. \$19.95

### OS9 Utilities

## Hardware, or What?

68B09E 2MHz Microprocessor \$14.95  
4' Hard Disk Cable Set \$17.50  
Blank 27128 EPROM \$9.95  
(for HYPER-I/O)  
Hard Disk BIOS Socket Installed \$7.50

## Daggorpatch

Don't be afraid of the dungeons...

Yet another does not return!



Only \$9.95!



DAGGORPATCH puts the thrill back into your Dyna Micro Dungeons of Daggorath™ game cartridge by patching it to run from disk. Includes disk load & save, auto-repeat command, pause, DMP-100 screen dump, tape-to-disk, and more!

1989  
New Year's Resolutions

- 1) Learn OS9
- 2) Buy a Hard Disk
- 3) Clean Garage

## HYPER-I/O Now BASIC runs hard drives, big floppies, and more!

HYPER-I/O modifies the Disk BASIC in your CoCo 1, 2, or 3 to provide a "Dynamic Disk Interface". Use your existing BASIC and M/L software with hard disk interfaces (CoCo XT, DISTO, LR), RAM Disks, and any mix of floppy drives from 160K to 720K each. Fully RESET protected, user configurable, expandable, EPROM-able HYPER-I/O V2.6 is the most versatile hard / floppy disk DOS available. Please specify HYPER-I/O, DISTO HYPER-I/O, or LR HYPER-I/O when ordering.

\$29.95

HYPER-III (Adds RAM Disk and Print Spooler to CoCo 3 HYPER-I/O) \$12.95

HYPER-I/O & HYPER-III work with your B&B, RGB, LR, or DISTO Hard Disk

## HYPER-I/O Utilities

by Kevin Berner

The HYPER-I/O HARD DISK UTILITIES let you perform wildcard copy, delete, and search operations on your HYPER-I/O directories. Great timesaver for moving data from floppy disk to hard disk, or for BBS maintenance. Kevin's DISK DOCTOR will lock out bad sectors on your hard or floppy disks, and includes a disk-zap utility designed specifically for use with HYPER-I/O.

DISK Doctor \$17.95 HYPER-I/O Hard Disk Utilities \$21.95

WOW! Both Great Utility Packages \$37.95



PERTASCII \$19.95

PERTASCII is a multi-user word game for Level 2 OS9. The players are yourself, the computer, other users on your system, or even friends that call in on a modem.

The game is played in timed rounds, until a certain score is reached. Players can join or leave the game at the beginning of any round. The players make words from random letters during each 3 minute round, and then argue over whether or not to accept each other's words.

Great for BBS and multi-user systems... or play practice rounds against the computer to hone your skills!

Includes a user-expandable 3500 word dictionary.

512K CoCo 3, Level 2 OS9, and one disk drive required. CoCo 2 and 128K owners: watch for our 128K / 64K version!



# Burke & Burke

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look-alike partition and drives 2 and 3 as 3Mb jobs. I didn't set drive 4 thru 9. As I said, it took time. I pre-read the manual cover to cover, plus the update sheets.

Once I thought I had gotten a handle on what I had to do, it took me four complete tries to get what I wanted. The total elapsed setup time was nearly a week; "all's well that ends well", and it did.

It is obvious the primary manual was carefully written. There is a wealth of information for both users and programmers. Surely a great deal of effort and time has been expended on it. It is easy to conclude it was professionally done, but in my estimation, it misses the mark.

To be fair, it has a whale of a job to perform and does get it done, but it tends to do a better job of explaining what the individual setup programs do, rather than explaining what to do with them. Something like telling a automobile driving student the brake pedal retards wheel rotation, rather than saying it is used to stop the car. An index would be helpful too, but it has none.

In discussion with Chris Burke about the installation difficulty, we discovered my package did not include the supplemental manual, "Hard Disk Installation Guide". I have read it since, and there is no question, the installation would have been a lot easier if I had had it. Be sure your package has it.

In addition, Chris plans to write an Installation Module; just load, run and answer the questions. That should do the trick. Keep in mind, any upgrade disk for HYPER-I/O is just \$5. If you don't have the "Module" I expect it would well worth the added \$5.

My HYPER-I/O setup allows my second floppy to be the first hard disk partition set to normal RS-Basic disk size. Naturally I called it /H0. BACKUP and COPY work just fine between it and the floppy drive. The other two partitions, /H1/A and /H1/B, 3Mb each, allow BACKUP and COPY between them, but by design, BACKUP works only between the floppy and /H0, and between the two 3Mb partitions because as noted above, their granules are difference size.

All the other BASIC commands work normally except DSKINI on the hard disk. However, there is a special program to "erase" the contents of any partition. And although HYPER-I/O works with C-DOS, all the special commands and line editor are disabled. HYPER-I/O does not have any command enhancements or a multi-column DIR display like RGB-DOS.

On the flip side though it's not the fault of HYPER-I/O, but rather RSDOS itself. You have to be careful about making too many big partitions. With the 3Mb size, each granule is 15.6K long, any program or file shorter than 15.6K results in the loss of what is not used. The point is, make the partitions only as large as needed.

Also FREE(n) didn't do its thing properly on occasion. It required a re-running of the

master disk to get it working, but I don't consider it to be a major flaw; FREE(n) is not generally used in a program now that we have ON ERROR..GOTO. That was the only mis-step noted. Overall, HYPER-I/O works as designed with no muss or fuss.

A hard disk comes into its own when a file(s) is longer than one floppy or when Merging programs. During MERGE, the speed is such that the delay between programs running is much shorter than with a floppy. All of this suggests pretty big files and many programs, all working together; something like a business management program would need.

Another HD system choice could be OS-9. Since the CoCo-3's memory can be expanded to 1/2Mb, OS-9 looks attractive. Keep in mind Burke & Burke has CoCo BASIC working under OS-9. (It will be my next review.) To be truthful, I would go with it and let OS-9 handle the hard disk action; the best of both worlds for beginning OS-9 users.

If you were to go to OS-9, but still wanted to use part of the hard disk under RSDOS, the RGB-DOS system would be a good option to investigate.

The real question is, would I recommend the purchase of HYPER-I/O. Getting the horse to in front of the cart, one should assess the value of a hard disk first. Like floppies, there is no way to tell which program is where, so you have to keep "a little program location book" or write a "search the hard disk program". Such a search wouldn't be fast. Therefore, if the idea is to just store programs, a good floppy storage container and reference system might be as good and cost less.

BUT.. if your a RSDOS die-hard and have good disk mechanics knowledge, HYPER-I/O may be the better hard disk system choice because of its flexibility. Surly a great deal of work was expended on HYPER-I/O and it is worth at least double the price.

---

RGB-DOS  
 RGB Computer Systems  
 294 Stillwell Avenue  
 Kenmore, NY 14217  
 (716) 876-7538

Prog.Type : Alternate RS-BASIC CoCo DOS  
                   software with hard disk driver.  
 Requires : Any CoCo, 64K, floppy drive.  
 Price : \$29.95 + \$3.00 S&H.

By Jim DeStafeno

Although RGB-DOS is much more than a HD (hard disk) driver under RS-BASIC, due to HD costs and expectations it should be discussed up front. In the Sept/Oct '87 issue we looked at hard disks systems. In brief, we said the OS-9 only users should read the ads, plunk down their bucks and go to it. Kind'a like buying a floppy drive. (There are some technical reason why an OS-9 only

user should get a HD setup by RGB Computer Systems, but this review is about software, RGB-DOS, not hardware. Let it be enough to say, those that want a better RS-DOS, with or without HD capability, with or without OS-9 on the HD, had better look at what they are thinking of buying more than once.

I was disappointed with my first BASIC HD system, and so was Roger Krupski, President of RGB Computer Systems. I wrote an article about it, Roger wrote RGB-DOS.

He is an electrical engineer. Reading between the lines, you'll find he wants things to be right. It took two years to make RGB-DOS work to his satisfaction. In my opinion RGB-DOS solves 100% of the RS-DOS problems that can be solved, and it was done without using any BASIC program space.

Keep in mind, it would be a mistake to view RGB-DOS as just a HD driver. It makes many improvements to RS-DOS itself. I've been using RGB-DOS for more than a year. I can easily say RGB-DOS is the DOS the CoCo should have when shipped from Tandy because its operation follows the established RS-BASIC logic. It is both v-e-r-y simple to setup and use, and yet very powerful.

To get RGB-DOS on line, all you do is make a backup disk, slip it in your disk drive, run the configuration program, answer its three question; one to set the fastest possible track to track step rate of your floppy drive(s), the other two are to setup a HD; which hard disk interface is being used and what portion of the HD you want to reserve for OS-9; and then run the resulting program. Of course the HD questions have no meaning if you are not using a HD.

RGB-DOS is simple to use because the command structure is no different from RS-BASIC. That is, if a HD is in use you just have more drive numbers. DIR126 yields the last "disk" on a 20Mb HD. The main new commands are DRIVE ON, DRIVE OFF and DRIVE STOP. There are others, but by way of example, DRIVE STOP parks the HD heads so they will not rest on the disks when the HD is OFF.

The other two commands are needed to distinguish between your desire to use drives 0 through 3 to access your floppy drives or your HD 0-3 drives. You see, you could have a program that calls for the use of drives 0 and 1. If you type DRIVE OFF: RUN"prog. name" the program will run from the floppy drives. If you had used ON rather than OFF, the program would have run from the hard drive. Not very difficult to understand or remember.

These four drives can also be split between the floppy and hard drives by typing DRIVE OFF 0 which results in drive 0 working from the floppy and drives 1 through the end working from the HD. Typeing 1 results in results in floppy drives 0 and 1 being active. (2 results in 0 through 3)

The added power of RGB-DOS shows itself with the many BASIC commands improvements, the RS-DOS bug fixes, the automatic configuration for single and double sided

floppies, and of course the optional use of a hard disk; all from within RS-BASIC.

It is 100% RS-BASIC compatible. The first check out "ride" will confirm all works normally; cassette, floppy, graphic pages, everything. And for "icing", the price includes a fist full of neat utility programs. All of this means RGB-DOS is for beginners and experts, for users and programmers, for those with and without hard disks.

Command improvements were made to DIR, COPY, RUN, DSKINI, BACKUP, RENAME, DRIVE and DOS. The screen looks the same until you do a DIR. The result is a multi-column directory display; 5 across in the -3's 80 column mode. That allows a full disk's display without scrolling.

In addition to more file names, the last line of a DIR shows the drive number and number of free granules remaining. Except for the number of granules used, the numbers usually following the program names are omitted to make room for the greater number files displayed.

Type, or use in a program, DIR n1 TO n2, where "n1" is the beginning drive directory you want, and "n2" is the last. Each called directory scrolls by in turn. Of course the display can be paused with a SHIFT/@ at any time. Don't like - SHIFT/@, see "NEWCMD" below.



Don't you think being asked to type in the filename twice when using COPY is a bit much? So did Roger. With RGB-DOS, if the filename is not going to be changed, it only has to be typed once; COPY"prog.name/ext" TO 1. You are even told if the file already exists on the destination disk.

Type RUN"ML program name" and the program will run and self execute.

Do you get burned everytime you have to format a disk before doing a BACKUP? I agree, first its wait for DSKINI to finish and then type in BACKUPn1 TO n2. With RGB-DOS it can all be done in one command line; DSKINIn: BACKUPn1 TO n2. Go make a quick pit stop and return to a completed job.

How would you like to be able to name each disk and have the name displayed along with the drive number and free space any time you hit DIR? RENAME DRIVE n,"any thing" does just that; up to 255 characters.

I guess most everyone knows the DOS command can be rewritten to do most anything. As written it will can only activate drive 0. Try DOS n. RGB-DOS sends the computer off to drive number "n". That means you can have a modified DOS command on every drive number. Really neat with a HD, but there is even another DOS wrinkle; a special program name, "AUTOEXEC". Using it you don't



even have to modify the DOS command. Type DOSn and the computer first looks for the OS-9 boot program on the drive specified. If it is not there it looks for "AUTOEXEC", and if there, it is RUN.

"AUTOEXEC" is not only sensed by the modified DOS command, but it is also sensed directly on start-up. That is, upon start-up or a cold start reset, RGB-DOS first looks for a HD. If one is ON and a program named "AUTOEXEC" is on drive 0, it is executed. If the HD is OFF, RGB-DOS looks for the program on floppy drive 0. Again, if it is found, it is executed. If it is not found you just get the familiar, "OK". (Unless the OS-9 boot program is on the disk, see below.) However, in either of the cases, if you hold either of the Shift keys down the whole automatic operation is cancelled and you get the OK sign.

The program named "AUTOEXEC" is to be programmed by yourself to do anything you want it to do; set the Baud rate, display a clock time and a menu to call all your utility programs, or a BASIC loader for your word processor, or in combination with DOSn it can execute another "AUTOEXEC" on another disk which can...; I guess you get the idea.

But remember I said DOS executes the OS-9 boot program if it is on the disk and if not, it then executes "AUTOEXEC". Well, you OS-9 fellows, get a grip on this; considering the above, RGB-DOS will cause OS-9 to self boot from the hard disk! And if you RGB-DOS in an EPROM the system doesn't even have to be loaded in from the floppy.

Quite an impressive list of mods, but hang in, there are add-on goodies too. Ever hear about a program by Colin J. Stearman called "FLEXIKEY"? It's incorporated right in RGB-DOS. No need to called it up; it's always there ready to act. What it does is remember each keystroke typed in the direct mode. A SHIFT/RIGHT ARROW puts the characters, up to 250, back on the screen. Press ENTER and the command(s), execute again.

Big deal? Sure is because the "remembered" keystrokes can be edited. Never thought I used direct entry much, or made many mistakes using it. Ah, wait until you've had it for a month and then use a CoCo that doesn't have it.

Do you have or expect to get a double sided floppy(s)? RGB-DOS automatically senses them and configures the system on the fly to use them.

While Roger was rearranging the RS-DOS he fixed the bugs in the COPY, DSKINI, BACKUP and DOS commands, and the Track Table. You may have never run into or even heard about them because they are not normally pushed to their max capability, but they are there.

However, if you ever tried a high speed SAVE or LOAD, you know about that problem. Not to worry any longer with RGB-DOS. I even tried high speed I/O action on a -3 with an old J&M floppy disk controller; all worked flawlessly, everytime, as does everything else in RGB-DOS.

All of the above and more is in RGB-DOS.

These things are a bonus that comes with the HD capability or maybe the HD capability is a bonus that comes with the DOS; you don't need a HD to get all the RGB-DOS goodies.

What about the HD? No big deal, just "Y" cable in a Ken-Ton, Disto or LR-Tech HD interface and connect it to the HD. RUN the configuration program, answer the questions about the HD, then answer the HD format configurations questions, come back to your CoCo in hour or so and run the resulting program. Your in business at what seems like the speed of light; be it a CoCo -1, -2 or -3.

While on the subject of HD speed, brand X's medical doctor turned CoCo electronic engineer has done RGB-DOS a great disservice. ("I don't have experience using all the systems described, so do not consider this a comparative review of the products." He is talking about the most expensive/system effective add-on for a CoCo. A mistake in choice will not only be very costly to correct, but could put the CoCo in the hall closet, while the correct choice will yield a great deal of satisfaction. Its not a \$70 word processor being discussed.)

He seems to have taken the word of a CoCo guru that apparently does not know how, or didn't take the time, to do a proper HD speed test. If the speed quoted in Frank Hogg's ad in brand X for his "hot shoe" HD system is correct, I challenge any commercial CoCo HD system to a speed test. There is only one condition, I'm the one that gets to use RGB-DOS. Enough said. I'll let you know if I get any takers, and if I do, the results. (I have all except the "hot shoe" right here in my library. However, the whole speed thing is a fruitless discussion. The times are direct transfer rates. Under RS-BASIC, or even OS-9 the CoCo can't except or deliver data at anywhere near the quoted rates. Any HD system reviewed will easily exceed the transfer rate of any available CoCo Operating System.)

On top of that, if you are deterred from SCSI by the same group, you are going to miss out on the good stuff. They are flat wrong in their conclusions. Like what? How about a practical 14 user all CoCo system with no slow down? Who do you think knows best; MacIntosh, Altos and even IBM on their high end PS-2s, or brand X writers? Off the soap box.

In addition to all of the above, a RGB-DOS gets you several utility programs that are meant to be a surprise gift for the RGB-DOS purchaser. I won't spoil the surprise by detailing them all, but on the -3, how about toggling scroll ON and OFF by pressing and releasing the CTRL key rather than SHIFT/@ and Any Key. LIST"file name. ext:n" will screen display the named file. No need to load in your word processor. Then there is the multi copy program, and RAMDSK and the... - opps, sorry, I can't spoil the surprise, (ah,.. there's one that lets you



use lowercase for everything and stuff for programmers to get addresses and...).

"OK, OK", you say, "but what about the problems?" Well, you are right, there is one, but its not the fault of RGB-DOS or TANDY. To the lament of all special DOS suppliers, being 100% BASIC compatible doesn't mean 100% CoCo program compatible. Just as the CoCo-3 is compatible with the -2, but there are some -2 programs that won't run on the -3, there are some programs that won't run under RGB-DOS. (However, since RGB-DOS uses less memory than the other HD systems, it should be compatible with more programs then the others.) Tandy set the rules early on, but some of the program writers thought they knew better.

As long as the program is in BASIC, there is no trouble. However, if the program uses part of memory reserved for the DOS and/or has a specially designed disk operating system, it may not run under any of the HD systems.

All is not lost though; most all ML seem to work fine, however the ones that don't can be run if the special DOS is on disk; just don't boot up the special DOS, the system is then standard. The bastered programs; includes Telewriter-64, Spell'N Fix and Autoterm. If you plan to put RGB-DOS in an EPROM, which is the best way to go, and also plan to use the above programs, then you should use a double EPROM socketed floppy controller. That way the normal ON socket can have RGB-DOS and the other can have RS-DOS to be used with the above programs.

However, there is even a better way to go. Sell your -2, get a -3 along with the VIP series or TW-128 and RickyTerm, or the many other programs that follow the rules. If needed, Roger has patches for many of them that limit their drive number to 3. The patch just allows an unlimited drive number which allows the program to read/write to any of the "disks".

The only other problem, and its not really a problem; its more a matter of philosophy. It is the size of the "disks" on the RGB-DOS HD. RGB-DOS HD operation is the friendliest because, as stated above, it follows the logic of RS-BASIC faithfully. That means the HD is formatted into many 35 track "disks".

That makes life very easy with but one exception. What do you do when you have a file larger than one disk can hold. Keep in mind, this will rarely happen; something like a business program, a database with a thousand or so records. (Keep in mind, none of the RS-BASIC hard disk DOSes allow the HD to "look" like one huge disk as OS-9 does, but Hyper-IO allows up to a 3Mb "disk". However, it has its own special problems. Your best bet is to get knowledgeable before you plunk down your bucks.)

Roger and SD Enterprises (VIP) pointed out to me that it is simple, even in BASIC, to sense when a disk is full and step to the next disk. That means, even with 35 track

"disks" one could access the 35,000 records by 255 bytes each, that is in every 9 Mbs of hard disk. Using a 10 Mb HD, there would even be 1 Mb left over for programs.


To test their statement I filled five "disks" text. I then wrote a test program that sensed a full disk, and if full tried a save to the next "disk". It took about two eye blinks to begin the save on the sixth "disk" when the request was to save in the first "disk". In truth, the question is somewhat mute because few users will ever get into the situation.

Since none of the BASIC/HD DOSes are perfect, my vote goes to the most friendly program, and RGB-DOS wins in that contest too; hands down.

That's it. The 100% BASIC compatibility may be a two edged sword, but the edge we want is very sharp, while the other can be cared for with a little thought. I would appreciate RGB-DOS even if it didn't have HD capability. It works just as I had envisioned; a configuration program, simple to use, powerful enhancements and additions, bugs fixed, a couple hundred dollars worth of utilities and capability to run a HD.

If RGB-DOS isn't the most under rated CoCo package, I sure would like to see the one that is. Could one ask for more for \$29.95?

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# DOWNTIME

Rush Caley

## ENVIRONMENTAL IMPACT STATEMENT

It's ironic; but that which creates the strongest appeal in the Tandy Color Computer is also that which is her greatest weakness. The capabilities of the machine buried in the mysteries of the 6809 have drawn tens of thousands to opt for its peculiar challenges in lieu of the industry standard. Since 1980, hardware and software pilots have been pushing the electronics envelope in search of her limits, and even then, a way to cheat them.

And amidst all this complexity, the CoCo sports the magic and simplicity of the much maligned RS/DOS. Thousands of every day users who have no technical knowledge or avocation, can go about their computer use with no more than a RUN "PROGRAM" <ENTER>. DOS transparency such as that should be the norm. DOS concepts and commands are tools for programmers and perhaps for advanced users who show an interest. But people who's sole purpose in computer use is for personal productivity and drudgery reduction in their tasks at work should never be burdened with technical problems superfluous to their needs.

In order to provide this type of comfort, programmers have devised a multiplicity of user "environments." Basically, an environment is a UFI behind which the programmer hides his operating system of choice and all the technical GEE-WHIZ that permits the user to go about his business in comfort. (OK..a UFI is a new acronym I have coined that stands for "User-Friendly Interface"). Micro soft Windows, GEM, and MacIntosh interfaces fall into this category. In the CoCo world, environments seem to be the "thing" in development these days. We have, of course, Multi-View from Tandy. Bill Vergona down at Cer-Comp has the most tantalizing and promising in his Window Master. But if you've been watching, there have been a number of other less publicized environments recently appearing in the CoCo marketplace.

Another type of development that could loosely be defined as an environment is the template based environment. For example, it takes a real expert to run d-Base III effectively, but thousands of templates or ready to run application programs are available on the market. So a user can buy a package and run it as though it were a normal program and never see or care that

d-Base is involved. For CoCo, there are many opportunities for development in this type of environment. Clearbrook's IMS relational database would be a natural. So is Sculptor.

So now I get to the point of all of this. I'm getting tired of the lack of application support for the CoCo III. C'mon, this computer has been out for a long time now. It has been long enough! But what have we got. Fifty thousand games, A surfeit of OS-9 Utilities, and now, a snootful of environments. BUT WHERE ARE THE CAPS!?!? (CAP stands for Completed Application Program) For over two years now, I have been harping at people.

The only vendor I know who really supported his environment was Ben Stokes down at WORKBASE DATA SYSTEMS. He provided the most powerful and versatile database manager under RS/DOS, then didn't stop. He then developed nine stand alone Business Accounting Portfolios to allow use by those who were not DBMS experts while leaving capabilities of expansion for those who were.

Now that the CCIII with 512K and a hard disk are becoming affordable and more prevalent, we need CAPS! We need real accounting software, we need an outliner, we need scheduling, and so on. Talk about opportunities for programmers. We have the capabilities, we just need someone to take the time and money to develop CAPS that will rival anything we see in the PC or Mac markets. Until that happens, no one will bullyrag me into the purchase of a CoCo III!

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# Product Reviews

## Review Crew

### VED Visual Text Editor

Bob van der Poel Software  
17435-57 Avenue  
Edmonton, Alberta  
CANADA T6M 1E1

Program Type: ASCII Text Editor  
Requires.....: 128K CoCo 3, OS-9 Level 2  
Price.....: \$24.95 + \$2.00 s/h

Anyone who writes assembly language programs knows that one of the most important parts of the system is the text editor which is used to generate the actual source code of the machine language programs. When I first moved up to OS-9, I continued to write new software (in OS-9) for the Color Computer 3, using a public domain text editor program. That editor worked OK, but it was slow, clumsy and used obscure, meaningless keys for cursor control. I continued to chug along with this painful editor.. slowly, but surely I was writing a program or two.

Well, one day, enough was enough and I purchased a copy of VED, the Visual Text Editor, from Bob van der Poel Software. The first impression I got upon seeing the documentation was that the editor must be lacking in features since the manual is only 11 pages long. Boy, was I wrong!

Some of the many features of VED are:

- \* It's FAST!! VERY FAST!!!
- \* It is written in 100% Machine Language, so it takes up very little precious memory (less than 8K).
- \* It can handle over 52,000 characters of text.
- \* It is user configurable, and these settings can be stored on disk so that VED "comes up" the way YOU want it each time.
- \* It has a complete set of standard "text editor" features, such as block move/delete/copy, overstrike/insert modes, wordwrap, globalsearch / find / replace, file merging etc...
- \* It is "goof proof". Any functions which could cause text to be lost or altered are preceded by an "Are you Sure??" prompt which has saved me from many a mistake.

- \* A very handy on-line help file is included.
- \* It has user definable macro keys, which can even call each other (recursive macro calls)

VED is very simple to install in any OS-9 system, even a hard disk system. All that is necessary is to copy VED to the CMDS directory of the disk you want to use. The distribution disk is not copy protected and VED runs equally well on floppy disk, hard disk, ram disk... any disk.

Using VED is also simple and easy. To edit a file, the simple command line:

OS9: VED filename

..is used. No memory size modifiers are needed since the VED buffer automatically grows to the required size of the file. Another very nice feature of VED is that all editing is done in memory so that the ORIGINAL file is left untouched and is only updated IF YOU WANT IT TO BE UPDATED. VED can also write the edited file to a new filename, or simply be abandoned without affecting the original file at all.

One important thing to know is that VED is a TEXT EDITOR and it is NOT a WORD PROCESSOR. It will not center or justify text, it will not number pages or "paginate" (skip over paper perforations), nor will it print directly to a printer.

I feel that any program should be "intuitive" in the way it works. VED certainly works this way. For example, the arrow keys move the cursor.. as they should. The user automatically knows "which way is up". Other editors, for some reason, use obscure, impossible to remember keys for cursor control. VED is a very powerful editor, but it is simple to use because all the keys and commands MAKE SENSE. The manual really isn't even needed to use VED, although it is necessary to refer to the manual to discover all the great features of this fine text editor.

VED is not only intuitive, it is smart. For example, when paging through text, VED checks to see if the arrow keys were pressed

# Simply Better Word Processor

## **\*\*Setting New Standards . . .**

\*\*Separate configuration program provides three screens of parameters that can be changed and saved to disk as separate modules (versions). Select a module when program boots.

\*\*Single command creates second interacting word processor in a variable size alternate window on the same screen. Load and work on two different files at the same time. Transfer blocks of text between word processors.

\*\*Automatic print spooling. Simply initiate any of the print commands while using the word processor in one window, and then move to the word processor in the opposite window and work on another file while text is being printed.

\*\*Display five pre-defined print fonts in pre-selected colors.

\*\*Display underlining on the screen.

\*\*Mark up to 79,000 blocks of text in a pre-selected color. Blocks can be saved to disk, output to a printer, copied, moved, erased, or moved to text in another file. (All print fonts and/or underlining are maintained.)

\*\*Automatically create a table of contents for your text.

\*\*Automatically create an alphabetized index for your text.

\*\*Use the Mail-Merge feature to print numerous copies of text. Insert text into each copy from a separate list.

\*\*We do not "print to disk." We went one step further. Print all or any section of text to memory first; make any necessary changes; and then save the formatted listing to disk.

\*\*Place pre-printed forms into your printer, and using the Print Fill feature, fill in only the areas where you want text.

\*\*Help is available instantly in overlay windows.

\*\*Create up to 10 tasks (macros). Each task can be saved to disk for use later. Build a library of frequently used tasks.

\*\*Compatible with RGB Computer Systems hard drive.

\*\*If desired, program will automatically save your text to disk if no key is pressed for 5 minutes.

\*\*Sort sections of text. All print fonts and/or underlining are maintained in the sort.

\*\*Print all text or blocks of text using serial or parallel output.

\*\*Has a type ahead buffer, key beep, alert beep, and error beep.

\*\*Hearing impaired mode flashes the screen's border if an alert or an error occurs.

\*\*Headers, footers, and auxiliary lines can contain print fonts and/or underlining while maintaining whatever print font and/or underlining is active in the body of your text.

\*\*Insert the current page number anywhere inside your text. Place it inside headers, footers, or auxiliary lines to automatically number pages.

\*\*All print fonts and/or underlining are maintained regardless of where you begin printing.

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more than once (several pages). If so, it doesn't bother printing the whole screen of text you didn't want to see.. it skips to the point you wanted to go to. Nice touch, something you don't see in other programs.

On a scale of 1 to 10, VED rates a solid 11. I cannot find anything wrong with it, I haven't run into any bugs.. the program simply works, and it works well. What more can you ask for under 30 bucks?

- By Roger A. Krupski

**TUBBS 2.4 Bulletin Board System**

**Author Brian Stretch**

**272 Lawson**

**Saline, Mi 48176**

**The Falcon's Lair**

**3/12/24 baud, 24 hrs. 40 megs. on line**

**(313)-429-2150**

**System requirements:**

**128k CoCo III (512k recommended for a Ramdisk)**

**RS-232 pak**

**Multi-pak or Y-cable**

**300 baud modem with auto/answer (1200/2400) optional**

**one or more disk drives (more is better)**

TUBBS is short for Tandy Users Bulletin Board System. TUBBS is a BBS for the CoCo III. If you want to run a BBS and have the spare time and money to spend on the phone line, computer, disk drive(s), monitor, and the TIME to devote to the upkeep of the BBS or if you have been thinking of switching to another system. -- TRY TUBBS --

You get 1 disk with all the programs to set-up the BBS, along with a 21 page set of instructions. The instructions explain how to configure your systems disk with all of your defaults saved on track 17, sector 18 of the systems disk. TUBBS supports most disk configurations and it works with disk basic 2.1 and on a limited basis with with Ados 3. NOTE: when purging message base use Disk Basic 2.1 (not Ados 3) else message files will be scrambled and unusable. TUBBS runs under 40 or 80 column mode and for faster operation can be run at 2.0 mhz.

TUBBS will hold from 200 to 300 messages on one side of the disk. You can have up to 32 menus with up to 24 commands per menu. Each menu or each command can be set with a privilege level and 2 privilege flags. This can be handy for club use or setting up boards for the more serious users. You can have a system tracer sent to disk, if you have the space or to the printer or none.

You can have uploads and downloads using ASCII or Xmodem transfer. Having up to 9 download menus (with program modification) helps to catagorize your downloads. All you do is write up a download menu using your favorite word processor. Then transfer some files to the download disk. Some understanding of BASIC is helpful to make the

changes. There is a program on the disk to convert the uploads to the appropriate file type. The uploads are saved on disk in ASCII format. To use uploaded programs they must be converted back to their original form.

There are 5 programs on the disk for editing. The following is a brief description of each editor.

First there is the default editor. This program is used to setup all of your system defaults such as how you want your new users handled and how you want the files handled (this depends on how many disk drives you are using). What is the lowest and highest baud you will be using. Do you want the screen to go blank after 10 minutes if no one has logged on to prevent monitor burn-in? When done answering the questions you are prompted to insert the systems disk. The results of this file is saved on your systems disk on track 17 sector 18. This will save space, as this area of the disk is not used.

Second there is the menu editor, which is used for setting up your menus. You will first create a menu. Page 19 of the instructions contain a chart of what each character will do and how to use it while creating the menus. Care should be taken to keep the menus uniform in text structure. Having "R" for read message and "L" for leave message etc. will be less confusing to the users. In this editor you also can set the privilege flags for each command and each menu. This is helpful in allowing increased access to users of a particular board. It also restricts unwanted annoyances by the few callers who have nothing better to do than to hack and make trouble.

Third there is the userlog editor. The userlog editor allows you to add, change or delete users. There are two sets of flags that are set up with 8 bit binary codes ( 0 = 00000000 and 255 = 11111111.) The documentation could have spent more time explaining in this area. Starting from the right to the left the following will show the value per digit:

first	=	1
second	=	2
third	=	4
fourth	=	8
fifth	=	16
sixth	=	32
seventh	=	64
eighth	=	128
-----		
total	=	255

**IMPORTANT!** you must leave a way out of all menus !

Fourth there is the message log editor. The message log editor allows the sysop to maintain the message base file by changing or deleting messages; or changing the board on which the message was designated by the originator of the message. To purge the

database file Disk Basic 2.1 is recommended be the author of TUBBS. Ados 3 is not. Why? Because Ados 3 seems to scramble files if more than one file is open at a time on different drives. This did happen to me the first time I purged the message base. I had to go back to a few day old backup. This can be embarrassing (and was!)

Fifth and the last is the voting editor. The voting editor sets up the voting booth. At the menu you can add, replace, or delete a question from the voting questionnaire. You are allowed up to 9 questions and from 1-5 answers to each question. You can be very creative with this feature. It is functional too, as you will get feedback from the users.

A word processor is on the disk also with docs. You can use it if you do not have WP. It is written in BASIC, but has what is necessary to type up text files.

You can have on-line games if you have enough disk space. However, make sure you have a way out or return to the main BBS. I recommend also having the game on the same side as the main system. This way it will be easier to backup the "scores" data file, if you use one with the on-line game.

In closing, I have had fun with TUBBS, setting up the names of menus and the menus themselves. The TUBBS package looks professional. It is easy to use and to maintain. The documentation was well written and easy to understand.

The short comings of the package are not being able to read individual messages from the menu you are on and the total number of system messages are shown on each menu and not total messages per menu. The price for TUBBS is \$49.95. With free software updates to registered TUBBS sysops and with fast and pleasant support I feel it is well worth the money.

I would like to thank Brian Stretch and Ted Paul for allowing me to review this very good BBS package. I have converted to TUBBS.

- BY PETE SHELDON

**Disk Manager Tree**  
Alpha Software Technologies  
P.O. Box 16522  
Hattiesburg MS 39402

Pgm. Type: OS9 File Manager  
Requires : OS9 L11, 512K Coco 3  
Price : \$29.95

Reviewed by: Donald Hicks

Most OS-9 beginners have a problem with the heirarchical files used by that system, but at last a program to address that issue is available. As soon as you bring the program up and select a disk (or directory) to examine, you will see a graphic repre-

sentation of the directory structure in a text window. You will have before you all the branches of the directory "tree" down to whatever level of subdirectory you specify. No hidden corners are safe from the prying eyes of Disk Manager Tree. Everything is exposed in an easy-to-understand display.

Using the arrow keys, you may now select a directory and see all the files it contains in a separate window. Then, using the cursor keys, you may scroll through the files listed and select one to copy, delete or print to the screen. Most of this activity requires no more than a single key-press and it all takes place on a text screen, so it happens FAST - unlike old "slow-as-molasses" Multi-Vue.

Although experienced OS-9ers are less likely to think this sort of program is something they need, they would be missing something. The ease with which directories may be searched and files moved around with only the touch of a key is quite useful and just plain fun. The ability to view the entire file structure at once and move up and down many levels while scrolling through the directories by just holding down a cursor key is mildly addictive. But being able to create and delete whole directories or flag groups of files to be copied or deleted while you are doing so is downright practical.

But the beginner is what this program is about. Crusty old veterans who understand the file hierarchy and have collected tricky utilities to take advantage of the system can get along with less. But newcomers must be able to visualize what is happening. Using this tool, they can get a great deal done and quickly learn how OS-9 can handle many megabytes of data without the conflict sometimes encountered on a single floppy disk when using the "flat" files they've used with Disk Basic.

One feature I especially like is the little window displaying the commands available and the keys that activate them. As you move between the directory and file windows, it changes to indicate each key's function in the new context. With it, you have constant on screen help as well as the huge help file which makes the manual almost superfluous. It also serves as a dialog window when input is required.

---

### From the Desk of

sending Greg something special for being our 1000th.paid subscriber. Jerry Murphy has joined us as a new contributor to our Ham Radio section. Jerry is an active ham who owns several CoCo's and other Tandy computers. Our Ham Radio column now has a terrific one / two punch with Mikey Dooley and Jerry Murphy. I just hope our Irish Ham's don't start writing in Gaelic!

And with that I'll close this column. Our thanks to all of you who have voted with your subscriptions and advertisements. Enjoy, tell your friends, and we'll see you all in May.



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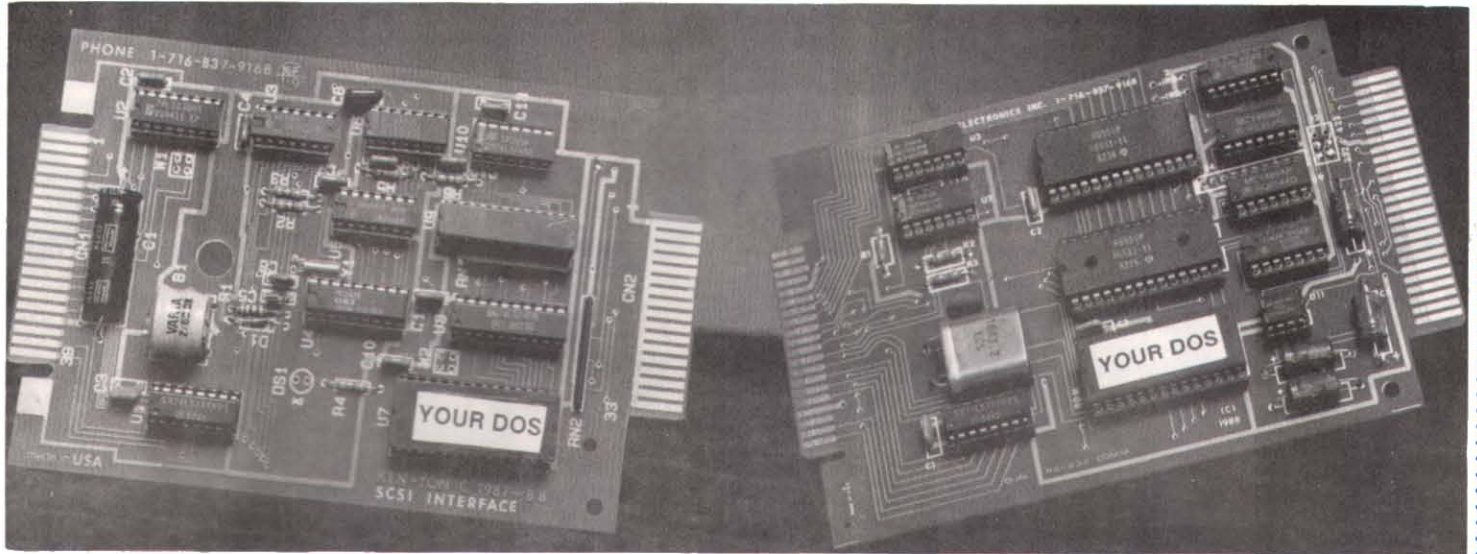
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