

**TTFLIB**

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# Chapter 1

## TTFLIB

### 1.1 main

ttf.library version 0.8.2

A truetype font engine for Amiga computers.

Overview

Credits/Legal

Requirements

Installation

Usage

ttfmanager

ttfinstall

ttflist

ttfcp

Bitline

ftview

Limits

Recent Changes

Future

FAQ

The most current publicly available version of this software can be found at the following web address:

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<http://ragriffi.home.sprynet.com/>

Send comments, suggestions, and bug reports to:

Richard Griffith  
ragriffi@sprynet.com

## 1.2 ttf.library Overview

Overview

ttf.library is a truetype compatible font engine for Amiga OS. It functions in a manner compatible with the outline font engine standard established by Commodore with the bullet.library engine for compugraphic format fonts. This means that Amiga applications which use normal system fonts are now able to use truetype fonts.

## 1.3 Credits and Legal Issues

Credits and Notes

The ttf.library and related programs were made possible by the outstanding achievement known as the FreeType Project. For more information, visit <http://www.freetype.org/>

Also, Amish S. Dave's type1.library (which does for postscript type1 fonts what ttf.library does for truetype) served as an invaluable inspiration and an initial guide for the rather poorly documented amiga outline font engine format.

Bitline, as distributed here, is an adaptation of a program of the same name written by Georg Steger.

Legal

I am not a lawyer, nor do I want to be, so expect plain english here.

First, this library comes with NO WARRANTY.

ttf.library is free, think of it as my gift to the faithful. I do not restrict its use and/or distribution, however, some of the technology used is covered by a separate license, see the

FreeType license

for details. I do ask that if you distribute it, please don't try and call it your own work. I know better, you know better, and I'm sure karma will get you. If you sell it, be advised you will have stiff competition,

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as it will continue to be available free. (As a side note, no I don't think all software should be free. I make my living as a programmer, consultant, general geek type, so I do place a great value on software. This one, though, I feel should be free. So there...)

Also note that it is virtually impossible to refer to anything relating to the subject of fonts without the mention of at least some trademarked names. ttf.library asserts NO CLAIM to ANY sort of trademark whatsoever. The following list of trademarks is provided, but may not be complete:

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M\$ and Windoze are derisive terms, unregistered by any party to the best of my knowledge.

## 1.4 FreeType Project License

The FreeType Project LICENSE  
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Copyright 1996-1999 by  
David Turner, Robert Wilhelm, and Werner Lemberg

Introduction

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The FreeType Project is distributed in several archive packages; some of them may contain, in addition to the FreeType font engine, various tools and contributions which rely on, or relate to, the FreeType Project.

This license applies to all files found in such packages, and which do not fall under their own explicit license. The license affects thus the FreeType font engine, the test programs, documentation and makefiles, at the very least.

This license was inspired by the BSD, Artistic, and IJG (Independent JPEG Group) licenses, which all encourage inclusion and use of free software in commercial and freeware products alike. As a consequence, its main points are that:

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- o You can use this software for whatever you want, in parts or full form, without having to pay us. ('royalty-free' usage)

- o You may not pretend that you wrote this software. If you use it, or only parts of it, in a program, you must acknowledge somewhere in your documentation that you've used the FreeType code. ('credits')

We specifically permit and encourage the inclusion of this software, with or without modifications, in commercial products, provided that all warranty or liability claims are assumed by the product vendor.

## Legal Terms

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### 0. Definitions

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'You' refers to the licensee, or person using the project, where 'using' is a generic term including compiling the project's source code as well as linking it to form a 'program' or 'executable'. This program is referred to as 'a program using the FreeType engine'.

This license applies to all files distributed in the original FreeType archive, including all source code, binaries and documentation, unless otherwise stated in the file in its original, unmodified form as distributed in the original archive. If you are unsure whether or not a particular file is covered by this license, you must contact us to verify this.

The FreeType project is copyright (C) 1996-1999 by David Turner, Robert Wilhelm, and Werner Lemberg. All rights reserved except as specified below.

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## 4. Contacts

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There are two mailing lists related to FreeType:

- o [freetype@freetype.org](mailto:freetype@freetype.org)

Discusses general use and applications of FreeType, as well as future and wanted additions to the library and distribution. If you are looking for support, start in this list if you haven't found anything to help you in the documentation.

- o [devel@freetype.org](mailto:devel@freetype.org)

Discusses bugs, as well as engine internals, design issues, specific licenses, porting, etc.

- o <http://www.freetype.org>
-



Holds the current FreeType web page, which will allow you to download our latest development version and read online documentation.

You can also contact us individually at:

David Turner <david.turner@freetype.org>  
 Robert Wilhelm <robert.wilhelm@freetype.org>  
 Werner Lemberg <werner.lemberg@freetype.org>

--- end of license.txt ---

## 1.5 System Requirements

Requirements

OS3.0 or higher

Separate archives are available with optimized versions for 68020, '030, '040, '060, as well as generic 68000 series CPU's.

## 1.6 Installation

Installation

Install-ttflib is a standard installer script, just double click the icon.

If you prefer a manual installation, here is a breakdown of the primary components:

File	Installation instructions
ttf.library	copy to your LIBS: drawer
ttfmanager	copy to your favorite tool drawer (i.e. sys:utilities)
ttfinstall	" " " " " " (optional)
ttflist	" " " " " " (optional)
ttfcp	" " " " " " (optional)
Bitline	" " " " " " (optional)
ftview	" " " " " " (optional)

## 1.7 Using ttf.library

Usage

The following tools are available:

```
ttfmanager
make truetype fonts available to system
```

```
ttfinstall
alternate (CLI) tool to install fonts

ttfllist
list names and other details from font files

ttfcp
codepage tool for non ECMA-Latin1 usage

Bitline
create bitmap versions of an outline font

ftview
preview a font
```

## 1.8 Using ttfmanager

```
ttfmanager
```

To use a truetype font, it must first be installed to some part of the system FONTS: drawer. Installation is a bit different than with the compugraphic intellifont program. First, outlines (the actual truetype font files) are NOT copied to the font directory. Instead only the ".font" and ".otag" files are created in the selected directory, and those reference the outlines at the same locations from which they were installed. This makes it much easier to use large font libraries directly from CD-ROM, for example. The font files used by the bullet.library in some cases are actually modified by the installation process, making the copying a requirement. In contrast, ttf.library uses unmodified files, so there is no reason to restrict your choices in disk space management. If you really want a "\_ttfoutlines" directory in FONTS:, create it, and copy your font files there before the installation.

The second major difference is that the fonts may be installed to any drawer, not just a FONTS: component. (Note that to USE a font in many programs, the drawer must be assigned to FONTS:, but this allows you to selectively add the required font path components as needed.) This allows for a rotating assignment for FONTS: which is practically required with any large font collection. (Image how long it would take to load the standard system font requester if you had 6000 fonts actually available!)

Also see:

```
Quick Instructions
Main Window
Options Window
Preview Window
```

Mapping Test Window

Information Window

Keyboard Controls

Workbench Options

Shell Options

## 1.9 Quick Font Installation

### Quick Instructions

To install truetype fonts, enter a source directory (where the ttf files are located) in the source directory box. Clicking the 'set' button to the right will bring up a standard file requester to allow you to choose the directory. A list of the internal names of all installable truetype fonts in the source directory will be generated in the Available Fonts list.

Set the Destination Drawer in a similar fashion.

To install a single font, click on it in the Available Fonts list. If you desire, you can change the name in the Font Name box. Then click the 'Install' button.

To install all of the fonts in the Available Fonts list, click on the 'Install All' button. All fonts installed this way will get default names and options.

Please note that ttfmanager will OVERWRITE the .font and .otag files if they already exist, thus installing two fonts with the name 'CoolNewFont' will result in only one available font.

## 1.10 ttfmanager Main Window

### ttfmanager Main Window

ttfmanager features a multi-window interface, providing only as much as you decide you want to see. The main window provides the most basic functions, selecting and installing truetype fonts. Closing the main window exits ttfmanager.

### Available Fonts

Shows all the available fonts in the Font Source directory. To select a font for further processing, click on it in this list.

---

### Font Source

The location of the actual font file. The Set button will bring up a standard file requester, from which a suitable directory can be chosen. This gadget can also accept a wildcard pattern to match only specific files. For example, CD0:A#?.ttf will restrict the files shown in the Available Fonts list to only those fonts where the filename starts with 'A' and ends in ".ttf".

See

Workbench Options  
to set a default value for this field.

### Font Destination

The directory into which the .font and .otag files which allow a font to be used by the system will be placed by Install. The Set button allows choosing this from a standard file requester.

See

Workbench Options  
to set a default value for this field.

### New Font Name

ttfmanager will fabricate a name for a font from information within the font file itself, and place it here. To change the name before installing, overwrite it here.

### Install

Installs the currently selected truetype font as an Amiga font named as specified in New Font Name, in the directory specified by Font Destination, using any options specified in the options window.

### Install All

Installs all the fonts in the Available Fonts list into the Font Destination directory. All fonts will be given default names and options.

### Preview

Opens the  
Preview  
window.

### Info

---

Opens the  
Font Information  
window.

Options

Opens the  
Options  
window.

The message area across the bottom of the window displays any status or error messages.

## 1.11 ttfmanager Options Window

ttfmanager Options Window

The options window provides access to virtually all of the information used in creation of the .otag file which describes a font to the system. Most of the time, the default settings should be adequate, but for 'problem' fonts, changing some of these settings may be required.

Encodings

Displays all encoding tables available in the currently selected font. ttfmanager will attempt to identify an appropriate unicode table. If the chosen table is incorrect, click on the desired one to change it.

Selected/Raw/Offset

If desired, you may choose to bypass the encoding table and access the glyphs of a font directly. The raw option maps glyphs in order, beginning at the specified Offset, to ASCII printable characters only (values from 33 to 126.) This is intended for use with dingbat and clipart fonts, or for accessing otherwise unreachable glyphs in large fonts for artistic purposes only.

Code Page/Use/Set

This cluster of gadgets allows a specific codepage to be associated with a specific font. In the string entry gadget, specify the full path of the desired codepage definition file. The Set button brings up a standard file requestor which can be used to select a file. For more information on the codepage definition format, see  
ttfcp  
.

The Use gadget turns the font specific codepage on and off. If on, the needed codepage information is stored directly in the .otag file created by an Install operation, so the source codepage file can be moved or deleted after the install with no impact on the operation of the fonts. The .otag codepage, if specified, overrides the default one, either built-in or set with ttfcp.

Note that these options are NOT reset by selecting a new face from the Available Fonts list, so, by setting the codepage once, a series of fonts can be installed using it.

### New Font Name

This is a second copy of the field of the same name on the

main window  
, placed here for convenience sake. Note that you can create multiple Amiga fonts from a single truetype file, each with its own options, but remember to give each a unique name here. (It is strongly recommended to press the 'enter' key to complete the entry of a new name.)

### Space Width

Controls the advance width used for the space character. This also serves as the advance width for all glyphs if the font is declared as Fixed Width.

### Mapping

The following attributes are used by the diskfont.library, or similar font mappers, to determine the attributes of the outline font. The default setting are usually adequate, but if you feel that ttfmanager has misidentified a font, they may be changed.

The quality of the default settings is directly related to the quality of the information provided in the font, which in turn depends on the designer's attention to detail.

Slant Style - Controls Italic attribute  
Weight - Controls the Bold attribute  
Width - Controls the Extended (wide) attribute  
Serif - Seems to be a comment(?)  
Spacing - Controls Monospaced (fixed pitch) attribute

### Sizes

A list of sizes which will be listed for this font in the system available fonts list. Use the Add, Del, and size entry gadget to modify this list. See  
Workbench Options  
to

change the defaults used here.

### Metric Source

Perhaps the most visually significant switch on this screen. A truetype font typically contains no fewer than four distinct sets of information indicating the amount of space glyphs in the font will occupy. This information is critical to the proper operation of `ttf.library`, especially when used through the `diskfont.library` mechanisms. Unfortunately, these numbers are inconsistently used by different programs and designers.

By default, `ttf.library` will fit a fonts entire bounding box into the amiga sized box, which for screen fonts is typically 'size' pixels high. If a font has glyphs (even ones you may not use) that extend the bounding box significantly from the needs of the more typical glyphs, the resulting font may be much too small. For this problem, the following options are available:

- Bound Box - uses the global font bounding box as the basis for size calculations. This is the default, and is correct for all but a few fonts. This is the most consistently reliable metric found in a real world sample of hundreds of fonts.
- Raw EM - uses the em size directly This is equivalent to the previous version's 'Stretch' option. It can give a giant boost to the visual size, but also can create significant problems. For uses that do not use `diskfont.library`, like word processors such as final writer, this can also be useful.
- Mac - uses Ascender and Descender values from the horizontal header. This metric is most often used by Apple systems.
- Typo - uses supposedly 'system independent' typographic values from the OS/2 table. The definition of this value seems to have a varied interpretation and is missing, or identical to the `usWin` value below in many fonts.
- `usWin` - uses the `usWindow` values from the OS/2 table. This value is a bounding box for latin-1 glyphs. It is also subject to wild variation in free and shareware fonts.
- Custom - uses the values entered in the `yMax` and `yMin` gadgets for calculations. These values are in font units, and may be directly entered, or generated using the Calculate button. The calculated value is the highest ascent and lowest decent from only the glyphs used by the active code page (either as specified for this font, or as system default.)

Note that Preview will show the chosen size, but it may not

---

properly illustrate any imperfections which may result. In particular, if the height is too small, a jumping baseline, where some glyphs sit some varying distance above or below the expected baseline may result. Choose wisely.

For the curious, the shifting baselines are the result of the `diskfont.library` trying to fit the glyphs into the pixel height box. If the ascent is too high, the bit map is pushed down, resulting in a low baseline. If the descent is too low, the bit map is moved up. Interestingly, `ttf.library` does not explicitly tell `diskfont.library` how to locate the baseline, as it infers it instead from the glyph descriptions.

#### Test

Opens the  
Mapping Test  
window.

#### Info

Opens the  
Font Information  
window.

#### Preview

Opens the  
Preview  
window.

#### Install

Installs the currently selected truetype font as an Amiga font named as specified in New Font Name, in the directory specified by Font Destination (on the  
main window  
) using any specified  
options.

The message area across the bottom of the window displays any status or error messages.

## 1.12 ttfmanager Preview Window

### ttfmanager Preview Window

This optional window will display a sample of the currently selected font. Resizing the window will redisplay the sample in a size determined by the new window size.

---



See

Workbench Options  
to set the default string used for the preview.

Preview also has several  
keyboard control  
options:

ESC or DEL - clears the current preview string  
Backspace - remove the last character from the preview string  
any character - adds the character to the preview string  
Cursor Left - Apply kerning to preview display  
Cursor Right - Turn off kerning in preview display

### 1.13 ttfmanager Keyboard Controls

ttfmanager Keyboard Controls

The following keys are available in any ttfmanager window:

Cursor Down - Select the next font from the Available Fonts list  
Cursor Up - Select the previous font from the Available Fonts list

### 1.14 ttfmanager Mapping Test Window

ttfmanager Mapping Test Window

This optional window displays the font on a 32 by 8 grid, applying  
all codepage and encoding selections made on the  
Options  
window.

The grid is square and can only be changed in size by a  
tooltype  
setting. Some fonts which are wider than tall will look rather bad  
in this window. For more typical character fonts, however, it will  
aid in identifying non-defined positions in the character map, as  
well as other mapping anomalies.

The default

MAPGRID

size is 18 pixels, which will display on any  
high resolution workbench. If the window size needed to place the 32x8 grid  
at the specified MAPGRID size is larger than the actual display,  
it will be truncated to the top left corner that will fit.

### 1.15 ttfmanager Font Information Window

---

ttfmanager Font Information Window

This optional window shows Name and Copyright information, as well as various statistics and metrics from the currently selected font.

## 1.16 ttfmanager Workbench options

ttfmanager Workbench options

ttfmanager supports the following ToolTypes in its icon:

### SOURCE

Specifies the initial Font Source in which to look for truetype font files. Example: SOURCE=Work:myfonts

### FONTS

Specifies the initial Font Destination, a directory in which the .otag and .font files for an installed truetype font will be placed. Example: FONTS=Sys:ttfonts

### SIZES

Specifies the default Sizes as seen on the options page. This specifies the font sizes which will be reported in the system AvailFonts list for use in font requestors. Up to 20 sizes may be specified in a comma separated list. Example:  
SIZES=10,12,16,24,32,48,64,72,98,122

### PREVIEW

Specifies the string used for the Preview option Example:  
PREVIEW=Every Good Boy Does Fine

### MAPGRID

Specifies the pixel size for the Mapping Test option. Example:  
MAPGRID=20

Additional arguments, such as shift-clicked icons, will be used as the Font Source. For example, select a drawer on the workbench, hold down the shift key and double click the ttfmanager icon, and ttfmanager will use the drawer as the initial Font Source. Also, a project icon associated with a truetype font file could refer to ttfmanager as its default tool, invoking ttfmanager when clicked, which would set the Font Source to the single file. Note that the project file does not have to be a font file. Any ToolTypes in the project icon are evaluated as well.

## 1.17 ttfmanager Shell options

ttfmanager Shell options

The current command line interface will change soon

---

FROM/A, TO/A, SIZES/F

Example: `ttfmanager work:coolnewfonts fonts: sizes=12,24,36,48`

## 1.18 Using `ttfinstall`

```
ttfinstall
```

Note:

```
ttfmanager
    is now available and will perform font
installation from the Workbench environment. This tool is
included for those who want CLI and scripting power. For
an overview of font installation, including differences
from the system intellifont program, see
    ttfmanager
.
```

The command line for installing a truetype font looks like the following:

```
ttfinstall fontfile.ttf sys:fonts
```

Note that 'fontfile.ttf' is the actual file to be installed, and 'sys:fonts' can be any existing directory. In addition, a file name pattern can be specified for 'fontfile.ttf', allowing the installation of several fonts at once. For example:

```
ttfinstall cd0:funky/#?.ttf work:ttfonts
```

Would install all the font found in the cd0:funky drawer to the ttfonts drawer on volume work:

Once a truetype font is installed on the fonts: path, it should be possible to select that font from any decent font requester.

Please note that `ttfinstall` will OVERWRITE the `.font` and `.otag` files if they already exist, thus installing two fonts with the name 'CoolNewFont' will result in only one available font. It is possible to rename both the `.font` and `.otag` files once they have been created, so multiple fonts with the same internal name can be used if you work at it. `ttfmanager` has an option to change the name when installing individual fonts.

Note: switches EXACT, TYPO, and DESIGN are no longer valid.

## 1.19 Using `ttflist`

```
ttflist
```

---

ttfllist works a lot like the normal system 'list' command, but is designed to display readable names along with the file name. Also, it will optionally provide a great deal of perhaps useful information from a font file. The command line would look like:

```
ttfllist [pattern] [all] [verbose]
```

where:

pattern is an optional amigados file pattern or drawer name. By default it is "#?.(ttf|ttc)"

all is an optional switch to list matching drawer contents as well. Note that the pattern specified must match the drawer names to be searched. When all is specified the default pattern is "#?".

verbose gives a lengthy, and probably ignorable, report for each font found.

example: ttfllist cd0: all

## 1.20 Using ttfcp and alternate codepages

ttfcp and alternate codepages

ttfcp is a command line tool to install codepage tables that allow the use of ttf.library on systems which do not use the default ECMA Latin-1 character set. ttfcp uses simple text files to describe the mapping of the 256 possible Amiga character set positions to any unicode characters. The text file format is quite simple:

- Each mapping line contains two numbers separated by space and/or tab characters. These numbers may be in decimal, octal, or hexadecimal. (decimal numbers must start with a digit 1-9, octal with a "0", and hexadecimal with "0x") The first number is the Amiga character set position being mapped, and must be between 0 and 255. The second number is the unicode character to be assigned to the position.
- A "#" character begins a comment
- any line without two valid numbers as the first non space items are ignored without warning
- any character positions not mapped will be set to 0

Sample mapping file lines: -----

```
# full line comment
0x20 0x0020
32 32 # functionally identical to the previous line
325 0x0042 # this line would be ignored (index>255)
49 72659 # this line would be ignored (unicode>0xFFFF)
0xA1 0x040E # CYRILLIC CAPITAL LETTER SHORT U
0xB6 0x0386 # GREEK CAPITAL LETTER ALPHA WITH TONOS
-----
```

Note: A variety of mapping tables suitable for use with ttfcp are available at ftp.unicode.org in Public/MAPPINGS.

ttfcp translates the mapping table into a more efficient form for use by the library. The command line is:

```
ttfcp mapfile [ENV] [TO outfile]
```

where:

mapfile is the required mapping file as described above.

ENV is a switch which will cause the translated table to be placed in the "ttfcodepage" environment variable. (And copied to ENVARC:)

TO file allows writing the translated table to "file" (This option is not very useful, as currently nothing else uses the created files.)

example: ttfcp 8859-2.TXT ENV

If neither ENV or TO options are specified, no translated table is written, but an normalized ascii version of the input is displayed.

To enable alternate codepage support:

- 1) obtain or create a mapping file
- 2) use ttfcp with the ENV option to install the mapping file

These steps need only be performed once. The next use of the ttf.library will begin using the new codepage mapping. To remove codepage mapping delete the file "ttfcodepage" from ENV: and ENVARC:.

For codepage support to work correctly, the fonts used must contain the glyphs needed to represent the characters of the chosen codepage. Also, the font must have a suitable unicode encoding table. You can check the results of the code page and encoding selections with the

Test  
button on

the

Options  
page.

By default, ttf.library will use straight Unicode translations. The codepage definitions only affect the first 256 character positions. If you need full unicode support, either the system codepage or the font specific codepage will need to provide a straight conversion (i.e. ISO-8859-1).

---

## 1.21 Using Bitline

Bitline

Bitline is a small shell utility which allows you to convert Amiga outline fonts to Amiga Bitmap fonts. Bitline works with the `diskfont.library`, so any font format your system can use can be converted.

Bitline is an adaptation of Bitline 0.5 by Georg Steger, and is being distributed with permission from Georg. Thanks Georg!

Bitline can only be used from shell. It has the following argument template:

```
FONTNAME/A,SIZES/N/M/A
```

**FONTNAME:** Path of source outline font. You must specify the font contents file (the one that ends with `'.font'`.) The `".font"` suffix is optional, and the entire `FONTSDIR` will be searched if no directory is specified. example: `"fonts:foboz.font"`

**SIZES** : One or more font sizes you want to have created.

For example,

```
Bitline foboz 10 20 30 40
```

would create bitmaps at 10, 20, 30 and 40 sizes from the font `'Fonts:foboz.font'`

Warning - this is the first public release of this version of Bitline. Do use caution, and please report any problems.

Legal Note - fonts are usually copyrighted entities, and the use thereof may be limited by license or other agreements. It is the users responsibility to verify that the use of this utility does not violate the terms of such license.

## 1.22 Using ftview

ftview

ftview is a truetype font display program from the FreeType project test suite. Its command line format is:

```
ftview [-g] [-r res] pointsize fontfile ...
```

where

---

- `-g` is an optional grey scale (smoothing) rendering. Smoothing looks very wonderful, but is not available through `ttf.library`. Also note that `ftview` opens on the default public screen, and if that screen does not have sufficient available or matching pen colors, it may look worse. The `-g` option uses five distinct grey levels.
- `-r res` specifies an optional resolution to use in rendering the glyphs of the font. 'res' is in Dots Per Inch. Note this doesn't change the display resolution only the value used for font rendering.

`pointsize` is a required argument specifying the point size to display.

`fontfile` is one or more truetype font files to view

Example: `ftview 30 flyingp.ttf`

While the font is displayed, options to change many rendering characteristics are available by keystroke or standard amiga menu selections.

## 1.23 Limits and known problems

Limits, warnings

Portions of this software are new, and have had minimal testing. The performance of this software has been heavily monitored on the development machine with `enforcer`, `mungwall`, `poolwatch` and other tools, however, it is still unproven. Please use caution, and use at your own risk.

A few features of the bullet library standard have not yet been implemented (algorithmic emboldening) as they are not required for proper font operation in many circumstances. Programs that depend on these unimplemented features, or on undocumented features of the `bullet.library` may not work as expected with `ttf.library`.

Application Notes

PersonalPaint

Without 'Keep Ratio' selected, there are several quirks noted using `ttf.library` with the `PPaint` Vector Text tool. Specifically, rotations approaching 90 degree angles do not display. Also, when the rotation angle and the natural diagonal angle of the text box are quite different (such as a 45 degree rotation in a short, wide box,) the aspect of the glyphs can become distorted. No specific cause in `ttf.library` has been identified.

For the technically curious, the vector text tool specifies

a fixed point size and the sin and cos for the rotation angle, and appears to attempt to find a perfect fit within the box by changing the dpi. Whatever formula it is using is not satisfied by the ttf returned values, and, in the case of the 90 degree rotations, the dpi are modulated to totally unworkable values (0x3FFF by 4, in one case.)

## FinalWriter

Under some circumstances 'Justify All' formatting will be broken when printing. It appears that the justification is based on width and advance information from separate resolutions, with the width data taken from a small dpi, such as the screen, and the character advance info from the printing dpi. TrueType font hinting can change the width of a glyph to visually compensate at low resolutions. FinalWriter, unlike several other high end packages, does not ask for the bullet style width list, which would be resolution independent.

## 1.24 Recent Change History

### Changes in v0.8.2

Fixes problems with diacritic accents in some fonts

### Changes in v0.8.1

Many fonts which previously failed to work (missing OS/2 table, common in fonts from Mac sources) should now work. Unicode support fixed. SpaceWidth entry gadget added to ttf.manager options. CPU specific archives available for 68k series processors.

### Changes in v0.8.0

Full unicode support now enabled  
Many fonts which previously reported 'broken font - invalid reference' should now work. Dig out those broken fonts!  
Eliminate some needless memory copying in font loading.  
New mapping test window available on the Options window.  
Encoding selection will choose Win Unicode over Apple; fixes quite a few screwy fonts with bad Apple Unicode tables.  
Preview window no longer limited to 640x400.

### Changes in v0.7.9

add support for shear and rotation

---



## Changes in v0.7.8

fix buggy yMin gadget  
fix crash when specifying a random file as codepage definition  
add  
    bit map  
    creation utility

## Changes in v0.7.7

adds options to select various or custom metrics to determine the height factor used to scale fonts to the proper size. In particular, this should make the M\$ euro fonts usable (again). See  
    Options  
    and  
    FAQ  
    for more information.  
variety of small bug fixes

## Changes in v0.7.5

eliminate potential crash when a font file could not be accessed  
kerning support enabled  
    note that only one level of kerning is supported, and bullet  
    api calls specifying either 'Design' or 'Text' kerning will  
    result in the same kerning value.  
corrected width list calculation (apparently broken since 0.7)  
ttfmanager adds some keyboard support, especially in preview

## Changes in v0.7.3

should now support infamous win symbol encoding  
added 'stretch' option for larger glyphs at small sizes  
applied the most current freetype patches

## Changes in v0.7.2

plugged a nasty memory leak in the library  
font specific codepage support enabled

## Changes in v0.7.1

ttfmanager - several cosmetic changes  
ttflist - now reports some kerning table info  
ttf.library  
- fixed a problem with baseline shift on some characters  
  at smaller sizes (especially with diacritical marks)  
- some changes in advance width calculations

## Changes in v0.7

Reinstall Warning - some important things have changed in the font installation, and all fonts installed with any

---

previous version must be re-installed. (Sorry, but this should be the last time.)

ttfmanager

- preview, font information and options windows added
- several changes in the .otag files produced by installing, adding a complete set of font attribute mappings, fixing the space width calculation.

ttf.library

- More speed! Typically 1/3 faster on a 040/25MHz.
- The library now handles internally the correction between Amiga font size and actual em size, instead of relying on diskfont.library to do the job. This opens the way for several future enhancements.

Changes in v0.6.3

ttf.library now supports a system wide alternate codepage

Added ttfcp, a codepage installation tool.

Changes in v0.6.2

Only the ttf.library has changed in this version.

The quest for perfection continues - the character advance calculations are virtually identical to that common M\$ OS engine. An issue with non-glyph widths (i.e. the space character will be fixed in the next installer version.

Source of mystery crashes (of other tasks) found and fixed.

Changes in v0.6

Re-examined the character advance calculations to improve spacing at smaller sizes.

Modified the font install routines to calculate the extremes of the ascent and descent by default. Problem fonts (baseline shifts or clipped glyphs) should be re-installed with the new ttfmanager or ttfinstall version.

Added a fake version number to ttf.library for WordWorth.

Changes in v0.5

Added ttfmanager and Install-ttflib.

Re-examined linkages, often resulting in smaller file sizes.

Changes in v0.4

WidthLists are now supported.

---

Subtle changes to returns of non-existent glyphs to be more compatible with bullet, and make smaller (memory wise) fonts when called by diskfont.library.

ttfinstall - correct advance width problem with monospaced fonts

Changes in v0.3

Sets many more tags in otag file to make some programs much happier (FinalWriter, to name one.) As a result, ALL FONTS installed with v0.2 or earlier MUST BE RE-INSTALLED. Sorry, but the results are usually worth it.

Mimic bullet.library in handling of glyphless codes, such as a space.

Widths are calculated more appropriately, resulting in better display under many conditions.

Several other peculiar, but un-enumerated, bugs were squashed.

## 1.25 The future of ttf.library

Future

Still many improvements in the works for ttfmanager.

Add family support, allowing different font files to be used for bold and italic requests automatically.

Add library support for algorithmic emboldening

Examining possibilities of using the forthcoming FreeType 2 engine.

## 1.26 Frequently Asked Question

FAQ

Can/will it get faster?

Well, you should have seen it in the early days!

Actually, I do keep looking at ways to speed things up, but TrueType rendering is a computationally intensive task, and it places heavy demands on slower processors. Faster processors and plenty of memory help a lot. I'll keep at it if you'll upgrade ;)

Why are the fonts so small or have a so much space underneath?

Microsoft's core fonts, pan-european versions, have a very unusual characteristic which has made the display less than pleasing under ttf.library version 0.7 and above. First, thanks go to Pavel Cizek for having the patience to help me see and understand the problem.

The fonts have a run of line drawing glyphs which distort the global bounding box (a virtual box which can surround ANY glyph in the font.) Since version 0.7, this size has been the basis for translating the font into Amiga sizes. It should be noted, that the decision to use this metric for the basis was made for several reasons, one being that it is the most reliable metric above all others in a wide variety of fonts examined in great detail. This unusual feature escaped the testing. Metropol, which I used for many Latin-2 tests, does not have any such problem. Sorry.

To allow these fonts, or any others which may have similar problems, there are now several new options available. In fact, this is the main reason for V0.7.7.

A quick guide to installing one of these fonts:

Select the desired font. Open the options window. Select a metric source of 'Custom'. Make sure the correct code page is set (either as the system default, or for this font.) Click calculate, and two new numbers should be displayed for yMax and yMin. Install.

Repeat these steps, including the 'Calculate' step, for each font which displays similar symptoms.

Can we make bitmaps, please?

A very frequently requested enhancement is for bitmap font generation. A version of Georg Steger's  
    Bitline  
    is now  
included.

How about a PPC version?

A PPC version creates some additional concerns, but it is being considered.

Why are the fonts so tiny? 8 point soandso.font looks bad. On a PC I can use 7 point foboz, but it is just little squiggles on my amiga. Etc, etc.

A quick lesson of fonts and terms is in order. In more traditional typography, a point is a standard unit of

---

measure, approximately 1/72 of an inch. A point size refers to the size of an imaginary box surrounding the letter 'M', known as the em square. The size of this box in 1/72 inch units is the point size. When Windows defined its version of point size, it invented a new concept, the virtual display inch (I'm not kidding!) which is "approximately 30 to 40 percent larger". If you consider that the declared resolution of a typical Win display is 96DPI square, you'll find that the math works out to the em square point measurement is approximately the pixel height count of the letter M.

The Amiga however uses 'points' to specify the entire height of the font, not just the letter M. There is no provision, through `diskfont.library` for a glyph to fall outside of a 'point' high bitmap. As a consequence, a box which will hold the 'M' won't hold a 'Ç' or an 'È' or any other characters. The needed room must come from somewhere, and this means that the sizes must be scaled to fit. Since `ttf.library` is at the bottom of the chain, the apparently inflated point size must be specified. As a result, requests for 8 point glyphs will usually result in total garbage, as 3-4 'points' get used for any needed ascenders and descenders, leaving little to reflect the characters. 10 is sometimes recognizable, and 12 starts to be useful for most fonts.

To match an Amiga point size exactly to those of another platform, examine the highest ascender, lowest descender and the letter 'M' on the other platform. The letter 'M' should be approximately the point size pixels tall. Add the additional pixel heights of the high and low extremes to that point height, and you should have a close value for a corresponding Amiga size.

What can I do to make my browser look like a PC?

You can match the font sizes used by default in MSIE or Mozilla on a Winbox. There will be differences in the layout by the browser, but the letters in the words could be made to match in many ways. The biggest problem is in finding the correct sizes to specify, approximate values of which are presented below. You will need to obtain the `TimeNewRoman` and `CourierNew` font families. I leave all legal, ethical and tactical aspects of this to the individual. (These are excellent fonts, and they are available without cost, but I have yet to find an Amiga only way to obtain some versions of them, and remain entirely within the EULA. The win3.1 versions can be extracted with `unzip`, but not all faces, nor the latest versions are available in this form.)

Approximate matching fonts/sizes are as follows:

H1	<code>TimesNewRomanBold/36</code>
H2	<code>TimesNewRomanBold/28</code>

```
H3          TimesNewRomanBold/20
H4          TimesNewRomanBold/18
H5          TimesNewRomanBold/14
H6          TimesNewRomanBold/12
```

```
FONT SIZE=1 TimesNewRoman/12
FONT SIZE=2 TimesNewRoman/15
FONT SIZE=3 TimesNewRoman/18
FONT SIZE=4 TimesNewRoman/20
FONT SIZE=5 TimesNewRoman/27
FONT SIZE=6 TimesNewRoman/35
FONT SIZE=7 TimesNewRoman/53
```

```
Preformatted CourierNew/15
```

Another potentially useful browser trick is to set a codepage to eliminate the dreaded no such character box that appears often where quote marks and apostrophes should appear. Although I think that any web author that allows such rot to appear on a page (Including Amiga, Inc!) should at least be publicly chastised, the fact remains that these artifacts are widespread. It seems that M\$ 'improved' (in its opinion) the ISO 8859-1 standard to create the 1252 codepage. (For more info, see <ftp.unicode.org>. for mapping tables.) It seems that range from 0x80 to 0x9F, which is non-printing in 8859-1 (a REAL standard) is heavily and arbitrarily populated in CP1252, adding left and right single and double quotes, the new Euro currency symbol, and other things.

What is this strange version number on ttf.library?

WordWorth wants to open Version 2, and ttf.library is not even to version 1.0 yet. This is a bug in WordWorth. It has no reason to specify a library version at all when opening the library. This is likely a holdover from a very early bullet.library, but it is still WRONG! For the time being, I have faked the version in the library header to pass this test. Version 0.7 appears as version 10.7 to the system. Any future versions will continue to be offset by 10, as long as required.