

MAKING IT PERFECTLY CLEAR

Smooth the transitions from text to Hi-Res, Hi-Res to text, and from Hi-Res page 1 to Hi-Res page 2 with these short programming tips.

Most of us are creatures of habit. We do things a certain way because that is the only way we know, or that is the way we have been taught, or because "that's the way it's always been done." The same is true in programming techniques.

Some of the simplest commands in Applesoft BASIC are for clearing text, graphics or resetting the viewing screen. These commands are HOME, HGR and HGR2, and TEXT, respectively. These are usually the commands of choice for preparing the screen for text or graphics. However, as you'll see, the order in which these commands are issued can have a dramatic effect on the mechanics and appearance of screen clearing.

CLEARING TEXT

Probably the most frequently used instruction is the HOME statement. It's simple and elegant, and it just clears the text screen to black, right? Of course that's right. However, when leaving the graphics modes (HGR or HGR2), a TEXT command is required to return you to the text mode display, and this is where a problem occurs.

Ninety-nine times out of a hundred you will see the command sequence TEXT:HOME used to clear the screen from graphics to text. But if you closely analyze what is happening, it will become obvious that the correct sequence should be HOME:TEXT.

Frequently there is already text on the screen from the last time the screen was used to display text or instructions. After the TEXT command is issued, this text is displayed momentarily on the screen before the HOME command is executed. But suppose you cleared

the text screen *before* displaying it for that brief moment? In that case, there will be no momentary flash of text on the screen — just a crisp transition from graphics to a blank text screen. That's the benefit of issuing a HOME:TEXT sequence instead of the traditional TEXT:HOME.

This technique gives a much more polished, professional look to your programs. The program DEMO.1 (Listing 1) demonstrates the differences between the two techniques. Watch for that momentary flash of text on the screen before it clears.

Note: If you have reduced the size of the text screen (with POKES to registers 32, 33, 34 or 35), you must POKE the window registers back to their full-size values before issuing the HOME:TEXT sequence.

CLEARING GRAPHICS

Just as HOME clears the text screen, the HGR and HGR2 commands clear the first and second graphics screens to black and display them. Actually, the Hi-Res screens are displayed before they are cleared. This is a drawback if you don't want to show the mechanics of clearing. The clearing is fast, but not fast enough to prevent the familiar venetian blink effect. How can this problem be eliminated? Easy. Just like the HOME:TEXT procedure of clearing the screen before displaying it, the graphics page can be cleared before it's displayed.

Zero page memory location 230 contains the value for the particular graphics screen on which we are to plot. Line 30 in the program DEMO.2 (Listing 2) puts a 32 in this location, indicating that page 1 is to be used for plotting. The subroutine in line 110 draws a simple block figure on the graphics page.

The first part of the program does a normal HGR, creating the venetian blind effect on the figure drawn on the screen. The "clean"

HGR in the second part uses a Monitor call that does the dirty work. The CALL 62450 clears the graphics page that is being plotted on. Remember, just as you don't have to be in text mode to issue a HOME command to clear the text screen, you don't have to be viewing the screen in order to clear it. So while text is displayed, the graphics page is cleared. Then, when the HGR is issued, there is no figure on the screen to clear, and there is no venetian blind effect. The same effect can be seen on page 2 by POKEing 64 into address 230 (line 30) and using HGR2's instead of HGR's. It is important that location 230 contain 32 or 64, and not 0, which it contains on power up. A zero results in a crash. Like the HOME:TEXT command sequence, this is a simple but effective way to hide the mechanics of screen clearing in order to make your programs more attractive and effective.

DRAWING vs. VIEWING

The third and final program, DEMO.3 (Listing 3), demonstrates a technique for viewing one page of graphics while drawing on another. This procedure also prevents the mechanics of drawing or plotting from being seen by the user, giving programs a more professional look.

The program uses three memory locations to implement the hidden draw technique. First, location 230, used in DEMO.1, defines the graphics page being plotted on. Locations 49236 and 49237 are also used; when POKEd, they display graphics pages 1 or 2, respectively, when in graphics mode.

Lines 10-30 set up the variables for the routines to follow. V1 and V2 are the viewing pages' memory locations. PP is the plotting page memory location previously discussed. D1 and D2 are the values POKEd into location PP that are required to plot on page 1 or 2, respectively.

Listing 1 for Making It Perfectly Clear DEMO.1

```

1 REM *****
2 REM * DEMO.1 *
3 REM * BY MARK CRAVEN *
4 REM * COPYRIGHT (C) 1986 *
5 REM * BY MICROSPARC, INC *
6 REM * CONCORD, MA 01742 *
7 REM *****
10 HOME
20 HTAB 1: VTAB 7: PRINT "PRESS 1 FOR 'TEXT:
HOME': PRINT : PRINT "PRESS 2 FOR 'HOME
:TEXT': PRINT : PRINT "<ESC> TO QUIT "
: PRINT : PRINT : PRINT : PRINT "KEEP YOU
R EYES ON THIS SPOT"
30 GOSUB 140
40 IF X$ = CHR$(27) THEN END
50 IF VAL(X$) < 1 OR VAL(X$) > 2 THEN 30
60 POKE 230,32: CALL 62450: HGR : GOSUB 100:
FOR I = 1 TO 1000: NEXT : REM DRAW ON P
AGE 1
70 ON VAL(X$) GOTO 80,90
80 TEXT : HOME : GOSUB 130: GOTO 20
90 HOME : TEXT : GOSUB 130: GOTO 20
100 HCOLOR= 3: HPLOT 0,0 TO 279,0 TO 279,159
TO 0,159 TO 0,0
110 HPLLOT 0,0 TO 279,159: HPLLOT 279,0 TO 0,1
59
120 RETURN : REM DRAW FIGURE
130 HTAB 1: VTAB 20: PRINT "PRESS A KEY TO C
ONTINUE...": POKE - 16368,0: GET X$: RETURN
140 HTAB 1: VTAB 20: PRINT "PRESS 1,2 OR <ES
C> ...": CALL - 958: POKE - 16368,0: GET
X$: RETURN

```

END OF LISTING 1

Listing 2 for Making It Perfectly Clear DEMO.2

```

1 REM *****
2 REM * DEMO.2 *
3 REM * BY MARK CRAVEN *
4 REM * COPYRIGHT (C) 1986 *
5 REM * BY MICROSPARC, INC *
6 REM * CONCORD, MA 01742 *
7 REM *****
10 HOME
20 A$ = "THIS WILL DEMONSTRATE A NORMAL 'HGR'
": GOSUB 140: GOSUB 130
30 POKE 230,32: HCOLOR= 3: GOSUB 110: REM PL
OT ON PAGE 1
40 HGR
50 HOME : TEXT : FOR I = 1 TO 1000: NEXT
60 A$ = "THIS WILL DEMONSTRATE A 'CLEAN' HGR"
: GOSUB 140: GOSUB 130
70 GOSUB 110: REM DRAW FIGURE AGAIN
80 CALL 62450: REM CLEAR HI-RES SCREEN TO BL
ACK
90 HGR

```

Line 60 sets the plotting page to 1, clears the graphics page and then displays the page with the HGR command. Line 70 draws a horizontal block figure on page 1. While page 1 is displayed, line 90 changes the plotting page to 2 and clears it.

Line 100 draws a vertical block figure on page 2, as yet unseen. Line 130 switches page 2 to full graphics mode (the four lines of text at the bottom of the screen would be unattractive and meaningless, since the characters come from text page 2). Line 140 substitutes page 1 for page 2, so the vertical block figure is displayed.

When switching pages like this, text never appears and the transition is quick and clean. To demonstrate the speed at which the screens can be "flipped," simply press Return at this point. A horizontal line is drawn across the top of the screen (on page 2 only), one dot at a time with each flip made.

ENTERING THE PROGRAMS

See the Program Listings section for the Making It Perfectly Clear listings. To enter DEMO.1, key in Listing 1 and save it with the command:

SAVE DEMO.1

To enter DEMO.2, key in Listing 2 and save it with the command:

SAVE DEMO.2

To enter DEMO.3, key in Listing 3 and save it with the command:

SAVE DEMO.3

For help with entering Nibble programs, see "A Welcome to New Nibble Readers" at the beginning of this issue.

CONCLUSION

These three techniques can all be used in your own programs to make them more pleasing to the eye. They are simple and easy to use. And as a bonus, they take up little additional space in your programs. So keep these procedures in mind when you start your next programming project — and make your Apple screen perfectly clear!

```

100 FOR I = 1 TO 1000: NEXT : HOME : TEXT : END
110 HCOLOR= 3: HPLOT 0,0 TO 279,0 TO 279,159
TO 0,159 TO 0,0
120 FOR I = 0 TO 279 STEP 10: HPLLOT I,0 TO I
,191: NEXT : RETURN
130 VTAB 24: HTAB 1: PRINT "PRESS <RETURN> T
O CONTINUE...": POKE - 16368,0: GET X$:
RETURN
140 VTAB 10: HTAB 1: PRINT A$: RETURN
END OF LISTING 2

```

Listing 3 for Making It Perfectly Clear DEMO.3

```

1 REM *****
2 REM * DEMO.3 *
3 REM * BY MARK CRAVEN *
4 REM * COPYRIGHT (C) 1986 *
5 REM * BY MICROSPARC, INC *
6 REM * CONCORD, MA 01742 *
7 REM *****
10 V1 = 49236: V2 = 49237: REM VIEW PAGE 1 OR
2 ADDRESSES
20 PP = 230: REM PLOTTING PAGE MEMORY LOCATI
ON
30 D1 = 32: D2 = 64: REM DRAWING PAGE VALUES
40 HOME : VTAB 10: HTAB 1: PRINT "WE WILL DR
AW A FIGURE ON HI-RES PAGE 1": PRINT "TH
EN DRAW ONE UNSEEN ON PAGE 2, AND": PRINT
"THEN FLIP THE PAGE TO SEE THE OTHER": PRINT
"FIGURE."
50 VTAB 24: PRINT "PRESS <RETURN> TO CONTINU
E...": POKE - 16368,0: GET X$
60 POKE PP,D1: CALL 62450: HGR : REM CLEAR
AND DRAW ON PAGE 1
70 HPLLOT 129,16 TO 149,16 TO 149,146 TO 129,
146 TO 129,16
80 HOME : VTAB 22: PRINT "DRAWING FIGURE ON
PAGE 2 NOW"
90 POKE PP,D2: CALL 62450: REM PLOT ON PAGE
2
100 HPLLOT 20,71 TO 260,71 TO 260,91 TO 20,91
TO 20,71
110 FOR I = 1 TO 1000: NEXT
120 VTAB 24: PRINT "FIGURE COMPLETE..PRESS <
RETURN>...": POKE - 16368,0: GET X$
130 POKE 49234,0: REM FULL PAGE 2 GRAPHICS
140 POKE V2,0
150 POKE - 16368,0: GET X$
160 POKE V1,0: POKE 49235,0: HOME : VTAB 24:
PRINT "PRESS <RETURN> FOR RAPID FLIPPIN
G": GET X$: REM MIX TEXT
170 POKE 49234,0
180 FOR I = 0 TO 279: POKE V2,0: HPLLOT I,0: POKE
V1,0: NEXT : HOME : TEXT : PRINT "END": END

```