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Adobe Binary Screen Font Files Specification

Adobe Developer Support

Version 2.0

31 March 1992

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1 Introduction

This document describes Adobe Systems' binary screen font format, also called the ABF format. The format is a binary encoding of Adobe Systems' character bitmap distribution format, an ASCII-encoded, human-readable file format. You should refer to the document *Character Bitmap Distribution Format* (Adobe part number LPS5005) for more details.

2 File Format

Each file is a sequence of 8-bit bytes. File names, by convention, end with the extension *.abf*. The first byte of the file indicates the byte ordering of the information in the file.

- A value of 1 indicates low-byte-first (for example, IBM PC®) byte order.
- A value of 2 indicates high-byte first byte order. The second byte of the file indicates the "form factor" of the character bitmap.
- A value of 1 indicates that the bitmap should be accessed as an array of 8-bit words to correctly address the bits of the character.
- A value of 2 indicates that the bitmap should be accessed as an array of 16-bit words.
- A value of 4 indicates the bitmap should be accessed as an array of 32-bit words.

In all three form factors, the most significant bits of the word represent the left-most bits of the character.

The remainder of the file consists of four sections. The first section describes the font as a whole and corresponds to the entries in the character bitmap distribution format up to and including the CHARS entry. The second section is an array of records, one record per character described in the file. Each record corresponds roughly to the information between a STARTCHAR - ENDCHAR entry in the distribution format.

There are three minor deviations from an exact correspondence.

- The SWIDTH entry, which contains printer width information, is not encoded in the binary format.
- The bitmap for the character is not contained within the record itself. Rather, the record contains a reference to the character contained in the third section of the file.
- The name of the glyph is not contained in the record. As with the bitmap, a reference within the record points to the string containing the glyph name.

The bitmaps for the characters are stored in what is commonly referred to as a "strike" format. A strike is a rectangular pixel array whose height is the height of the tallest character in the font and whose width is the sum of the widths of all the characters. Individual characters are located within the strike by a bit-offset from the beginning of the bitmap array to the beginning of the character. The width of each character in the Adobe™ strike is the width of the bounding box of the character.

Table 1 lists all of the fields in the file, the size of the field, and the corresponding keyword in the character distribution file format. In the **Size** column, **B** indicates an 8-bit byte. **W** indicates a 16-bit word, and **L** indicates a 32-bit long word. If the size code (**B**, **W**, or **L**) is followed by a number *i* enclosed in brackets, then the field is composed of an array of *i* items. The file *makefont.h* contains C-language declarations for the important data structures.

Table 1 *Binary screen font files*

Field	*Size*	*Keyword*	*Comments*
Order	B	N.A.	Byte order of info in file
Bitmap-Type	B	N.A.	Is the bitmap an array of bytes, words, or long words?
Version	W	STARTFONT	Version number. The notation STARTFONT V.R maps to Version = 256 * V + R
Copyright	B[60]	COMMENT	Copyright string.
Name	B[60]	FONT	Font name string.
Point-Size	W	SIZE	
XResolution	W	SIZE	
YResolution	W	SIZE	
BBox	W[4]	FONTBOUNDINGBOX	
NumberOfChars	W	CHARS	Number of entries in the second section of the file containing character descriptions.
RowBytes	W	N.A.	Number of bytes in each row of the strike bitmap.
SizeOfNames	W	N.A.	Number of bytes in the fourth section of glyph names.
OffsetToChars	L	N.A.	Offset from beginning of file to the fourth section of glyph names.
OffsetToStrike	L	N.A.	Offset from beginning of file to third section of file (strike).
CharDescriptions	W[8 * NumberOfChars]		Array with 8 words per entry. Subfields are:
Width	W	DWIDTH	
CharCode	W	ENCODING	
BBox	W[4]	BBX	
OffsetToName	W	STARTCHAR	Offset from beginning of names section to beginning of zero-terminated string name.
BitOffset	W	BITMAP	Bit offset from beginning of second section to beginning of character bitmap.
CharBitmaps	B[RowBytes * BBox.Height]		The actual bits
NamesArray	B[SizeOfNames]		Character names represented as zero-terminated strings.

Figure 1 *Adobe binary screen font file format*

Offset		
0:	Order (B)	BitmapType (B)
2:	Version	
4:	Copyright	
64:	Name	
124:	PointSize	
126:	XResolution	
128:	YResolution	
130:	BBox Width Height LeftOrigin BottomOrigin	
138:	NumberOfChars	
140:	RowBytes	
142:	SizeOfNames	
144:	OffsetToChars (L)	
148:	OffsetToNames (L)	
152:	OffsetToStrike (L)	
	CharDescriptions	
	CharBitmaps	
	NamesArray	

Appendix: Changes Since Earlier Versions

Changes since the January 16, 1989 version

- Document was reformatted in the new document layout and minor editorial changes were made.

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