

APPENDIX

This appendix describes how miniWRITER handles special characters (those you need to use the [Option] key to enter), and how you can design your own. It was written by Bill Layman, who designed both the imageWRITER screen font and the characters actually printed on the ImageWriter printer.

If you only plan on using miniWRITER with a LaserWriter printer, you don't need to read this appendix. miniWRITER sends all Macintosh characters to the LaserWriter.

The remainder of this document is in the imageWRITER font; if you haven't already installed it, you may have trouble reading it.

miniWRITER's Custom Characters:

In order to expand the ImageWriter's "native" character set, miniWRITER loads 32 of its own custom characters, called "iCHRs" (for ImageWriter **ch**aracter), into the ImageWriter's internal font file. These characters are made up of dots which will be printed by the ImageWriter dot matrix printer. An iCHR fits in a region 8 dots high, and between zero and 16 dots wide.

miniWRITER's iCHRs are all placed in the printer's memory before the printer is told to print anything. This makes iCHRs print as rapidly as the rest of the ImageWriter's self-contained "native font."

The standard miniWRITER iCHRs provide many of the European diacriticals, and some refined punctuation marks (including "smart quotes"). They are:

European diacritical characters and Special characters:

, û , ú , õ , ô , ó , ï , î , í , ë , ê , ã , â , á , ç ,

, ≈ , Ω , ¢ , © , ® , ™ .

, Ÿ (this actually prints on the ImageWriter as a "little house,"
logo of the creator of "imageWRITER 10.")

Punctuation:

, “ , ” , ‘ , ’ , … ,

, – (Short Hyphen, En Dash = Option–Minus Sign),

, — (Long Hyphen, Em Dash = Option–Shift–Minus Sign),

, (Tab space),

, (Option–Spacebar, a {non–word–wrapping} hard space),

, (Spacebar, a resized soft {word–wrapping} space which makes the ImageWriter printout identical to the screen display)

Customizing miniWRITER's Custom Characters:

You can customize both the keyboard location and the shape of miniWRITER's "iCHRs" to satisfy your needs. In fact, you can create several versions of miniWRITER, each with its own iCHRs, to use with different languages.

Revising iCHRs isn't difficult, but it takes a little patience, and the courage to dabble with the developer's program called *ResEdit* (available from most Macintosh user groups).

After you customize miniWRITER's iCHRs, you will also want to customize the corresponding "imageWRITER 10" font characters (so your screen characters will match those which the printer prints). Customizing a font can be done with *ResEdit*, but it's a lot easier with Altsys Corporation's inexpensive (\$39.95) font editing program *FONTastic*. (*FONTastic* was used to create the original "imageWRITER 10" font.)

To Customize iCHRs:

Copy the following onto a clean disk (name the disk "Editor"):

System file (small, minimal fonts and desk accessories).
Finder (4.1 for 400K disks; 5.3, or later, with 800K disks)
ResEdit (version 1.0D7 or later).
miniWRITER in a Desk Accessory file (suitcase icon with 15-puzzle)
imageWRITER 10 font in a font file (suitcase icon with an A)

Shut down your Mac, restart with the Editor disk.

Double click on *ResEdit*'s Icon and get a window listing the Editor disk's contents.

Double click on the "miniWRITER" line in the disk contents (Editor window).

Double click on the "iCHR" line in the resulting new "miniWRITER" window.

Now you are looking at the "iCHR's from miniWRITER" window. It is a list of miniWRITER's iCHRs. Each iCHR's name is between quotes in the middle of its line.

Select (click once on) the iCHR line you want to change. That line of text will highlight (black background, white text).

Press \approx I

You are now looking at the information (Info) window which tells about the iCHR you're about to change. The "Name:" box is selected (black background in the "Name:" box), and ready to be revised.

If you accidentally de-select the "Name:" box, don't worry, just click in the box at the left edge and drag to the right until it is all selected again.

Change the name, (change only the name). Do this by typing a single character into the "Name:" box.

The keystroke you use to rename the iCHR will be the keystroke which makes the printer print the custom iCHR you are about to create. It can be any key stroke, including "x," "Option-x," or "Option-Shift-x" keystrokes. (Where "x" can be any character.)

Don't change any other boxes in the Info window, or miniWRITER won't be able to use that iCHR correctly.

Click the close box in the upper left corner of the Info window. Now you are back to looking at the "iCHR's from miniWRITER" window.

Double click on the line of the iCHR that you just renamed.

Now you are looking at the Data window for the iCHR you'll soon modify. Data in this window's "Data" box controls the dots which form the character.

iCHR changes affect the characters which the ImageWriter prints.

iCHR changes have no effect on the screen characters in the "imageWRITER 10" font.

In the Data box, each pair of characters (numbers-or-letters) is a hexadecimal "number." Each of these hexadecimal numbers specifies which pixels are black in one vertical 8-pixel-column of the iCHR.

Between zero and 14 vertical columns are allowed in one iCHR (miniWRITER always leaves a one-column margin to the the left and right), so between zero and 14 character pairs may be put in the Data box.

The top left character pair in the Data box controls the left–most pixel column in the printed iCHR. The next character pair to the right controls the next pixel column to the right in the printed iCHR, etc.

Read the section of this document titled “Putting the Hex on iCHRs,” then revise the data in the Data box to create the character you desire.

Click the “Close box” in the upper left corner of the data window.

Click the “Close box” in the upper left corner of the “iCHRs from miniWRITER” window.

Click the “Close box” in the upper left corner of the “ miniWRITER” window.

Click the “Yes” button in the resulting dialog, to save the miniWRITER changes. (All your changes will be lost if you don’t click the “Yes” button.)

Go to the “File” menu and choose “Quit.”

You are now back on the Mac’s desktop and your customized iCHR is in the miniWRITER DA (in the suitcase).

Retitle your customized miniWRITER suitcase file with a descriptive name, (“miniWRITER-Bulgarian” {?} etc.)

Use Apple’s Font/DA mover to install your customized miniWRITER in System files.

Putting the Hex on iCHRs:

Each character in the iCHR Data box is a hexadecimal number which tells the ImageWriter printer what to do with 4 dots in one of the iCHR’s vertical columns of 8 dots.

The left character in each character pair controls the lower four dots in the 8–dot–high column, the right character controls the upper four dots.

A hexadecimal “number” can be any of the following 16 characters:

0,1,2,3,4,5,6,7,8,9,A,B,C,D,E,F (These are listed in ascending order from “zero” to “fifteen.”)

Each hexadecimal number in iCHR data stands for a particular dot pattern as listed below. Within each group of four, the left–most “0” or “1” is toward the bottom of the printed iCHR.

In these listings, a “1” stands for a black dot, and a “0” stands for a white dot.

HEX to DOTS... conversion table:

0 = 0000	1 = 0001	2 = 0010	3 = 0011
4 = 0100	5 = 0101	6 = 0110	7 = 0111
8 = 1000	9 = 1001	A = 1010	B = 1011
C = 1100	D = 1101	E = 1110	F = 1111

As an example, the hexadecimal character pair “83” would specify to the ImageWriter a vertical row of 8 white or black “dots.”

The bottom dot is a 1 so it is black, and the next three dots are 0’s so they are white (8 = 1000).

The next two dots are 0's so they are white, and the top two dots are 1's, so they are black, (3 = 0011).

Picturing Your Custom Character:

To help create a dot picture of your custom character, make a grid for one iCHR which is 8 rectangles tall and 16 rectangles wide, (iCHRs have twice as many dots across as they do high). Draw each rectangle in the grid twice as tall as it is wide (so dots centered in each rectangle on your grid will have the same spacing as the ImageWriter character).

Draw a piece of “vertically stretched” graph paper with each little rectangular region being twice as high as it is wide (iCHR dots are twice as close together from side to side as they are from top to bottom).

Make the grid for one iCHR be 8 rectangles tall and 16 rectangles wide (iCHRs have twice as many dots across as they do high).

Put a dark horizontal line between the bottom four rectangles and the top four.

For each column of 8 rectangles, one hexadecimal number will be used to specify the bottom four dots in a column (those below the dark line on the grid), and a second hexadecimal number will specify the top four dots. (Refer to the “83” example above.)

Create your custom character by shading rectangles on the 8-by-16 iCHR grid.

Note: The bottom rectangle in each column will print a dot “below the line” (like the tail on y and g). Use it only for tails on commas etc.

Turn the grid sideways (former right side becomes the bottom).

From the “HEX to DOTS” conversion table find the hexadecimal number which represents the left four rectangles of a column (black=1, white=0) and write the hex number at the right edge of its 8-rectangle sideways “column.” Next find the hexadecimal number that represents the remaining four rectangles and write that number to the right of the first. Continue writing two hexadecimal numbers at the right of each sideways “column” until all are completed.

Use the “HEX to DOTS” conversion table (until you can remember them).

ImageWriter Control Characters for Special Printing Effects:

You can enhance miniWRITER text printing by embedding “control characters” in the document as you type it.

Some of these characters (with ASCII numbers below 32) cannot be inserted from the keyboard. BUT, but they can be copied from the following lines of this document and pasted into other documents.

The characters at the left margin of the following paragraphs will cause the ImageWriter printer to change fonts or styles as each paragraph describes. Just copy and paste the characters from the left margin to another document, and print from miniWRITER, to get the special printing effects you want.

“Escape” is ASCII 27, it looks like this in the “imageWRITER 10” font. (Most fonts won’t display it at all.) The “Escape” character precedes most control characters sent to the ImageWriter printer.

p “Escape–p” precedes these lines
They always print in proportional Pica.
(Proportional Pica is identical to the “imageWRITER 10 screen font.)

! “Escape–!” precedes these lines.
They always print in BOLD

" “Escape–”” precedes these lines.
They no longer print in BOLD

X “Escape–X” precedes these lines.
They always print in UNDERLINE

Y “Escape–Y” precedes these lines.
They no longer print in UNDERLINE

“SO” (ASCII 14) precedes these lines.
They always print in HEADLINE

“SI” (ASCII 15) precedes these lines.
They no longer print in HEADLINES

P “Escape–P” precedes these lines.
They print in proportional Elite (Not as legible as proportional Pica.)
Proportional Elite, is a squeezed version of proportional Pica

E “Escape–E” precedes these lines.
They print in monospaced Elite (An ugly font, but sometimes useful.)
Monospaced Elite’s spacing can be emulated on the screen by selecting Monaco 9 (Montclair 9 if you have the Power Fonts), from the “Typestyle...” menu dialog.

L002 “Escape–L–0–0–2” preceeds these lines. Their left margin is set two characters from the left edge of the printer paper.

Control characters can also be inserted by using a desk accessory called Stuff~Clip, or with the NumCaps desk accessory (Stuff~Clip and NumCaps are available from most Macintosh User Groups.)