

FONT INSTALLATION

from **A** g f a
E A G L E feather to

Lino *type*
Zapfino
TUG 2001 DELAWARE

*In memory of my wife's aunt,
Elizabeth C. Facchine,
24 November 1928—27 July 2001,
who supervised the first
graphical computer publishing system
(a XEROX Star network)
for the U.S. Government.*

FONT INSTALLATION
from
Agfa Eaglefeather
to
Linotype Zaffino

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About this Document

Here's how I managed to get Agfa Eaglefeather and Linotype Zapfino installed in T_EX and some of the things which I learned, from A to Z.

Beginning

First, acquire the fonts. I'd purchased Agfa Eaglefeather back when it first came out to do the signage for a Frank Lloyd Wright exhibition at the Longwood Center for the Visual Arts. I've always wanted Zapfino since first hearing of it, so was thrilled to learn it was bundled with Mac OS X.

Choose your font vendor carefully. Considerations include:

Are they on the "short list" of font vendors which're listed in Karl Berry's Fontname? This eases the process of installation, Agfa for example isn't, and I was having trouble getting the install of Eaglefeather started until I hit upon the idea of lumping it in with Monotype Octavian, on the theory that assimilation works both ways (Monotype was bought out by Agfa)

Are .afm files provided/available? Not all vendors do so, especially for fonts provided in Mac format.

Who made the font and why? Does the font vendor acknowledge the font's designer at least? Make royalty payments? Provide information which helps in learning how the font was first used (or ideally tutorial exemplars such as the lovely booklets which accompanied the Adobe Originals), where it was first used (a few fonts are still named for the book in which they were first used...) and when so that one may write a decent colophon.

As implied above, it is the font's vendor, which in the Fontname scheme determines the beginning of the font name. For Agfa-Monotype Eaglefeather, "M", for Apple-Linotype Zapfino, "E". the appropriately named sub-directories (mef and ezo) for the fonts are placed in directories for the relevant vendor (monotype and apple). If you are using a font from a vendor to which no letter or number is assigned, I would suggest using "z" for misc instead of attempting to assign something oneself—not only does this raise the spectre of incompatibility should the number later be formally assigned, it seems not to work without reconfiguration of the TeX Directory Structure settings.

Conversion

As a graphic designer by trade, I've always purchased Mac format fonts, working on the theory it's easier to convert from Mac -> PC/Unix than in other directions. (This habit was formed of course, before .pdf) There're a number of tools for this, I use a combination of: Ares FontHopper (to get from Mac to PC format), and Type Designer by Manfred Albracht (to regularise the encoding and generate a .afm).

Zapfino for Mac Q¹/X is provided in the new .dfont resource-fork-less format, which is as yet unique to Mac Q¹/X. Fortunately, the font tools group at Apple has created "Fork_Switcher", a small utility program which switches a font from resource to data fork. Zapfino is also available from Linotype in a more prosaic Type 1, multiple font format, but the Apple version has many additional characters and promises to eventually provide access to them....

[Fork_Switcher Icon]. Fork_Switcher is available from fonts.apple.com. Unfortunately, Ares FontHopper has been discontinued since Adobe purchased Ares, and DTP_Software became the German distributor for Yuri Armola's FontLab program, which subsumed the code and features of Type Designer. (Note: This latter Type Designer is *not* the font editor which once upon a time Letraset sold.)

Decisions

Eaglefeather was rather straightforward once I'd worked out a solution to its lacking an Expert font set and having "merely" a_small Caps font (I made my own Expert fonts. This is probably a variant of the "If one has is a hammer..." maxim.

I chose "ef" for the name, since it seems unlikely I'd need Egyptianne (the canonical font for this letterpair). Arguably, I should use an unused letterpair, since TeX insists on making a folder for `egyptien.tfms`.

Zapfino has proven more complex, and is still being worked out as this document is written. Unfortunately, despite its having over 1,000 unique glyphs, very few of them are actually wired up (for example, there's no way to access the old-style figures) for usage in in WorldText.app or GXWrite.fadly, this is confirmed by my usage of Zapfino in TeX/GX. Installation there was almost painfully easy (switch font fork with Fork_Switcher, drag to /system Folder:Fonts, start T_EXGX, use font).

The Story of
EAGLEFEATHER
by David Siegel

BACKGROUND: FRANK LLOYD WRIGHT

"I attend the greatest of all churches," Frank Lloyd Wright once said. "I put a capital *N* on *Nature* and call it my church." Wright was born in 1867 in southwestern Wisconsin, his father a preacher and musician, his mother a teacher. His mother, determined that he was to become a great architect, taught him to study the rhythm and interconnectedness of nature. His father taught him music and structure. Wright left his formal schooling at the University of Wisconsin to go to Chicago in 1887. There he worked for architect Joseph Lyman Silsbee. Later that year, he entered the firm of Adler and Sullivan, where he formed a close relationship with the great architect Louis Sullivan. He learned to draw everything from houses and buildings to trees, flowers, landscapes. To him, everything was connected and part of nature, which he studied with the enthusiasm of a biology student. Following Sullivan's example, he taught himself to make beautiful renderings.

After a successful apprenticeship, Wright became Sullivan's "Chief of design." Although he annotated his working sketches with quick, hard-to-read pencil scribbles, his demand for impeccable presentation drawings was legendary. He often altered one of his draftsmen's work, adding coloring, textures, shading, trees, birds, flowers, and, of course, his own lettering.

Wright's fascination with lettering emerged during his twenties, as he experimented with letters to make his drawings complete. He was so prolific, so obsessed by the idea of "organic" architecture, that by 1900 he practically designed a new alphabet for every client. A trip through the archives shows a bewildering array of alphabets, ornaments, and details.

In everything he did, Wright blended nature and formalism. His alphabets show respect for time-honored forms, yet incorporate straight lines, circles, and proportions that are uniquely his own. As the American counterpart to the Arts and Crafts Movement in Europe at the beginning of the 20th century, Wright had a significant influence on the graphic arts. Taken as a body of work, Wright's letterforms were as varied, innovative and numerous as those of Eric Gill or Edward Johnston.

ABOUT THE FONT

Though the Olive Hill project was never completed, the typeface has come to life. From an initial sample of 19 capital letters, type designers David Siegel and Carol Toriumi-Lawrence completed the character sets according to the standards set by the Frank Lloyd Wright Foundation. In 1992, Siegel spent two days in the archives looking for type samples. After sorting through dozens of designs—from sketches for single letters to fully-specified typefaces for signage—Siegel hired Toriumi-Lawrence in March of 1993 to begin production work on “Eaglefeather”.

Siegel, who designed the best-selling typeface Tekton for Adobe Systems, knew exactly what he wanted from “Eaglefeather”. It has a more formal, draftsmanlike look than Tekton, yet it still preserves the “blobs” left at the end of each stroke by a technical pen. The original handlettered design has been adapted with all the professional marks of a serious typeface. Toriumi-Lawrence paid particular attention to the double-bar horizontals of A and H, matching them with the E and F to set a consistent, yet not irksome, theme. Even at small sizes, the double bars behave nicely. This, of course, was Wright’s brilliant idea. But when it actually worked in blocks of text—something Wright never tried—the design team was both excited and amazed.

Since the name of the project (Olive Hill) did not express the look and feel of the typeface, the designers chose another name from the Frank Lloyd Wright legacy: “Eaglefeather”. The name “Eaglefeather” came from another Southern California project. It was to be a house for Arch Oboler, a radio and film writer/producer, built on a mountaintop overlooking Malibu. Although the house was commissioned and drawn in 1940 (and never built), this early Frank Lloyd Wright typeface, both in its formal and informal versions, seems to clearly embody the name “Eaglefeather”. In fact, the name actually inspired both lower-case designs. Notice that the horizontal strokes are thinner than the vertical strokes, which are called stems. This is true even in the round characters, which are not true circles. Notice that the stems of the caps are just a little bit heavier than those of the lower case, so as to preserve the overall appearance. Notice that the tip of the A pokes above the top of the P and H. “Eaglefeather” has over 800 kerning pairs.

Toriumi-Lawrence, a former member of the Adobe type staff, designed many of the characters. She used a program called Fontographer to do the drafting. There are three weights, all carefully designed to complement each other. There are hand-tuned italics. There are two styles of numbers—lining figures and old-style figures. To get an appreciation for the extra work that goes into a hand-tuned italic, compare the “Eaglefeather” italic ‘H’ and ‘O’ with the Adobe Tekton counterparts. Adobe Tekton, unfortunately, is machine slanted, with no corrections. The caps have two complementary sets of lower case letters and a full set of small caps to complete Wright’s design. Her execution of the small caps shows her experienced eye. Siegel was impressed: “I told Carol the small caps should be like kids—with their big feet and splayed legs—awkward, ungainly, hoping some day to ‘grow into’ their serifs. Carol did a great job.”

The upper-case (and small-cap lower case) *J* was the most difficult character of all. Many early reviewers encouraged the design team to dispense with it and “make a more normal *J*.” But this just encouraged them. They wanted to be true to the Frank Lloyd Wright origins, and they knew they could pull it off if they just sweated the details to make it fit. Many days were spent adjusting spacing to get the most harmonious look for most character combinations. While there are still a few intractable character combinations, Siegel feels the effort was worth it. And many people who see it as a finished product agree. “Eaglefeather” simply wouldn’t be “Eaglefeather” without the “escalator *J*.”

HOW TO USE THE FONT

When making decisions about type and design, the best rule of thumb is to keep things simple. If you can make a document work with fewer typefaces, you will send a more coherent message. This is why we designed “Eaglefeather” in such a great range, with so many character sets that all work together. You can use the informal and the formal in the same document because they are cousins, not strangers. Furthermore, notice that the italic for both formal and informal is the same design—the only difference is the name.

The informal design is an upright italic. Use it in any situation where a handwritten look is desired. It complements the formal nicely. For example, if you have a long quotation, use the upright italic (informal) rather than the slanted italic. Slanted type is difficult to read after a line or

two. The more you use “Eaglefeather”, the more you will find uses for the informals. Use the informal whenever you need a “voice:” to narrate children’s books or stories, for the dialog-bubbles in cartoons, for labels and captions, for long quotes, in headlines, etc. Use the italic whenever you want emphasis, in the form of a whisper. Use the bold-sparingly-when you want to shout!

Don’t be afraid to adjust the kerning. Because of the Capital J, there are certain situations you may want to fix. For instance, J T, J M, and J H are all situations where you might want to actually play with the outlines of the letters or at least kern them a bit tighter to suit your uses. Similarly, when using small caps, the combinations si, sj, etc., are all situations where you might want to try raising the s or lowering the following character. For J i and J h, etc, simply kern them tighter for a custom fit.

Use the light characters for initial caps. If you set a paragraph in regular weight “Eaglefeather”, and you want a large cap to start off the paragraph, use a light weight cap at about twice the size of the text. If you want to reverse it out of a dark rectangle, however, you should probably use a heavier weight for knocking out. This is a general rule for reversing type out of solid shapes: don’t use light type for reversing out.

CREATIVE U/E/

Eaglefeather’s characters can be used for letters, faxes, notes, memos, even spreadsheets! While it is a versatile and useful font for everyday documents, it is in the hands of trained typographers and graphic designers that “Eaglefeather” really shines. The weight ratios provide good contrast, and the text face is suitable for long passages. Readers hardly notice the double-bar design in long runs of text, so don’t be afraid to use it for books and reports. Designers can use the small caps in many ways. By using a program like Adobe Illustrator or Aldus Freehand, designers can make outlines out of the type and create their own ligatures. This is something Frank Lloyd Wright himself loved to do with type. He often combined H & T, W & R, and many other pairs. In titling, you can make a small O and insert it (by raising and kerning) in a word like “FLOAT,” where it nests right inside the L.

If you have the small caps, use them, but sparingly. A quick way to make stationery is to put your name and address in 20 point bold small caps with l o t s o f s p a c e b e t w e e n t h e m at the top of the page,

and reverse them out of a black bar that spans the page. Always use medium or bold weight for knocking out. Don't worry if the small caps look weird on your screen: print them out before adjusting the spacing.

If you have the small caps, you also have the non-lining numerals, also called old-style figures. Use these in text, where your intention is to have them fit into a line along with the other characters. Dates and addresses are a good use of old-style figures. Use the lining figures for prices and numbers in tables. If you do use the lining figures in text, you might want to make them about a half-point smaller than the text size, so they don't stand out so much. This also goes for initials that are repeated often, like "U./A." Make it just a little bit smaller than the surrounding text, if it is going to occur several times on the page. I prefer to custom kern the periods in something like "U./A." to get a nice, even distribution of the letters (not the periods).

In certain situations, some designers like to use a paragraph separator, rather than starting a new paragraph on a new line. For this, we have supplied the Frank Lloyd Wright "party character." A party character is a placeholder glyph put in where certain symbol characters would normally appear. All you have to do is type the key-combination for a symbol character (like option-p). Depending on your application, you will either see the party character or the Greek letter pi. If you see the Greek letter pi, your application is automatically substituting the symbol-set character and you may not be able to get the party character.

FOR FURTHER READING

Frank Lloyd Wright Collected Writings, Vol II: 1930-1932 (including: An Autobiography), by Frank Lloyd Wright; Rizzoli Press, NY, 1992.

FontInst

I must confess that I use this amazing macro package by Alan Jeffrey as a "black box" and merely feed it an appropriately named collections of .afms and a T_EX file consisting of input fontinst.sty, an appropriate latinfamily command and bye.

I've been told that it can be controlled by .etx files, and hope to eventually find the time to experiment with that. One observation: .etx files are created in the course of font installation by fontinst, and if a

second (tweaked) install is attempted, they will be used in lieu of .afm files which have the same filename.

General Notes

Hyphenation

One of the things which fontinst doesn't do for the fonts which it installs is a zero-width hyphen. Fortunately, as Don Hisek of Quixote noted in a post to comp.text.tex ages ago, this is quite easy to do, just:

- open up the appropriate .vpl (e.g. mefr9d.vpl)
- find the "hyphenchar" if it exists, e.g.

```
(CHARACTER D 127 (COMMENT hyphenchar)
```

```
(CHARWD R 2.90991)
```

```
(CHARHT R 3.05994)
```

```
(CHARDP R 0.0)
```

```
(MAP
```

```
(/ETCHAR D 45) (COMMENT hyphen)
```

```
)
```

```
)
```

- zero out CHARWD (or adjust it to the desired value if having the hyphen hang all the way out is not desirable)
- if "hyphenchar" doesn't exist, copy the real hyphen into a blank character slot. Note: CHARDP was -2.5 for the real thing.... not sure why it should be zeroed out for this.

Then, in one's T_EX file, one must set the hyphenchar in each font definition macro to the correct slot, e.g. hyphenchar efroman = 127.

Installation

Once fontinst has turned out the basic font property list files (both normal, .pl for regular fonts and .vpl for virtual fonts), one must convert these into the .tfm (T_EX Font Metrics) and .vf (virtual fonts) files which T_EX itself will use by using pltotf and vptovf. Doing this is specific to one's system/T_EX implementation and is well-described in the fontinst manual. There're comments which I copy out which describe the appropriate command for each file, but the executable is mis-named in them (pltotfm vice pltotf and vpltovf vice vptovf).

Then, the files should be stored away in the proper places, the fonts added to the dvips config.ps file by way of an added .map file and one's T_EX filename database refreshed.

Justification

Kerning

A font installed in TeX will inherit the kerning from the relevant .afm files (if any). Kerning should be tested with a text which contains all of the lettertriplets used in the intended language, as well as as sensible Cap/lowercase pairs.

Only the “basic” f-ligatures are installed automagically by fontinst. Eagle-feather only has f-ligatures, as actual glyphs, while others can be created by careful kerning of select letterpairs.

Zapfino on the other hand, has a plethora of ligatures (if only one could get at them)

Ligatures

Macros N

Optical Adjustment

PostScript

Quote

TeX started out with a highly irrational and non-composable design, which was partly helped and yet a bit furthered by the fine LaTeX *NESS*. Making sense out of it all is most difficult.

One concludes that human language and their alphabets cannot be coldly reduced to integer codes. The letter is kept; the spirit is lost.

- Dr. Richard Kinch

responding to Javier Bezos

in the thread “TeX and Unicode = where are we?” in comp.text.tex

Wednesday 25 April 2001 12:42:01 PDT

References

fontinst manual by Alan Jeffrey and Rowland McDonnell

Fontname by Karl Berry

T_EX for the Impatient by Paul W. Abrahams with Karl Berry and Kathryn A. Hargreaves

Digital Typography by Dr. Donald E. Knuth

vfinst documentation by Alan Hoenig

T_EX Unbound by Alan Hoenig

"Creating a Virtual Font" by Doug Henderson (included with Textures)

Fontographer: Type by Design by Stephen Moye

Samples and Testing

The canonical way to test T_EX fonts is "tex testfont". This provides a number of options for providing various character charts and text samples which are fairly rigorous, and quite good at exposing problems (e.g. missing accents) with a font which might otherwise be left until crunch time.

Stephen Moye has also done some wonderful macros for generating specimen pages which are available on CTAN.

URLs

members.aol.com/willadams fonts.apple.com www.ctan.org www.tug.org

Virtual Fonts

ABOUT THE FRANK LLOYD

Wright Foundation

Eaglefeather is the first digital typeface licensed by the Frank Lloyd Wright Foundation.

The Frank Lloyd Wright Foundation, based at Taliesin West, in Scottsdale, Arizona, was established in 1940 to own and protect the architect's work and continue it after his death. His drawings, manuscripts, personal documents, and the rights to his designs, symbols and logos, and the

use of his name reside with the foundation. The Foundation oversees numerous museums, exhibits, and houses throughout the world.

Taliesin West continues the architectural apprenticeship, professional design, and degree programs started by Frank Lloyd Wright. It continues to serve as a source of inspiration for young architects, as well as a fascinating and educational stop on any tour of the Scottsdale/Phoenix area.

For decades, the foundation has licensed selected companies to reproduce works of Frank Lloyd Wright and make these reproductions available to the public. Authentication by the Foundation assures the public that the reproduction faithfully recreates Mr Wright's original design.

The Frank Lloyd Wright archives, located at Taliesin West in Scottsdale, Arizona, consist of Mr Wright's drawings, correspondence, manuscripts, and other documents. The archives provide a resource for study of the ideas and architecture of Frank Lloyd Wright. To contact the Foundation, call 602/860-2700.

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X-height

Y

Zapfino

Zapfino had its origins in Prof. Hermann Zapf's 1944 sketchbook, when he was a mapping officer during World War II. A previous attempt to render those letterforms as type, *Virtuosa Script* for D. Stempel had been too thoroughly compromised by the limitations of hot metal matrices, especially the swash letters.

This design was revived when David Siegel in 1993, after working on the Euler project with Prof. Zapf, after graduating approached him about a chaotic calligraphic typeface based upon an example done for the Society of Typographic Arts in Chicago. Remembering the page from his

sketchbook, Prof. Zapf saw the chance for a design without compromises due to the advantages afforded by digital type technology.

Digitization was done by Gino Lee, but production halted due to personal problems, and languished until Prof. Zapf showed the design to Linotype. It was then rendered as a traditional, multiple alphabet typeface family.

Apple's having John Hudson of Tiro Type brings this full circle, and Zapfino is, or rather will be, a full-featured hand-writing font.

