



THERMAL PRINTING SOLUTIONS

**EASYFONT Font Design Utility
version 1.0**

USER MANUAL

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AXIOHM

1, rue d'Arcueil, BP 820
92542 MONTROUGE CEDEX
FRANCE

Tel : (33) 1 58 07 17 17, Fax : (33) 1 58 07 17 18
www.axiohm.biz



EVOLUTIONS		
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INTRODUCTION

EASYFONT Software is a font design utility. This utility also provides several download functionalities specific to Axiohm thermal printers.

With this software the user can import a font, edit it, download it to an Axiohm printer, and convert/save it in various formats.

The purpose of the manual is to describe the operating process, the user interface and file formats used.

Notes

EASYFONT Software supports standard RS232 and USB communication.

This version is compatible with Windows 2000 and XP.



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1. Protection

EasyFont is protected against illegal usage with a hardware key. Without the protection key, it works in trial mode and all features except save and download are available.

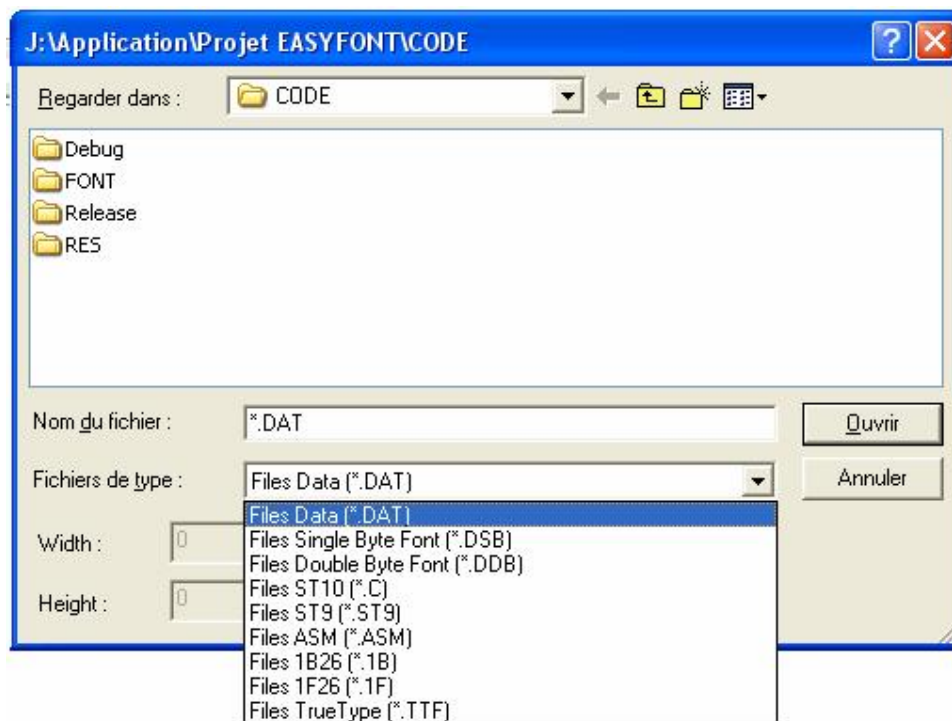
2. Import Font

Capability to load font from standard formats :

- Axiohm EASYFONT Downloadable file formats (single and double byte modes)
- Axiohm EASYFONT Raw Bitmap
- Axiohm extended downloadable font format (1F 26)
- Microsoft TrueType Font format TTF (Beware TrueType Font files are protected by copyright laws)
- Epson downloadable font format (1B 26)
- Axiohm ST9 (ASM source file format) - raster per raster storage mode
- Axiohm ST9 (ASM source file format) - character per character storage mode
- Axiohm ST10 (C source file format)

Note : the ST9 and ST10 formats are used for Axiohm type fonts only

This command is accessible from Menu File\Open

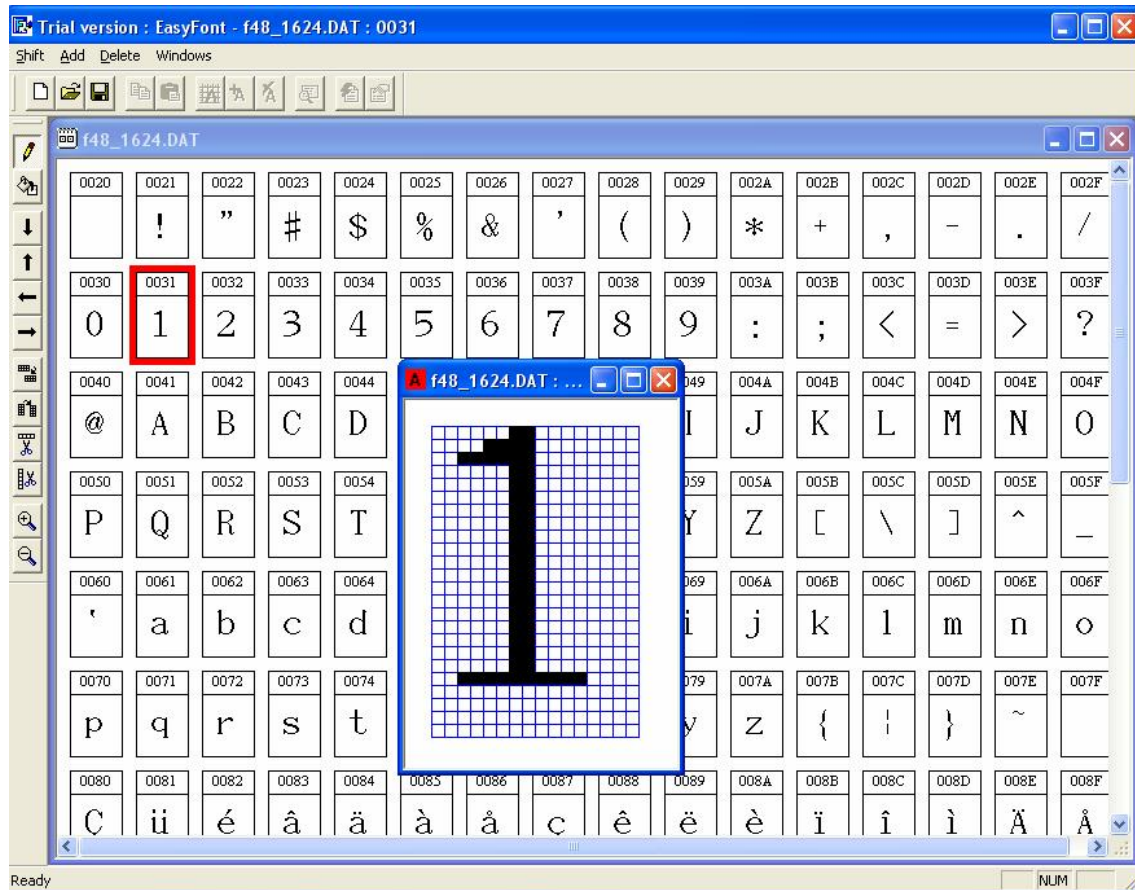


Particular case :

- ST10 (.C), ST9 (.ST9), ASM (.ASM) : Width, Height must be entered according to data in the file to import. The Data Format field must also be entered for ST10 file.
- TTF (.TTF) : Width and Height must be entered at your convenience.

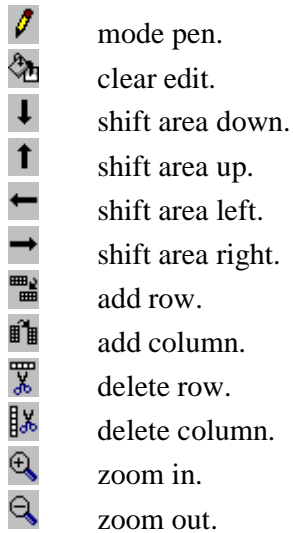
3. Edit Font

Font is displayed character per character as a bitmap, character selection is signalled by a red square.



Character definition is edited pixel by pixel, with the mouse.

Several tools are available to help design a character :



Please note :

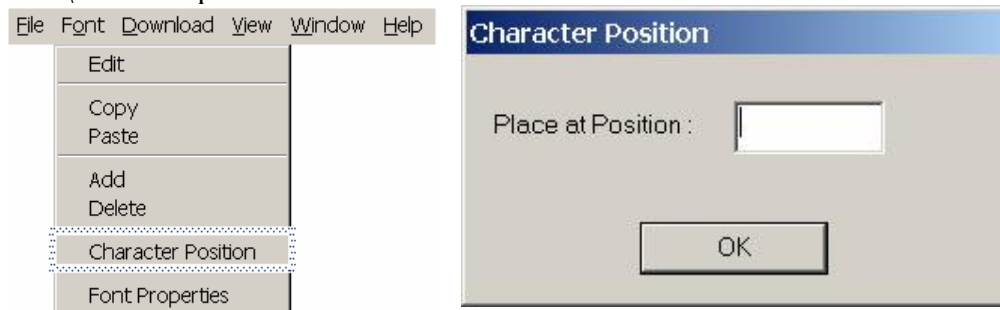
EasyFont allows to create with ease a new font from another using copy/cut/paste functionalities accessible from contextual menu or Font menu.

Here is how to proceed :

- Open an existing font file.
- Create new font file.
- Select character you want in existing font file.
- Copy this character.
- Select or add a new character in a new font file.
- Paste character copied from existing font file.

4. Modify Font Mapping

Characters can be easily moved around the font mapping, using command in menu Font\Character position.



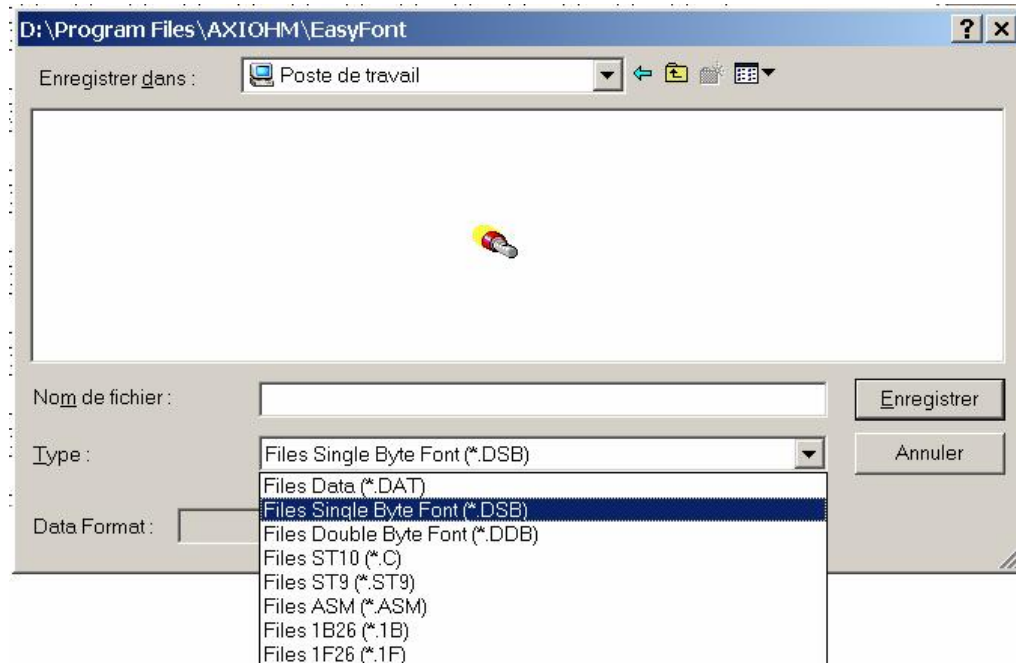
The new position must be free before moving and its format must be in hexadecimal.

5. Save / Convert Font

Font can be saved in raw bitmap format where datas are stored as rasters.
Font can also be converted and saved in ST9 ASM, ST10 C, or as downloadable file (EASYFONT format, 1B 26, 1F 26).

Note : the ST9 and ST10 formats are used for Axiohm font types only

This functionality is available in menu File\Save



Only for ST10 file, you must enter Data Format (8 or 16 bits) used to save.
Font cannot be saved in TrueType format.

6. Download Functionalities

Standard communication interfaces (RS232, USB) are supported to download directly the font into an Axiohm printer that is EASYFONT compatible.

6.1 Limitation

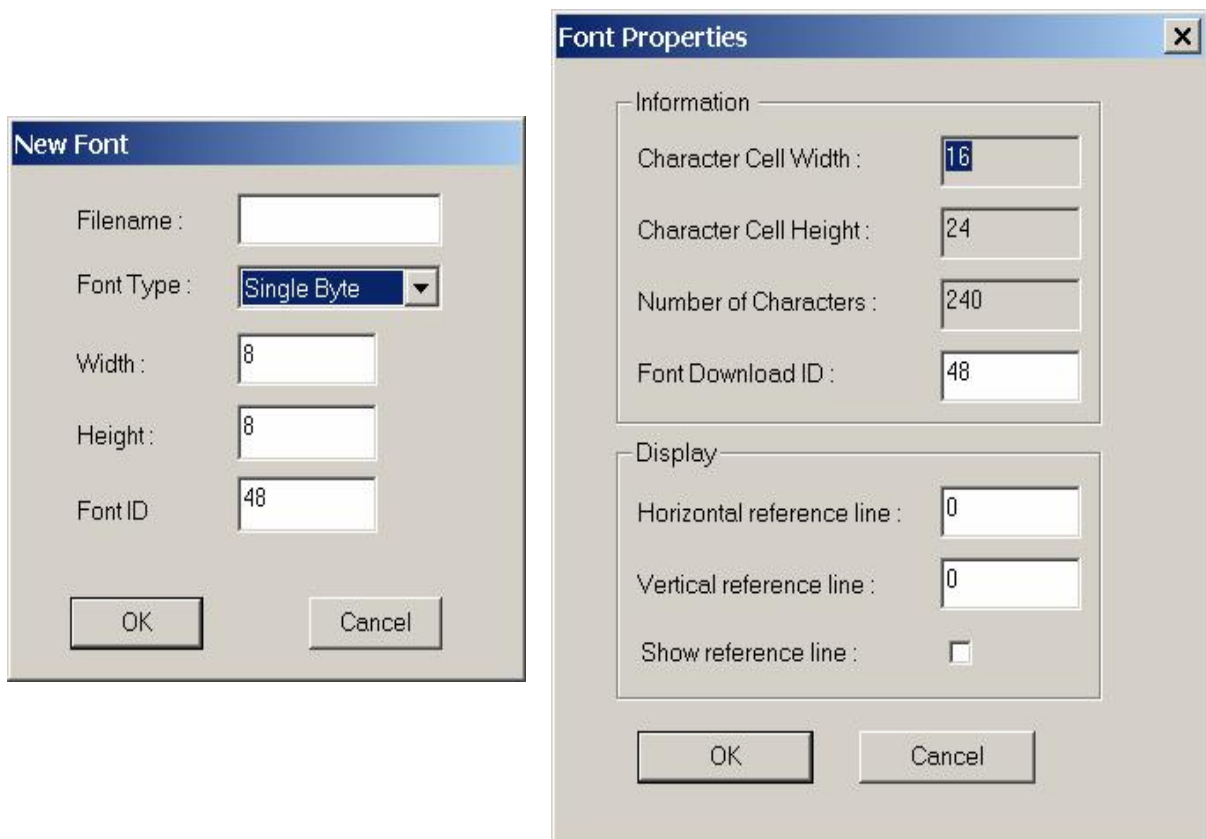
EasyFont allows to download up to four single byte fonts plus one double byte font.

Only for single byte font, user must enter Font ID include between 48 and 51.

Important note :

This ID is the parameter used afterwards by the customer application to select the desired font, through printer command 1B 74 n.

User may enter this ID either by dialog for new font or property font's dialog :



6.2 Setup Communication

Before using download functionalities, user must configure communication through menu Download\Setup Communication.

Values entered are saved for next session. When using EasyFont for the first time, the communication is set by default as Serial, Com1, 115200 Baud, no parity, hardware flow control.

6.3 View printer firmware infos

6.3.1 Fonts already downloaded

Accessible from menu command Download\Read Printer Font Info

	Single	Single	Single	Single	Double
Font Id :	48	49	50	51	52
Font Name :	FONT	f10x20	8x12	f13x24	DoubleBy
Font Width :	1	10	8	13	24
Font Height :	8	20	12	24	24
Number of Characters :	224	224	224	224	13973
Checksum (hex) :	FFF4	9E80	607C	2204	5F77

With this feature, the user may check what fonts are currently downloaded in the printer, with their parameters.

Example : The screen shows that four single byte fonts and one double byte font are already downloaded.

6.3.2 Available memory

Accessible from menu command Download\Check Available memory



This feature can be used to check the amount of memory available in the printer for Easyfont storage area.

Notes :

- a 224 characters single byte font with a 16x24 character size requires 10 kbytes.
- a 5000 characters double byte font with a 24x24 character size requires 352 kbytes.

It is recommended to check the amount of memory available prior to start downloading a font.

6.4 Download fonts

* Download and print one character

Accessible from menu command Download\Download and Print One Character.

This is an easy way to quickly check how edited characters will actually look like once printed on paper.

The selected character is transmitted, on connected printer, through selected communication interface printed in regular size, double high/wide, rotated at 90°.

The character definition is temporarily stored in SRAM until print is complete and does not take up any Flash memory space.

* Download entire font

Accessible from menu command Download\Download Entire Font.

Once all edition work is complete, this is how to actually download the font to the printer.

You may afterwards check the font availability in the printer by either command Read Printer Font Info or by printing the printer self test ticket that should mention it.

Note :

As only one double byte font can usually fit in printer, because of the amount of memory necessary, the download of such font requires that no other double byte font already exists in the printer. If this is the case, the user needs first to erase the printer fonts. See section below.

6.5 Erase downloaded fonts

Accessible from menu command Download\Download Entire Font.

Use this feature to erase all single and double byte Easyfont fonts existing in printer.

7. Font formats

7.1.Raw Bitmap Format (DAT)

Easyfont Raw Bitmap font file is made of two parts: the header and the data of font. In the data section, there should be no compression, formatting, or control characters of any kind included. Any pixel that is to be printed should have its corresponding bit set to one.

Part1	:	Header (1024 bytes)
Part2	:	Font data

The header includes entire information of a font file. The number of bytes of header is 1024. The format of header is as following:

byte sequence offset	Content
0-8	File signature – fixed zero terminated string “EASYFONT”
9-13	Format version - fixed zero terminated string “1.00”
14	File Type : 01 = Single byte font 02 = Double byte font
15	Data format storage (rasters per rasters, from top to bottom) 01 = data are stored as bytes, in Little Endian mode 02 = data are stored as bytes, in Big Endian mode 03 = data are stored as bytes, in Little Endian mode, mirrored
16	Character Width (in dots)
17	Character Height (in dots)
18-19	Number of Characters Bands in Big Endian Mode
20-21	Total Number of characters in Big Endian Mode
22-1023	List of bands descriptions. Each band description is coded on 3 bytes : - Band start address is coded on 2 bytes in Big Endian Mode - Band size is coded on 1 byte Each band can contain up to 224 characters. Unused locations in this section are left equal to 0



The example below is for a font that is 10 pixels wide with a 2-pixel inter-character space by 16 pixels high, stored in format 1.

The gray area on the left is the valid font data, the diagonally shaded area is the inter-character space, and the unshaded area on the right contains the unused bits.

msb		<i>d1</i>			lsb	msb		<i>d2</i>			lsb
msb		<i>d3</i>			lsb	msb		<i>d4</i>			lsb
msb		<i>d5</i>			lsb	msb		<i>d6</i>			lsb
msb		<i>d7</i>			lsb	msb		<i>d8</i>			lsb
msb		<i>d9</i>			lsb	msb		<i>d10</i>			lsb
msb		<i>d11</i>			lsb	msb		<i>d12</i>			lsb
msb		<i>d13</i>			lsb	msb		<i>d14</i>			lsb
msb		<i>d15</i>			lsb	msb		<i>d16</i>			lsb
msb		<i>d17</i>			lsb	msb		<i>d18</i>			lsb
msb		<i>d19</i>			lsb	msb		<i>d20</i>			lsb
msb		<i>d21</i>			lsb	msb		<i>d22</i>			lsb
msb		<i>d23</i>			lsb	msb		<i>d24</i>			lsb
msb		<i>d25</i>			lsb	msb		<i>d26</i>			lsb
msb		<i>d27</i>			lsb	msb		<i>d28</i>			lsb
msb		<i>d29</i>			lsb	msb		<i>d30</i>			lsb
msb		<i>d31</i>			lsb	msb		<i>d32</i>			lsb

7.2.EASYFONT Downloadable Single Byte font format (DSB)

In this format, the data are encapsulated with the firmware commands.

A font saved in this format can be transmitted as is into an EASYFONT compatible printer. This means that the font can be downloaded with other communication utilities, or embedded in customer application.

Such font always contains 224 characters. Unused characters are left blank, and are treated like a space character by the printer.

7.3.EasyFont Downloadable Double Byte font format (DDB)

This format is used in a similar way as the single byte fonts, but it is adapted for larger fonts, typically Asian, with thousands of characters.

Double byte fonts use 16bit addressing but the whole address range is not used.

Rather than storing blanks for unused characters, the download utility is designed to optimize the storage by removing all blank character bands greater than three characters in length.

Therefore a typical double byte font is made of multiple bands of characters of variable size, with gaps between their address ranges.

7.4.Epson downloadable font format (1B 26)

The font data are stored as a collection of control sequences in the following format.
Each sequence may contain one or more characters.

ASCII	ESC & <i>s c1 c2 n1 d1 ... nn dn</i>
Hexadecimal	1B 26 <i>s c1 c2 n1 d1 ... nn dn</i>
Decimal	27 38 <i>s c1 c2 n1 d1 ... nn dn</i>

Values and Ranges

s = 3, the number of bytes (vertically) in the character cell

c = the ASCII codes of the first (*c1*) and last (*c2*) characters respectively

c1 = Hex 20-FF (20 is always printed as a space)

c2 = Hex 20-FF (20 is always printed as a space)

To define only one character, use the same code for both *c1* and *c2*

n = the number of dot columns for the *n*th character as specified by *n1 ... nn*

n = 1-16

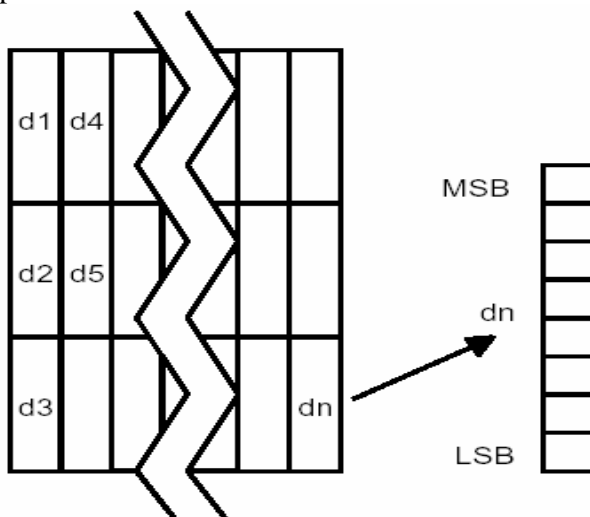
d = the column data for the *n*th character as specified by *d1 ... dn*

The number of bytes for a character cell is *s* x *n1*

The bytes are printed down and across each cell

See the illustration.

Top of Character



7.5.Axiohm extended downloadable font format (1F 26)

This format derives from 1B 26.

The only difference resides in the height encoding H indicates the height in number of dots instead of number of bytes (1B 26) to provide better resolution.

Data are still encoded vertically.

max dimensions : Hmax = 32, Wmax = 32

ASCII	US & H	<i>cn cm ln [dn1 dnk] lm [dm1 dmk]</i>
Hexadecimal	1F 26 H	<i>cn cm ln [dn1 dnk] lm [dm1 dmk]</i>
Decimal	31 38 H	<i>cn cm ln [dn1 dnk] lm [dm1 dmk]</i>

Values and Ranges

Parameter H indicates character height in number of dots, and does not have to be dividable by 8.

From 1 to 8 dots high => 1 data byte per column

From 9 to 16 dots high => 2 data bytes per column

From 17 to 24 dots high => 3 data bytes per column

Etc...

Top of Character

