



The Truth About TrueType

Jim Stoneham
Product Manager

Agenda

- TrueType update
- Using TrueType in software applications
- New Calls (end that life of font crime)
- A word about printing
- Using TrueType in printer drivers
- A Look at some TrueType tools
- Questions and answers

What is TrueType?

- TrueType is scalable outline font technology which will be an integral part of System 7.0. It offers users sharp, crisp text at any size on any device, including monitors, film recorders and PostScript or direct-connect printers/typesetters.

TrueType Update

Royal



TrueType Update

TrueTypeTM

TrueType Design Goals

- Integrate fonts at the System level
- Create a truly open font format
- Reverse the trend of reduced type quality
- Eliminate Macintosh font confusion
- Maintain application compatibility and work with all of our customers' existing printers
- Design in cooperation with the world's leading type foundries

TrueType Update

- May 9th, 1989—announced technology

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- Announced that outline font technology would be an integral part of System 7.0
- Virtually all major type foundries announced plans to support TrueType
- Output device manufacturers and type manipulation software vendors announced their intent to standardize on TrueType

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- Microsoft announces that it has licensed TrueType for use in the OS/2 and Windows Operating systems
- Apple announces that it has licensed PostScript printer software from Microsoft for use in future Apple printer products
- Both companies agree to work cooperatively on future enhancements

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- *The National Enquirer* says “Font Wars” destroyed Roseanne Barr’s marriage

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- Apple announces typeface licensing agreements with Linotype, International Typeface Corporation, and Bitstream for the System 7.0 TrueType core set
- The typefaces which Apple customers have become accustomed to will also be available in System 7.0 in the TrueType format

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- March 1990—IBM OS/2 announcement

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- March 1990—IBM OS/2 announcement
- May 1990—System 7.0 seeded to developers

Using (and Abusing) TrueType

- Now that you've got it, what are you going to do with it?

Using (and Abusing) TrueType

- Remove pointsize limitations



Using (and Abusing) TrueType

- Extend direct manipulation to font size...

Sizing

Sizing

Using (and Abusing) TrueType

- And letterspacing, baseline position, etc.

Space mc²
Spøace mc²

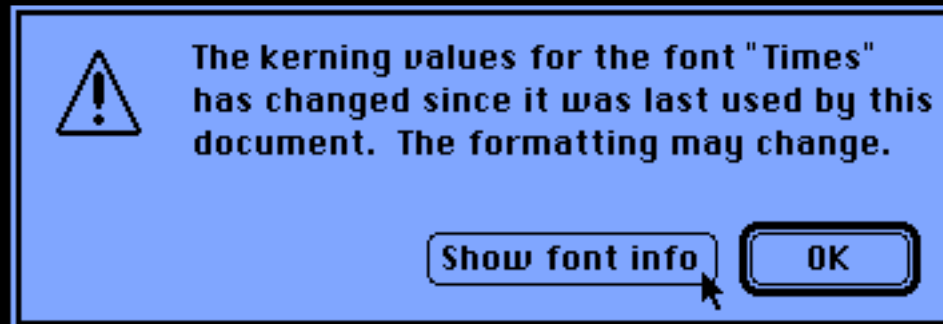
Using (and abusing) TrueType

- Offer full PICTure scaling support

A A A A A A

Using (and Abusing) TrueType

- Use the sfnt checksums to eliminate **any** possibility of a font ID conflict



Using (and Abusing) TrueType

- These are just a few ideas...
- **You are the artists!**

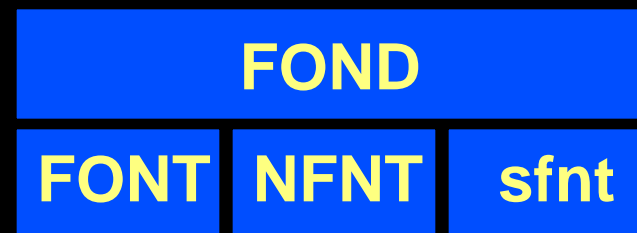


How it Really Works

John Harvey
MACDTS

TrueType and Font Families

- ‘sfnt’ s are found in the FOND, just like NFNTs and FONTs
- Distinguished by a pointsize of 0



TrueType and Font Families

Pt Size	0
Style	0
sfnt ResourceID	16003
Pt Size	10
Style	0
NFNT Resource ID	16004
Pt Size	12
Style	2
NFNT Resource ID	16005

Let's look at the font association table in a font family which contains a 10 pt plain NFNT, a 12 pt italic NFNT, and an sfnt

Using TrueType

- Most applications don't have to do anything special to use TrueType
- New calls offer extended capabilities for typographically-intensive applications

New Calls

- IsOutline
- SetOutlinePreferred
- GetOutlinePreferred
- SetPreserveGlyph
- GetPreserveGlyph
- OutlineMetrics
- FlushFonts

IsOutline

- **FUNCTION IsOutline(numer, denom: Point): Boolean;**
- Returns TRUE if the font settings for the current GrafPort will load an outline font when a font drawing or measuring call is made

IsOutline

- Because the font manager gives priority to bitmaps, the IsOutline call will return false if a bitmap of the requested size is present in the font family.
- Unless...

SetOutlinePreferred

- **PROCEDURE SetOutlinePreferred**
(Preferred: Boolean);
- You tell the font manager what kind of font to prefer. If no outlines exist in a family, things work the way they always did.

GetOutlinePreferred

- **FUNCTION GetOutlinePreferred: Boolean;**
 - Use this call to read the state of the **useSpline** boolean

SetPreserveGlyph

- **PROCEDURE SetPreserveGlyph**
(turnOffLineHeight: Boolean);
 - Glyphs are rendered exactly as described by their outline and hints if **turnOffLineHeight** boolean is true
 - The default setting is false

Default Character Drawing

- If a Glyph is larger than the font lineheight, the font manager's default behavior is to scale it so that it fits within the line. Existing lineheight calculations still work.
- Believe me more on this later...

GetPreserveGlyph

- **FUNCTION GetPreserveGlyph: Boolean;**
- Read the boolean which controls how Glyphs will be rendered

OutlineMetrics

- **FUNCTION OutlineMetrics(...): OSErr;**
- Returns metrics for each Glyph passed to the function

OutlineMetrics Parameters

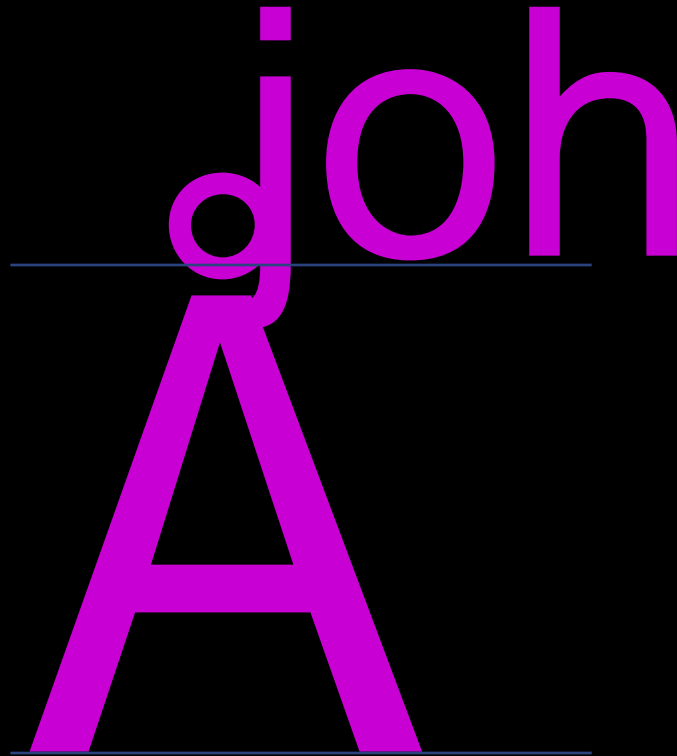
- **glyphcount:** Number of characters pointed to
- **textPtr:** Pointer to characters
- **numer,denom:** Horizontal and Vertical Scaling factors
- **yMax:** VAR, tallest character in the batch
- **yMin:** VAR, lowest descender in the batch

OutlineMetrics Parameters

- **awArray**: Array of Fixed (16.16) numbers that you provide. Font Manager fills it with character advance widths.
- **lsbArray**: Array of Fixed (16.16) numbers that you provide. Font Manager fills it with character left side bearings.
- **boundsArray**: Array of Rect. Font Manager fills it with rectangles which enclose a character's black bits.

OutlineMetrics

- Glyphs drawn to full height could collide



YMAX/YMIN to the Rescue!

- **IF YMax** > ascent or IF - YMIN > descent
- There will be glyph collisions. You decide how best to handle it.

FlushFonts

- **Procedure FlushFonts;**
 - Causes the font manager to release all the font data it has cached. Includes bitmaps, outlines, and metrics.
 - Designed for font editors and font movers. Applications shouldn't use it.

Font ID Breakthrough!

- Checksums (global and per table) are included in the data structure. Use them to see if the font is the same.
The naming table tells who made this font, and what it likes to be called.

Font Crimes

- Don't assume that tabfont in the width table is a handle to a bitmap font
- Some of your cleverest tricks may now be crimes. Hunt them down and test with IsOutline

New Calls Summary

- Less criminal ways of getting font metrics
- No more font “squishing”
- Eliminate font ID conflicts with TrueType
- **Tell all your friends!**



“TrueType and Printing”

Zz MACDTS

A Few Words About Printing

- Outline fonts available to all Apple and 3rd party printer drivers
- The PostScript environment is unaffected by the addition of TrueType
- The LaserWriter Font Utility is being revised to support TrueType

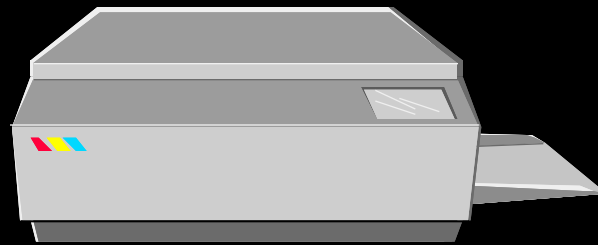


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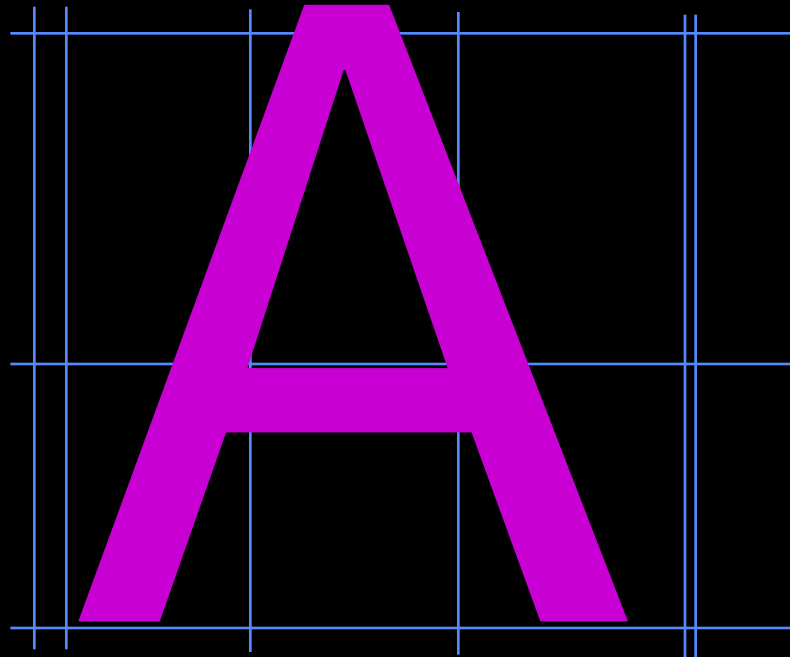
- Existing mechanism unchanged
- Drawing a space char will still download a font (either TrueType or PostScript)
- Style mapping still determines download
- Supports multiple PostScript interpreter implementations
- Minor tradeoffs on low memory printers

Using TrueType in Printer Drivers

- Use the Font Manager correctly
- Happy printing!



A Look at TrueType Tools



That's All Folks!

Q&A



The power to be your best