

Reliable PDF Creation in the Enterprise

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Agenda

- Introduction
- Guiding Principles
- Content Creation
- PDF File Creation
- Post-PDF File Creation Tweaking & “Other” Considerations
- Q&A



Introduction

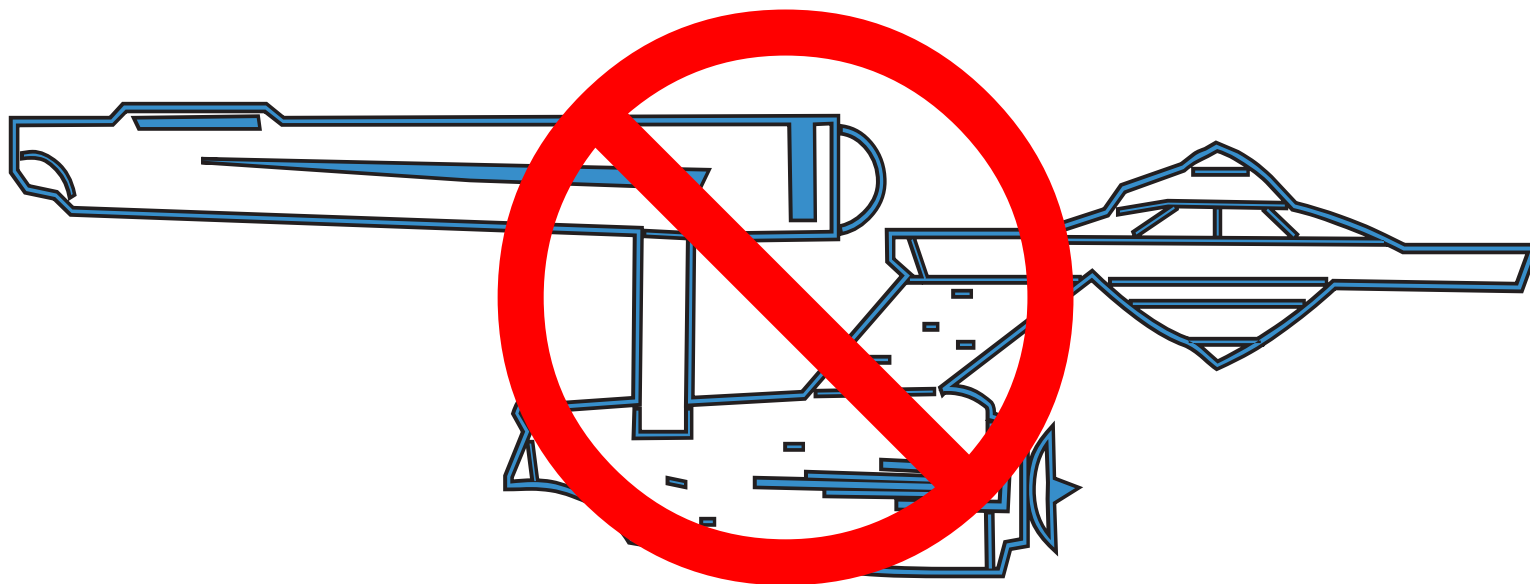
- Introduction
- Guiding Principles
- Content Creation
- PDF File Creation
- Post-PDF File Creation Tweaking & “Other” Considerations
- Q&A



Introduction

The Enterprise

- We are *not* talking about “Star Trek”

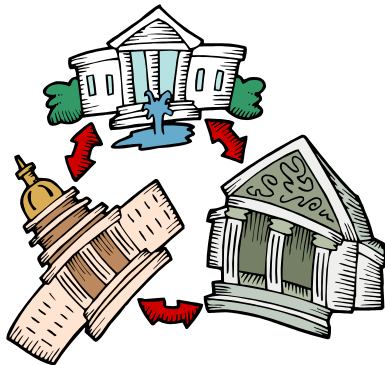




Introduction

The Enterprise

- In our context, *enterprise* refers to an organization conducting day-to-day business which is **not** primarily creative content creation, prepress service, or publishing
- Definitely includes governmental agencies, academia, and R&D organizations

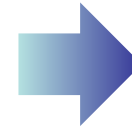
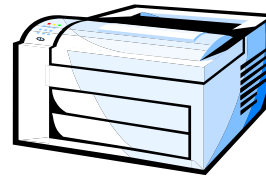
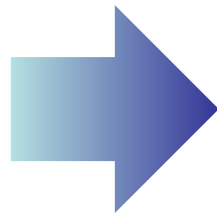
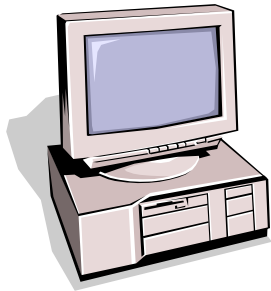




Introduction

The Enterprise

- Organizations in which PDF can be created and used as a content communications media for display and on-demand printing, with occasional external production needs



- Creators and recipients of PDF in such organizations are primarily Windows-based (90%+), but must maintain compatibility with the 10% who “think different”



Introduction

The Enterprise

- **Typical applications from which PDF is generated:**
 - Microsoft Office (Word, Excel, PowerPoint, Access, Outlook)
 - Corel WordPerfect Office (WordPerfect, Quatro Pro, Paradox)
 - Lotus SmartSuite (Word Pro, 1-2-3, Freelance, Approach)
 - Adobe FrameMaker
 - Adobe Photoshop Elements
 - FileMaker Pro
 - Microsoft Visio, Project, and Publisher
 - JASC Paint Shop Pro
 - CorelDRAW and Photo Paint
 - Specialized & industry-specific application programs ...



Introduction

The Enterprise

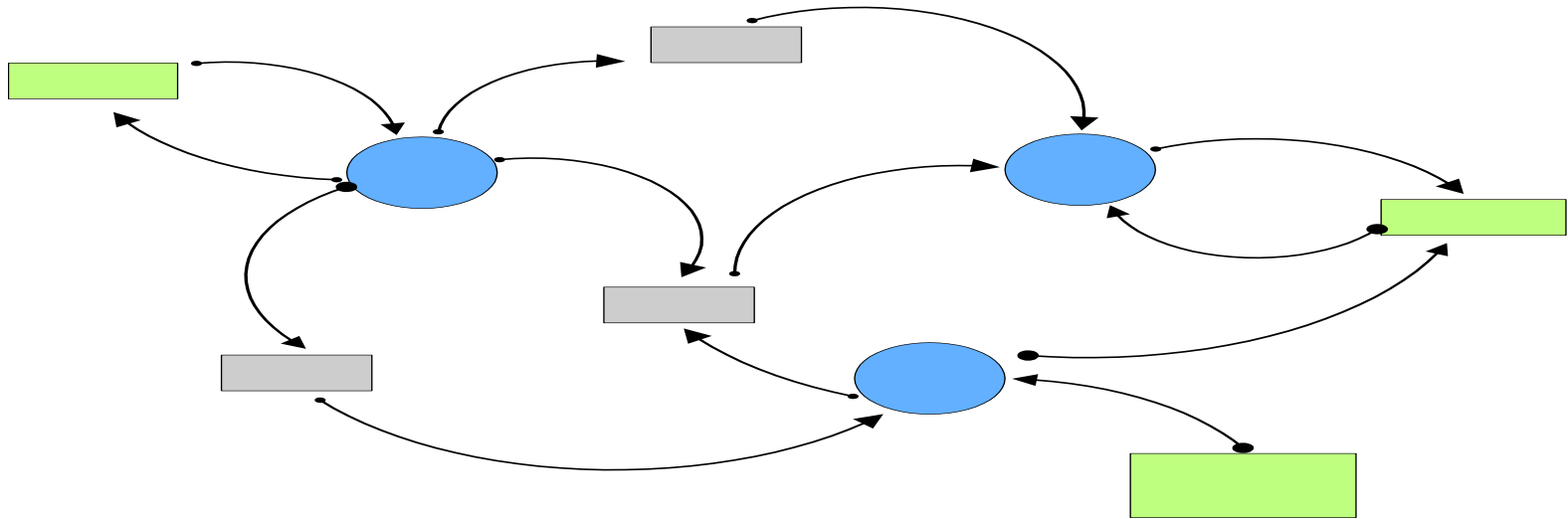
- **And some content from professional graphics editing and document layout programs:**
 - Adobe Illustrator
 - Adobe Photoshop
 - Macromedia Freehand
 - Adobe PageMaker
 - Quark XPress
 - Adobe InDesign



Introduction

Workflow

- ***Workflow*** refers to ***standard operating procedures (SOP)*** and ***processes*** used to accomplish work



- In our context, ***PDF Workflow*** refers to standard procedures and processes used to create PDF files



Introduction

Some Simplifying Assumptions



- We limit our discussion to the following operating system environments:
 - Windows 2000 and Windows XP
(no Windows'9x/Me/NT4)
 - Macintosh OS 9.x and 10.2.x





This is not ...

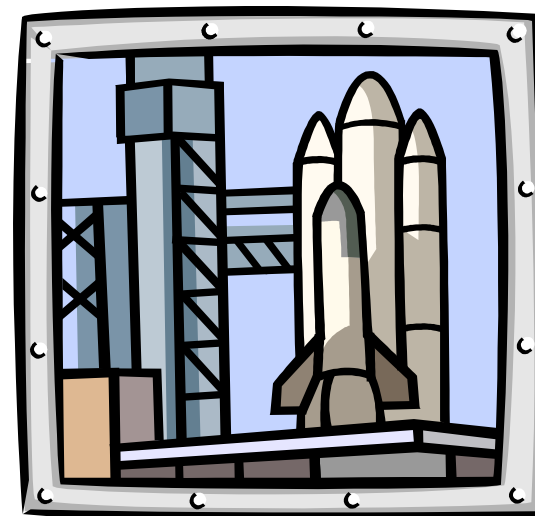
- **A sales pitch**

If you are attending this conference, you have already bought into Acrobat and PDF.

- **A tutorial on Advanced Techniques**

Other sessions deal with the specifics of hyperlinks, indexing, multimedia, forms, collaboration, prepress, etc.

- **Rocket Science**





We will ...

- **Solve the puzzle as to how to reliably, consistently, and easily create PDF files without gurus and prepress experts — *mere mortals can do this!***

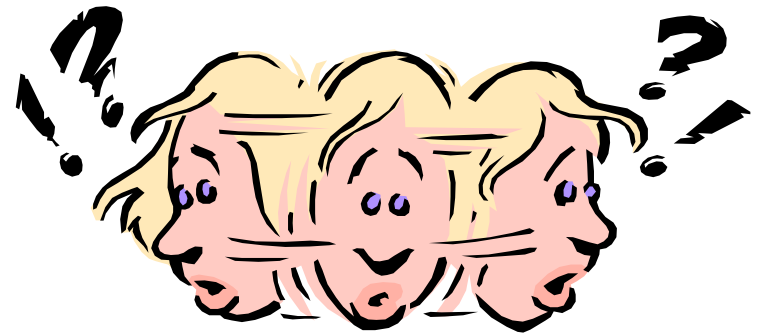




We will ...

- **Discuss:**

- Issues associated with content creation
- Limiting the number of settings, options files, and decisions necessary to create a PDF file
- Techniques and shortcuts to create lean, mean, high quality PDF files suitable for:
 - Display (and web)
 - Printing
 - & “Low End” Prepress



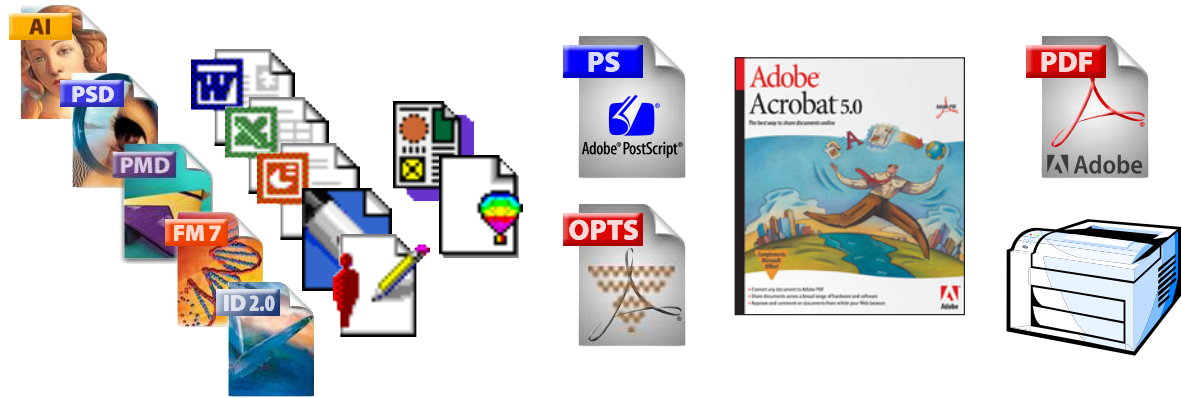
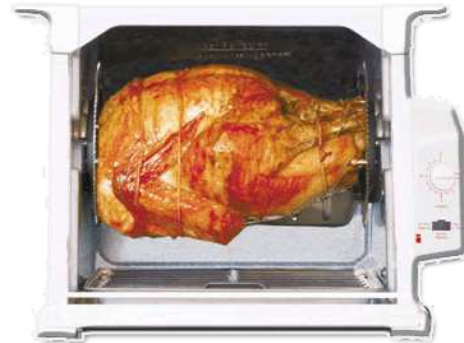
- **Debunk myths and urban legends surrounding basic issues of PDF creation**



Dov Isaacs agrees with Ron Popeil...






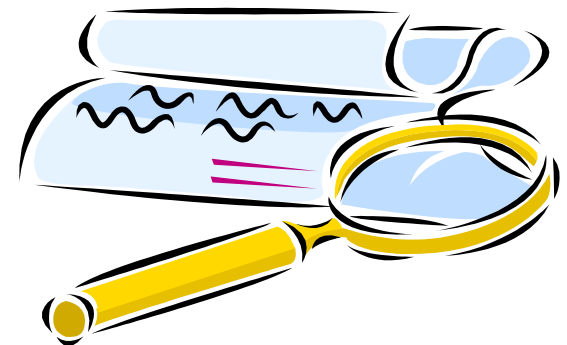
*“Set it
and
Forget it”*





The Fine Print (pun intended) ...

-  The material presented today may challenge long-held religious beliefs about how to create content, PostScript, and PDF.
-  The opinions and techniques presented are those of the presenter, Dov Isaacs, and do *not* necessarily represent opinions held by or techniques officially endorsed by Adobe Systems Incorporated.
-  Your mileage may vary, but DO try this at home (and in your office, of course)!





Guiding Principles

- Introduction
- **Guiding Principles**
- Content Creation
- PDF File Creation
- Post-PDF File Creation Tweaking & “Other” Considerations
- Q&A



Guiding Principles

Principle 1

The quality of an end-product directly reflects and can be no better than the quality of its source components.

Care in content creation, preparation, and/or selection is a key success factor for high quality, reliable PDF creation



Guiding Principles

Principle 2

Maintain content at its highest level of abstraction by category and within category.

Expedience will byte you terribly later!

- Text versus Vector Graphics versus Images
- Gradients
- Transparency



Guiding Principles

Principle 3

**Lose no data before its time ...
... Add no unnecessary data.**

- Font conversions
- Image data: downsampling and upsampling (interpolation)
- Transparency information: flattening
- Color information: conversion to “device colors”



Guiding Principles

Principle 4

Avoid unnecessary and cascading data and attribute transformations.

- Lossy compression
(multiple decoding and re-encoding of JPEG-compressed images)
- Colorspace transformations
(multiple conversions between managed & device colorspaces)
- Font conversions



Content Creation

- Introduction
- Guiding Principles
- **Content Creation**
- PDF File Creation
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Content Creation

General Considerations

- A PDF file can never be better than the content from which it is created
- GIGO: Garbage in, garbage out!



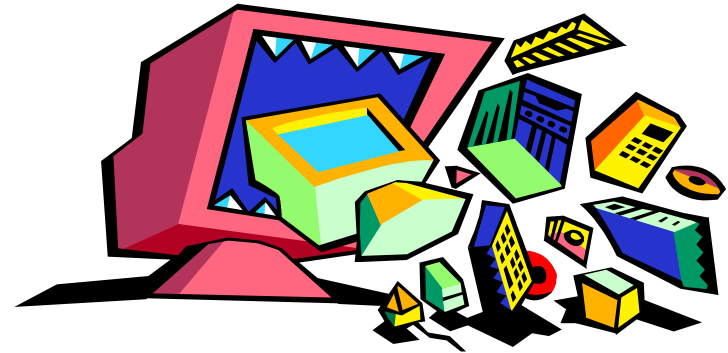
A primary application of **Principle 1**



Content Creation

General Considerations

- \$2,500 buys a tremendous amount of computer, printer, and software, well beyond even the dreams of publishing professionals fifteen years ago



- Today, we can very rapidly and inexpensively produce cruddy, shlocky-looking junk
- We will discuss the *mechanics* of content creation, not issues of *taste* and *style*



Content Creation

General Considerations



- There is just no accounting for really bad taste ...

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West Pork Chop, CA
95075

(408) 936-1212
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Gustav Hunckledinkle

Objective

? wanna gud proppheshional posishun!

Experience

2000 – 2001

Glurbish Desiqn Studio

West Pork Chop, CA

Grafic Designer

- Helped rite and layout many documents & pamphlets.
- Layed off when customers went elsewhere.

1985 – 2000

Acme Supply Company *Fast Pork Chop, CA*

Quality Manager

- **PERSONALLY INSPECTED ALL STUPIDPH SHIPPED TO THE COYOTE.**

Education

1985

General Custer High Scool

Surrender, WY

- Graduated Summa Cum Lowly.

Interests

Fast cars and booze.

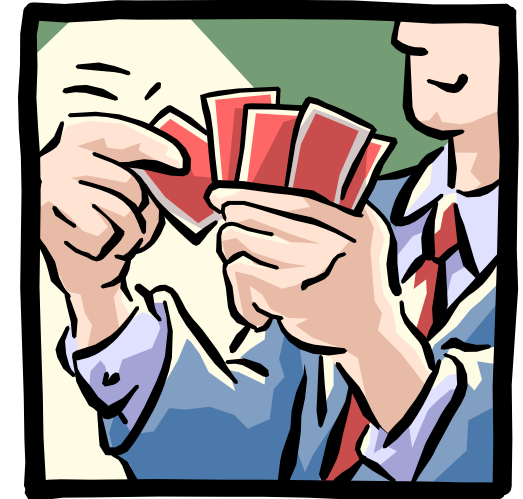


Text *versus* Vector Graphics *versus* Images

Text (as realized via fonts)
***trumps* Vector Graphics**
(lines and polygons)

&

Vector Graphics (lines and polygons)
***trump* Images** (raster data)



A primary application of **Principle 2**



Text

Text – Alphabetic, numeric, and other symbolic data realized via encoded character use of fonts

- **Keep text as “text” – Avoid “convert to outline” or “rasterize” operations**
 - Text rendered with fonts has smart scalability due to “hinting” of mathematical shape definitions in the fonts
 - Higher display and print quality, especially at smaller point sizes and/or device resolutions
 - Vector artwork not “hinted” – readability problems
 - Images are resolution-dependent and are not readily scalable without significant, serious quality loss
 - Loss of PDF searchability, touch-up, & export functions



Text

■ Fonts

- Adobe PostScript and PDF both support Type 1 and TrueType fonts natively and equally well
(Yes, this is contrary to what many so-called graphics and prepress professionals may continue to tell you!)
- Acrobat 5 also fully supports OpenType fonts
- Choice of fonts should be based on:
 - Aesthetics
 - Appropriateness of font design to its proposed use
 - Quality of font production including adherence to standards (such as encoding and character sets)
 - Licensing terms





Text

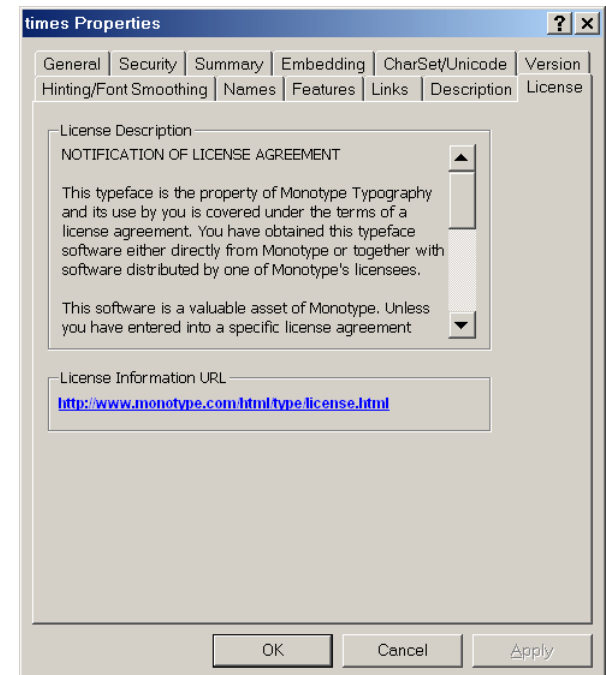
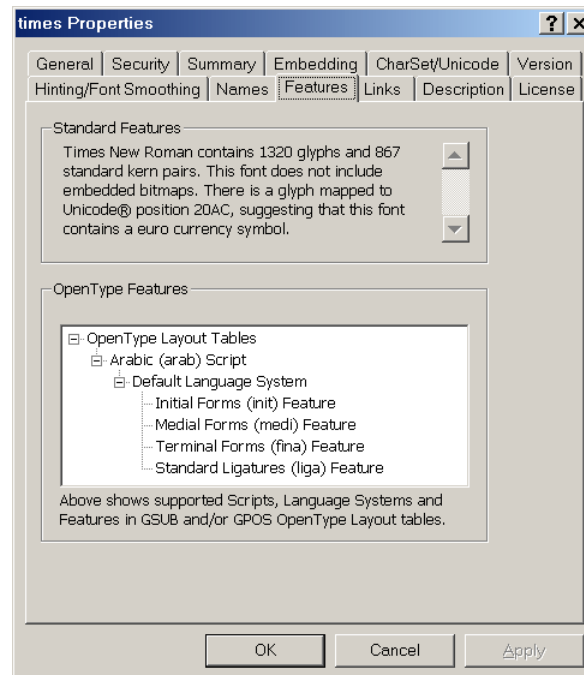
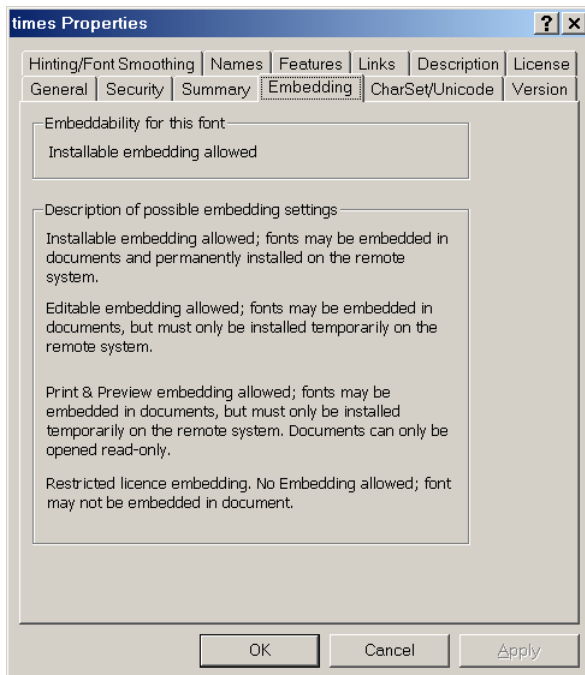
- **Fonts** (*continued*)
 - Licensing Terms
 - Font licenses should allow embedding of fonts in PostScript and PDF for purposes of “preview and print” *without* additional fees for commercial redistribution of the PDF file itself
 - otherwise, the font license is effectively **USELESS!**
 - TrueType & OpenType fonts have built-in “protection flag” to alert applications and system of any embedding restrictions
 - Always read the EULA (“End User License Agreement”) associated with a font regardless of how the font is otherwise protected



Text

■ Fonts (continued)

- Microsoft Font Properties Extension available at:
<<http://www.microsoft.com/typography/property/property.htm>>
Right click font file for “properties”





Text

■ **Fonts** *(continued)*

■ Avoid “hacked fonts”

(modification of existing fonts with tools such as Fontographer and FontLab)

- Great for creating and editing new fonts
- **NOT** lossless editors and “converters” of existing fonts
 - Changes to metrics may alter line and page breaks
 - Possible changes to design (bezier versus quadratic)
 - Loss of kerning data
 - Loss of “hinting” data degrades display/print quality
- For custom characters and logos
 - Do not add or substitute characters into existing fonts
 - Commission special symbol font from type foundry
- **NEVER**, repeat **NEVER** modify a commercial font and resave it with the same name!



Text

■ Fonts (continued)

■ For non-Western Latin character sets:

- Do not use fonts that masquerade as Western Latin fonts
 - Unable to use text touch-up and search in Acrobat
 - Data export problems later
- Use applications that support Unicode
- Use OpenType fonts supporting desired character sets

Серия Шиурим Фрэнкельуфер
№ 4а
ПАРШАТ ВА-ЙЕРА – ПЕРВАЯ ЧАСТЬ
Раввин Менахем Лайбтаг

Почему в Сефер Берешите так много «материала» там случайно живет Лот, племянник Авраама? В шиуре этой недели мы увидим, что Седом в Танах Иерусалима. Первая часть является повторением и вторая часть рассматривает ту же тему в нескольких

ВВЕДЕНИЕ
В двух последних шиурим мы обсудили вопрос о том, избрал Авраама Авину, т. е. избрал, чтобы положить

Each of these samples is composed in Arial (as supplied with Windows).

باكستان: قوات طالبان ليست ارهابية



اعلن الناطق باسم وزارة الخارجية الباكستانية رياض محمد خان الاثتين ان باكستان لا تعتبر مسؤولي حركة طالبان الحاكمة في كابول "ارهابيين". وقال خلال مؤتمر صحفي قبل وصول وزير الخارجية الاميركي كولن باول الى اسلام اباد ان "قوات طالبان ليست ارهابية، ولم نعتبرهم ابدا ارهابيين". وقد صرحت باكستان منذ عدة ايام على لسان وزير خارجيتها عبد الستار ان الشعب الافغاني بات "رهينة" بين يدي "مجموعة صغيرة من الغرباء" حيث انها ابتعدت مؤخرا عن طالبان بعد ان اوصلتهم الى الحكم عام 1996. كما رأى عبد الستار ان اعتقال اسامة بن لادن وقادته في تيار "القاعدة" العربي المتطرف يفترض ان يشكل نهاية العمليات العسكرية في افغانستان. مقال خان ان الولايات المتحدة لمضحت ان اهدافها هي "الارهابيين".

פרשת וירא (שיעורו של הרב מנחם ליבטאג בפ"ש המופיע באינטרנט)

בשיעורים הקודמים עסקנו בבחירתו של אברהם אבינו: בתכלית שלשמה נבחר- ייסוד עם שינחה את כלל האנושות לאמונה בה', ובהבטחותו של זרע וארץ- המכשירים ההכרחיים לתכלית זו.

בשיעורנו השבוע נלמד מהן התכונות הלאומיות העתידות לאפיין את זרעו של אברהם, ואשר באמצעותן הוא עתיד למלא את ייעודו.

פרשיה ארוכה במיוחד

עיון בתנ"ך בעל חלוקה לפרשיות מעלה כי חלק נכבד מאד של פרשתנו- מפרק "ח פס; א' ועד פרק "ט פס" ל"ח- מהווה פרשיה ארוכה אחת, המכילה שני נושאים:

- 1) הבשורה על הולדת יצחק.
- 2) סיפור הפיכת סדום והצלתו של לוט.

כיוון שהתורה כוללת את שני הנושאים הללו בפרשיה



Fonts

■ Fonts *(continued)*

- Avoid “amateur hour” font production like the plague!

- Extensive knowledge & experience are required to use tools to produce quality fonts that interface properly with:

- Latest versions of Windows and Mac operating systems
 - Application programs that directly control fonts
 - RIPs
 - Acrobat and ability to be embedded in PDF files
- What looks OK on-screen may fail or look terrible farther down in the workflow



Primary application of **Principle 3** & **Principle 4**



Vector Graphics

Vector Graphics – Graphical objects represented by stroked and filled polygons and stroked line segments

- **For non-text artwork, offers highest flexibility**
 - No data loss under transformations:
 - Scaling
 - Rotation
 - Masking
 - Minimal graphic display quality degradation when transformed (primarily when downscaling)



Vector Graphics

- Content creation and editing via **draw** programs, not **paint** programs *
- Examples:
 - Adobe Illustrator
 - Macromedia Freehand
 - CorelDRAW
 - Microsoft Visio
- With one notable exception, paint programs allow creation of stroked and filled polygons and stroked line segments, but such objects are exported and output strictly as image data *

** Photoshop 6 and later does export native text and vector artwork along with raster data in certain formats and under certain limited conditions!*



Vector Graphics

- **Investment in training is required to learn to use tools properly and effectively**
 - Rectangle as a “rectangle” as opposed to four nearly-touching line segments, for example
 - Difficulty in visualizing shapes, widths, color, and effects as they will appear as ultimately used and either displayed or printed
 - Low resolution screens versus high resolution output devices can result in misjudgment of correct line widths
 - RGB screen display (high gamut) versus CMYK print output (lower gamut)





Vector Graphics

- **Not all output is what you expect it to be!**
 - Examples:
 - Gradient fills ▶ bunches of polygons of different colors or image data
 - Vector effects (such as drop shadows) ▶ image data
 - Text ▶ filled outlines
 - All objects ▶ device resolution image data
 - Causes:
 - Inherent problems due to file format / file format version:
 - PostScript 3 versus PostScript Level 2 or Level 1
 - TIFF, GIF, JPEG are image-only formats
 - Wrong export / save options specified
 - Inherent “limitations” of content creation programs



Vector Graphics

■ Specific recommendations

- Save vector graphics-based artwork in the highest level file format your workflow can “digest” (*with fonts embedded, of course*):
 - PDF 1.4 for import into InDesign 2 and FrameMaker 7
 - EPS with PostScript 3
 - Don’t use image formats such as TIFF, GIF, or JPEG
- Be careful in defining colors
 - *Spot color* versus named *composite color* definitions
 - Spot colors should be defined and used only when you really need them



Vector Graphics

- **Specific recommendations** *(continued)*
 - Transparency – Adobe Illustrator 10
 - Works best with Adobe InDesign 2 and Acrobat 5 via PDF 1.4 file format
 - Otherwise, requires implicit flattening during save/export:
 - Can cause objects in region of transparency to be decomposed, text converted to vector graphics, and/or vector graphics converted to images
 - For flattening options (PDF 1.3 or EPS), choose “highest quality / slowest speed” and appropriate image resolution



Vector Graphics

- **Specific recommendations** *(continued)*
 - Vector Effects – Adobe Illustrator 10
 - Explicitly set vector effects device resolution based upon ultimate artwork usage (note that “vector effects” include “drop shadows”)
 - Works best with Adobe InDesign 2 and Acrobat 5 via PDF 1.4 file format if transparency is also involved
 - Otherwise, requires implicit flattening during save/export:
 - Can cause objects in region of transparency to be decomposed, text converted to vector graphics, and/or vector graphics converted to images
 - For flattening options (PDF 1.3 or EPS), choose “highest quality / slowest speed” and appropriate image resolution



Vector Graphics

- **Specific recommendations** *(continued)*
 - Gradients, blends, fountain fills
 - Choose object type carefully
(Adobe Illustrator – *blends* never generate PostScript 3 / PDF 1.3 smooth-shaded gradients, Illustrator *gradients* do)
 - Choose export format carefully
 - PDF 1.3 and above retain smooth-shaded gradients
 - PostScript 3 / EPS with language level 3 required to retain smooth-shaded gradients
 - All other formats decompose gradients



Vector Graphics

- **Specific recommendations** *(continued)*
 - Beware of vector artwork from CAD programs
 - AutoCAD and others output PostScript of the form:
`0 setlinewidth`
resulting in stroked lines that are minimal width renderable, i.e., one pixel in width, regardless of device
 - Workarounds:
 - Brute Force – Import and edit in “draw” program before importing into target document
 - Simple – Download and install the free Creo Distiller Assistant from Creo at:
<http://www.creo.com/prinergy/distillerplugindownload2.asp>

Primary applications of **Principle 2** & **Principle 3**



Vector Graphics

- **And finally ...**
 - Most of us are *not* gifted, graphic artists
 - Good vector-based clip art is well worth its cost; it is much better than sloppy, poorly-rendered, amateur-hour graphics!





Images

Images – Graphical objects represented by raster data

- **The *most flexible* and the *least flexible* format**
 - All graphics can be and ultimately are represented in image format – “edit” can be at the pixel level – lowest level of abstraction for graphics
 - Potential data loss and graphic display quality degradation under transformations:
 - Scaling
 - Downsampling – data loss
 - Interpolation – quality loss
 - Rotations at other than 90° increments yield resampling
 - Lossy compressions (such as with JPEG as well as GIF and ZIP in some circumstances)



Images

- **Content creation via *paint* programs**
 - Adobe Photoshop and Photoshop Elements
 - Corel PhotoPaint
 - JASC Paint Shop Pro
- **Images necessary for**
 - Computer screen shots
 - Reproduction of photographs
 - Artwork that cannot otherwise be readily represented as text or vector graphics
- **Investment required to learn to use tools properly and effectively**



Images

■ Specific recommendations

- Scan photographic images at reasonable resolutions
 - Scanner support for 2400 dpi doesn't mean that an 8"x10" photo should be scanned at 2400 dpi unless significant magnification and/or cropping is required
 - Consider downsampling before saving image
- Save as EPS format image if exact color must be passed through to Distiller from GDI applications (due to Windows RGB imaging model)
- Remember that some formats such as GIF or 4-bit ZIP are inherently lossy due to possible loss of color data



Images

- **Specific recommendations** *(continued)*
 - Screen shots (and other *simple* image graphics)
 - Do **not** interpolate to higher resolutions or otherwise resample!
 - Extra image data is bloat carried through the workflow and into the PDF file
 - No quality improvement achieved; can and will result in poorer image display and printing
 - Use the *image interpolation* option when saving from Photoshop as EPS or PDF or use “cheap prologue.ps trick” discussed later!



Images

- **Specific recommendations** *(continued)*
 - Consider 8-bit Indexed RGB or CMYK color if less than 256 distinct hues in image *(and save up to 67% or 75% of file size)*
 - Cardinal rule: ***Postpone image transformations as much as possible to later phases in the workflow***
 - Avoid lossy data compression (such as JPEG for photographic images) until creation of final PDF file
 - Avoid color transformations, resampling, or normalizing image rotation until display or print time

Primary applications of **Principle 3** & **Principle 4**



PDF File Creation

- Introduction
- Guiding Principles
- Content Creation
- **PDF File Creation**
- Post-PDF File Creation Tweaking & “Other” Considerations
- Q&A



PDF File Creation

PDF files may be created by the following methods:

- **Application Direct PDF Export**
- **PDF via Distillation of PostScript**
(PostScript generated either directly by the application program itself or via the system's PostScript driver)
- **PDF via PDFWriter**
- **Third-party solutions**



PDF File Creation



Application Direct PDF Export



Content



Direct PDF Export Capable Applications



PDF File

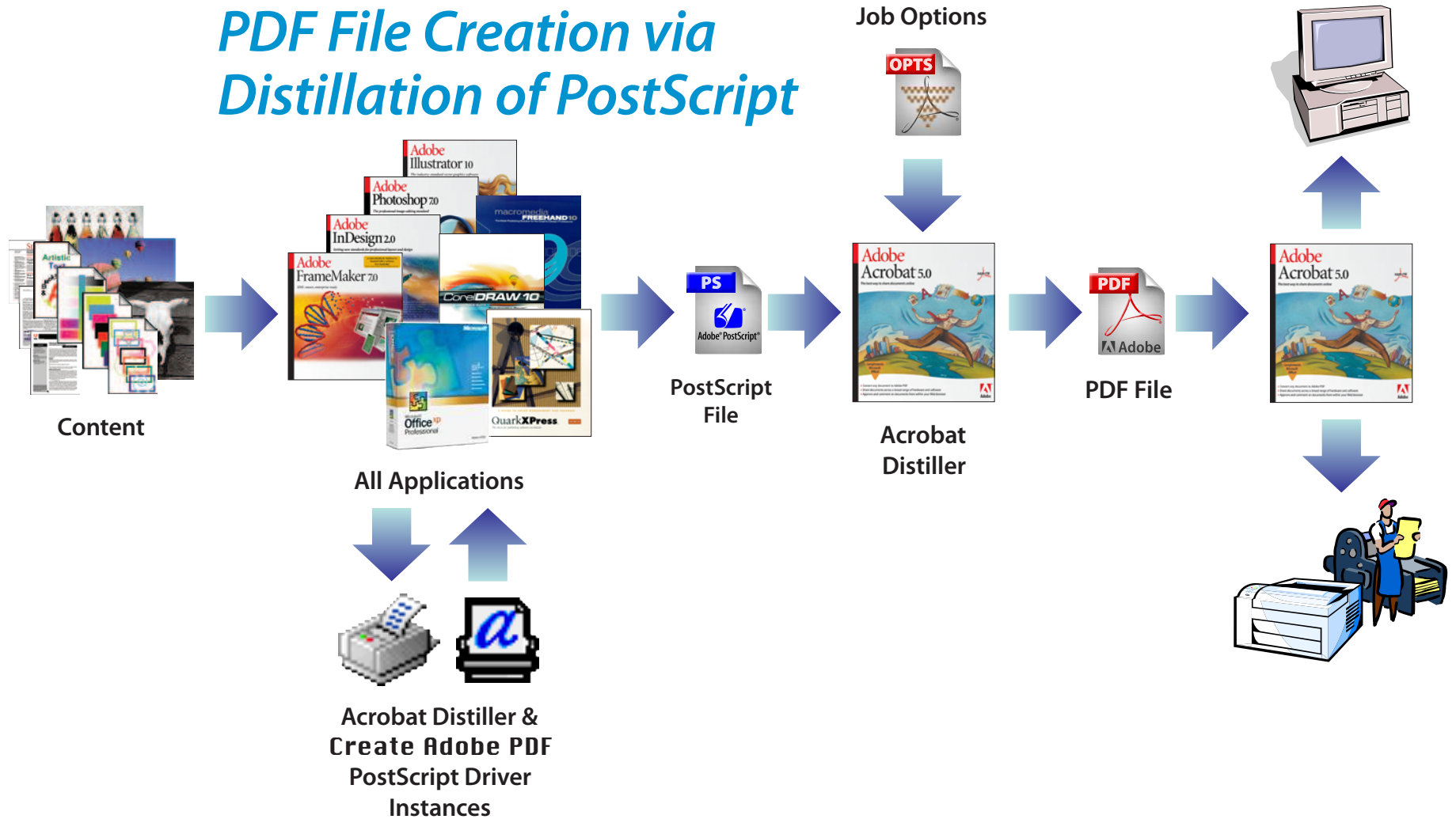




PDF File Creation



PDF File Creation via Distillation of PostScript





PDF File Creation

Application Direct PDF Export *trumps*

PDF File Creation via Distillation of PostScript

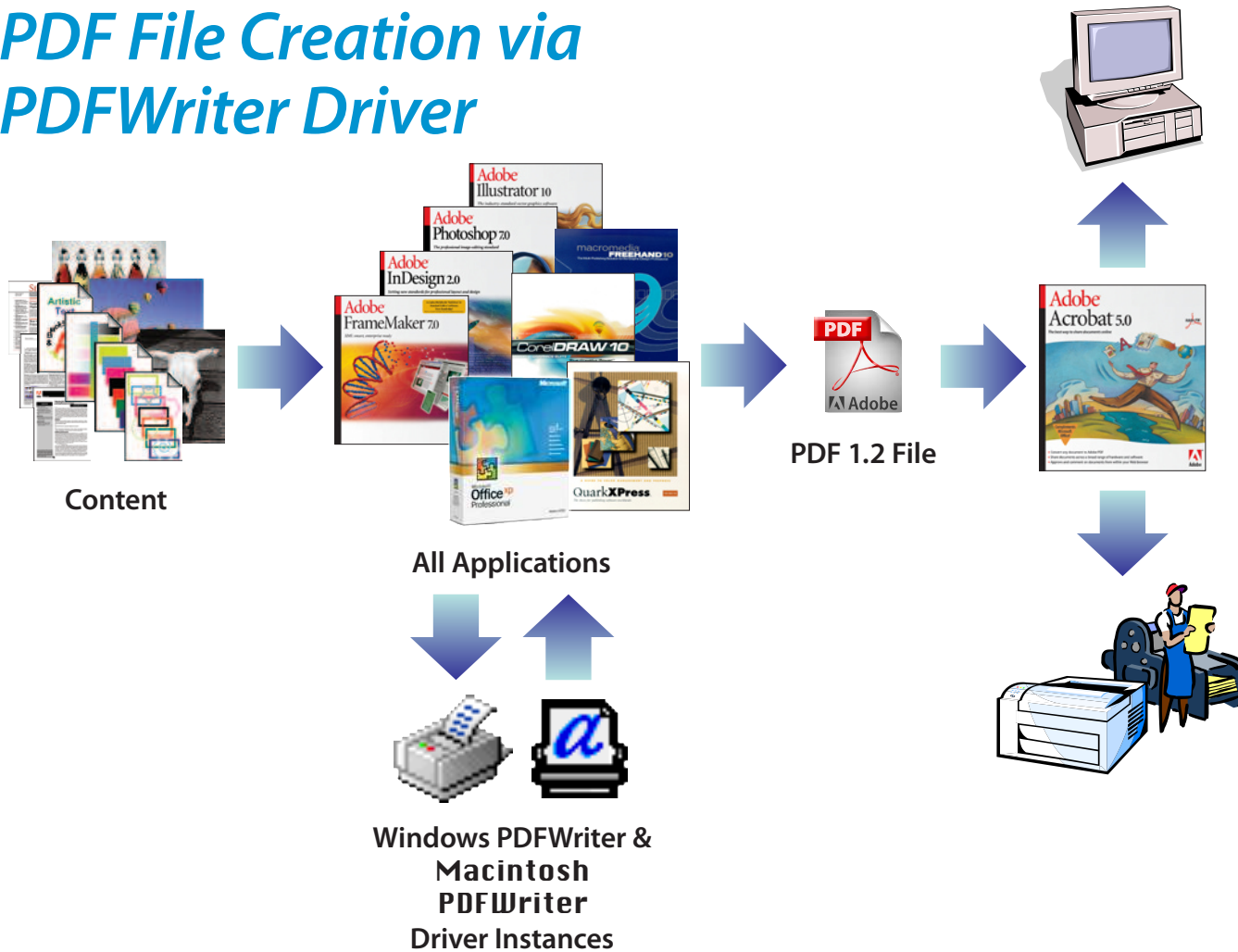
- Applications with the capability of directly generating PDF from *all* content:
 - InDesign
 - Photoshop
 - CorelDRAW
 - Illustrator
 - FreeHand
 - Others (?)
- Best support for PDF objects and attributes that have no corresponding feature in PostScript or difficult to “hack” with PDFMark (transparency, ICC color management, advanced tagging, etc.)



PDF File Creation



PDF File Creation via PDFWriter Driver





PDF File Creation

PDF File Creation via Distillation of PostScript *trumps* PDF File Creation via PDFWriter

- EPS graphics support for most applications requires a PostScript output stream
- Application, driver, and OS support for PostScript:
 - Highest level of graphics support for most applications
 - Most mature drivers
 - Documented “escape” mechanism by which PDFMark can supplement standard PostScript for PDF creation
- PDFWriter support ends with PDF 1.2; Default Acrobat 5 installation does *not* install PDFWriter!



PDF File Creation via Distillation of PostScript

- **Generate PostScript per capabilities of PDF, not the capabilities of “final” target print device**
 - Acrobat Distiller PPD in conjunction with the application program and the PostScript driver
 - PostScript Language Level 3
 - Native TrueType support
- **Export PDF in PageMaker and “Save as PDF” in FrameMaker create PDF via “silent” creation and distillation of PostScript**



PDF File Creation via Distillation of PostScript



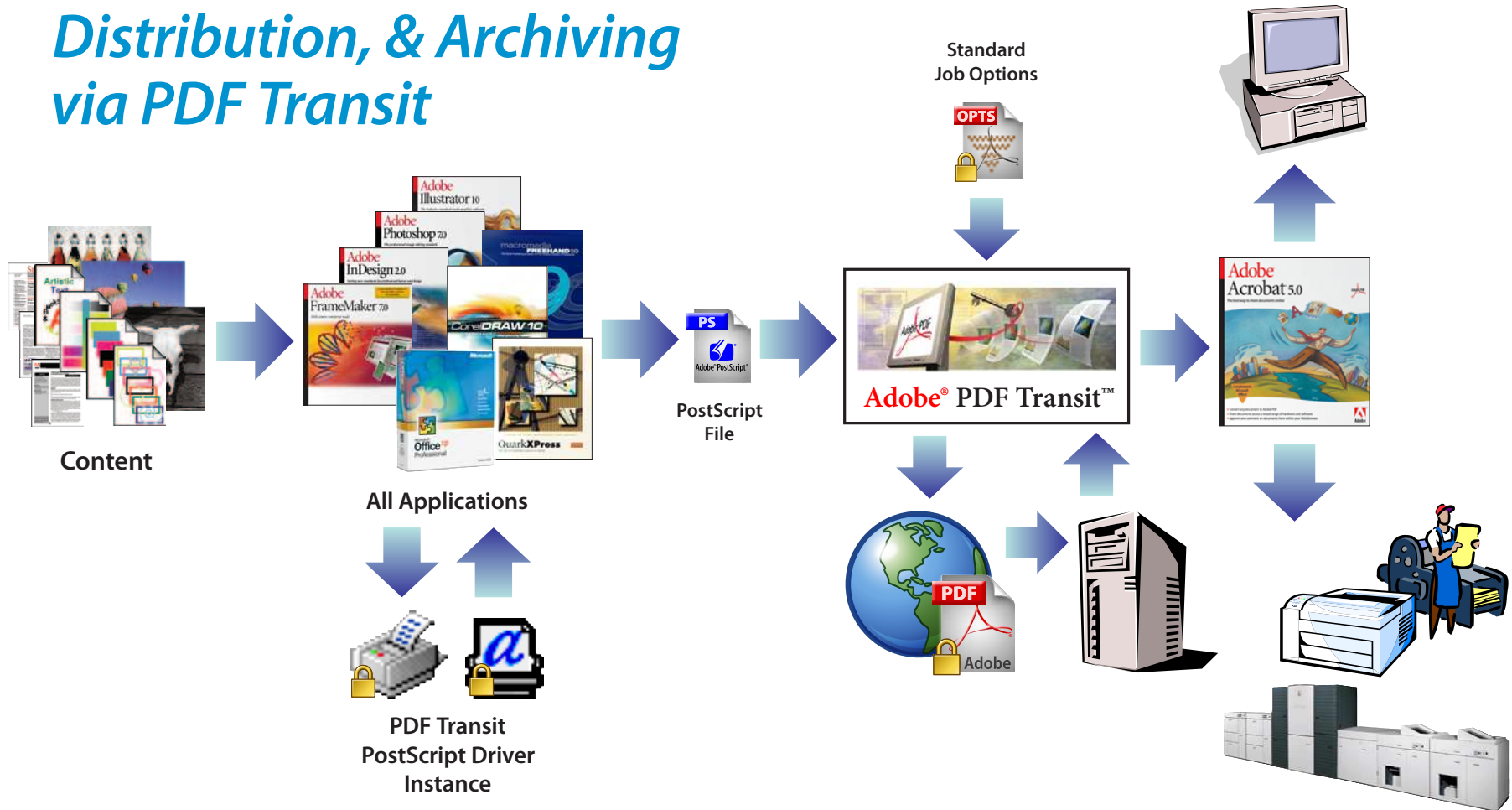
- ***Acrobat Distiller (Windows) & Create Adobe PDF (Mac) printer driver instances***
 - Created by Acrobat Installer with correct PPD file
 - Obviates most any need to manually create and distill PostScript or to maintain the PostScript files
- ***Adobe PDF Transit***
 - Customizable OEM / VAR / Service Provider product
 - PDF generation, encryption, distribution, archiving, and printing based upon tightly controlled PostScript generation and normalization into PDF



PDF File Creation via Distillation of PostScript



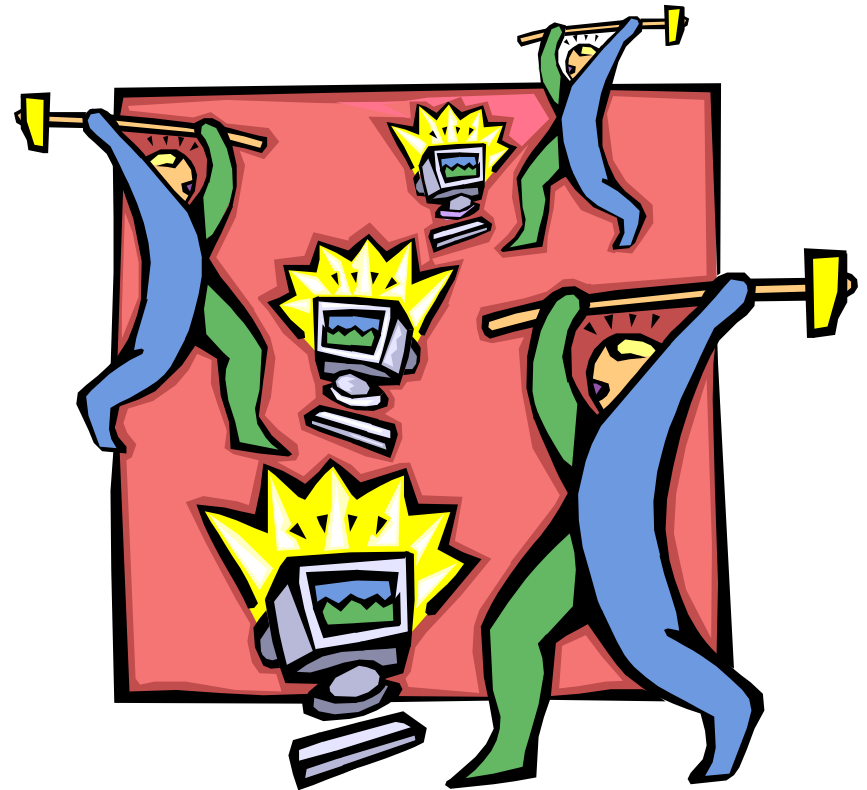
Controlled PDF File Creation, Distribution, & Archiving via PDF Transit





PDF File Creation via Distillation of PostScript

- However, some “as installed” default driver settings could use some serious “tweaking” for best (or even usable) results ...



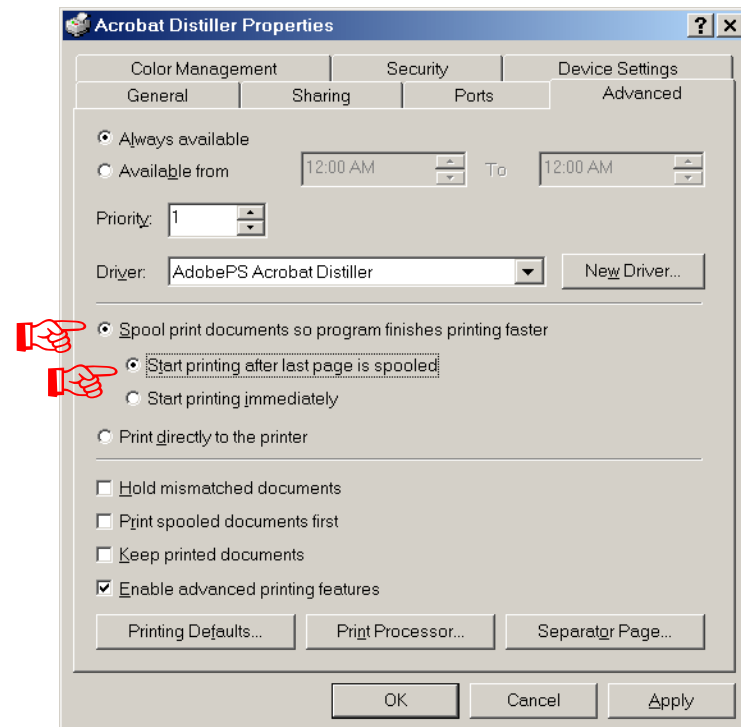
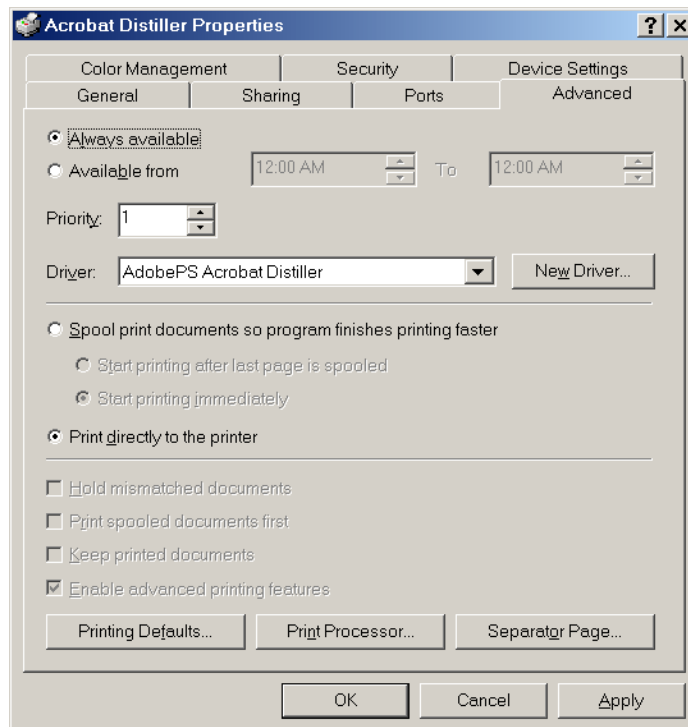


PostScript Driver Setup

PDF Production & Otherwise

Windows 2000/XP – Properties → Advanced

- Controls when and how “printing” occurs
- Change spool options





PostScript Driver Setup

PDF Production & Otherwise



Windows 2000/XP – *Properties* → *Advanced*

- ***Spooling*** dramatically improves “return control to application” time
- Printing *after last page is spooled* avoids possible PostScript wait timeout problems in the Distiller (or *real* PostScript printer)
- On the Macintosh, enable ***Background Printing***

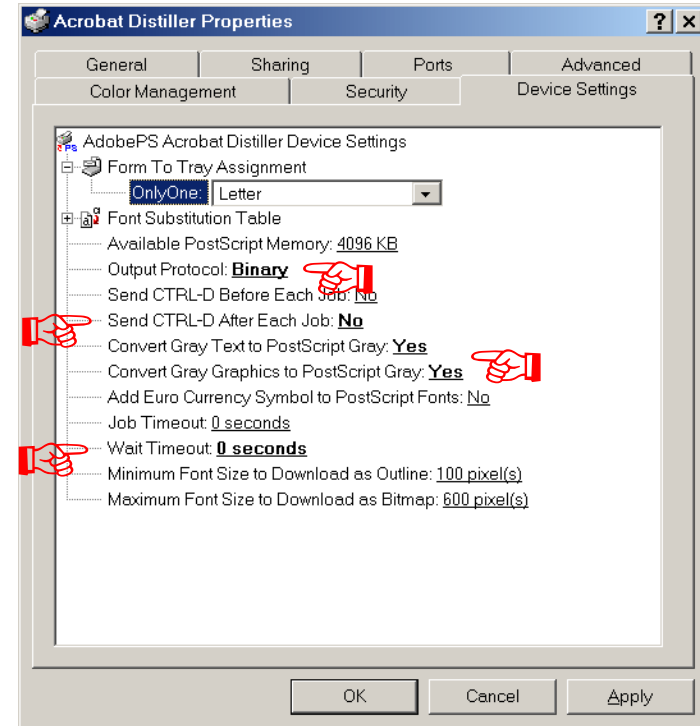
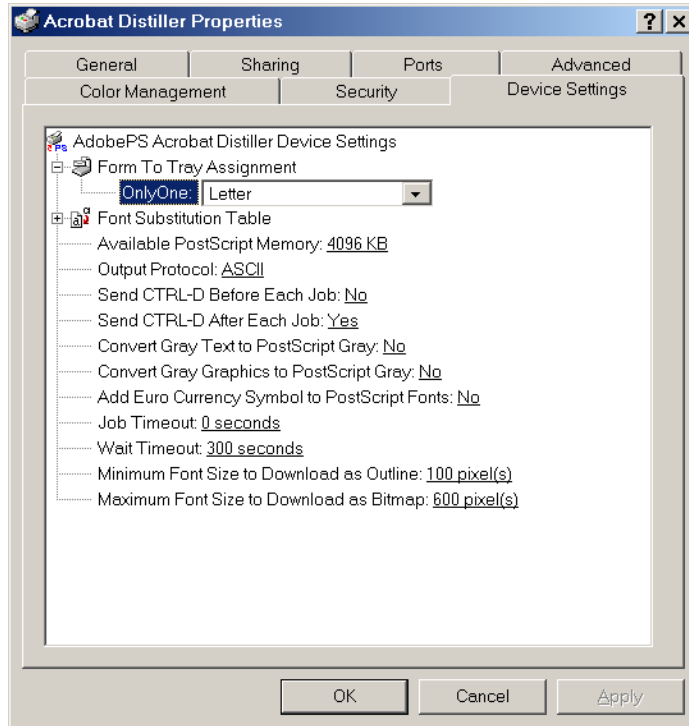


PostScript Driver Setup

PDF Production & Otherwise

Windows 2000/XP – Properties → Device Settings

■ Controls device-specific parameters





PostScript Driver Setup

PDF Production & Otherwise



Windows 2000/XP – *Properties* → *Device Settings*

- **Output Protocol *Binary* yields a smaller PostScript file size and more efficient PostScript for distillation**
(Note that for actual PostScript printers connected via parallel port, USB, or TCP/IP, *TBCP* protocols may be appropriate. Consult with your system administrator!)
- **CTRL-D is technically incorrect for binary channels (although Distiller kludges around it)**
- **Wait Timeout = 0 avoids Distiller or PostScript printer job cancellation due to transient system or network slowdown**



PostScript Driver Setup

PDF Production & Otherwise



Windows 2000/XP – *Properties* → *Device Settings*

- **Convert Gray Text/Graphics to PostScript Gray yields more efficient PostScript and PDF**
 - Windows GDI is totally RGB; application black and grayscale expressed as R=G=B
 - Black and grayscale as RGB can lead to “rich black” (C=M=Y or C=M=Y=K) printing or prepress problems
 - Option enabled causes driver to change all GDI text and line art graphics (not images) for which R=G=B to equivalent K (grayscale) Postscript



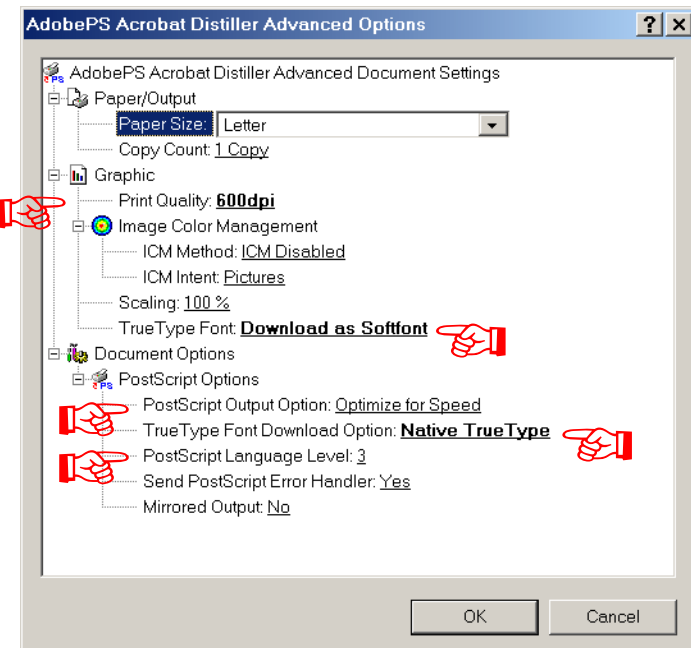
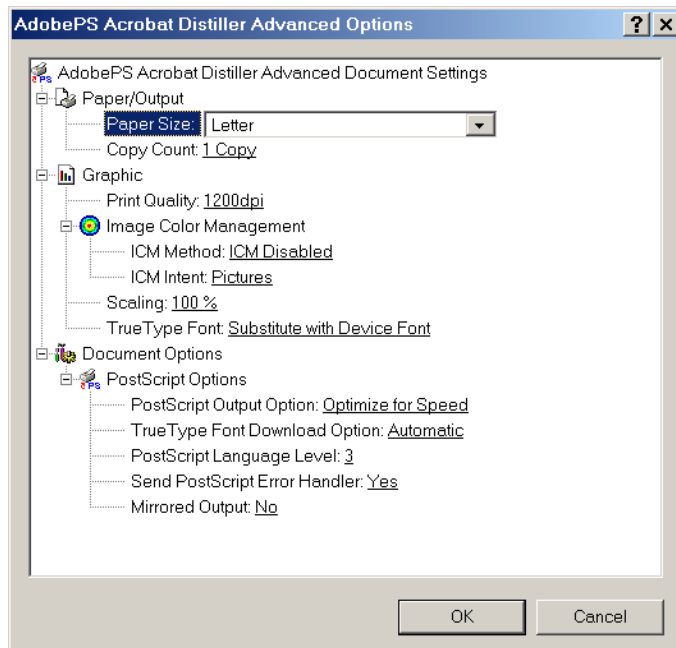
PostScript Driver Setup

PDF Production & Otherwise



Windows 2000/XP – Properties → Advanced → Printing Defaults → Layout → Advanced
Properties → General → Printing Preferences → Layout → Advanced

■ Additional document-oriented PostScript options





PostScript Driver Setup

PDF Production & Otherwise



Windows 2000/XP – *Properties* → *Advanced* → *Printing Defaults* → *Layout* → *Advanced*
Properties → *General* → *Printing Preferences* → *Layout* → *Advanced*

- **600 DPI? Windows 2000 / XP / NT 4 Bug**
 - For GDI applications only, “large text” is passed to driver as filled outlines – poor rendering / no searchability and PDF touch-up
 - Crossover point dependent upon point size, specified print device resolution, font, and Windows version
 - 600 DPI setting under Windows 2000 / XP typically allows for 144 pt text, 1200 DPI setting doesn't
 - Very minor but tolerable side effects



PostScript Driver Setup

PDF Production & Otherwise



Windows 2000/XP – *Properties* → *Advanced* → *Printing Defaults* → *Layout* → *Advanced*
Properties → *General* → *Printing Preferences* → *Layout* → *Advanced*

- **TrueType Font *Download as Softfont***
 - Option avoids any substitution of host-based TrueType fonts with “printer resident” fonts
 - Problems with substitution:
 - Differences in style
 - Differences in character sets supported
 - Less of a problem with Acrobat Distiller printer instance; potentially a massive problem with “real” PostScript printers with documents using international characters
- **Do not modify PostScript Output Option from *Optimize for Speed*; other settings are archaic!**



PostScript Driver Setup

PDF Production & Otherwise



Windows 2000/XP – *Properties* → *Advanced* → *Printing Defaults* → *Layout* → *Advanced*
Properties → *General* → *Printing Preferences* → *Layout* → *Advanced*

- **TrueType Font Download Option *Native TrueType***
 - Explicit setting of option avoids surprises
 - Conversion of TrueType fonts yields degraded results
 - Bitmaps at device resolution; not scalable or searchable
 - Outlines are “unhinted” Type 1 fonts
 - No PDF touch-up for text in these fonts
- **PostScript Language Level 3 for Distiller**
 - Disregard the language level of the final printing device
 - Acrobat / Acrobat Reader printing capable of printing all constructs to PostScript printers of all language levels



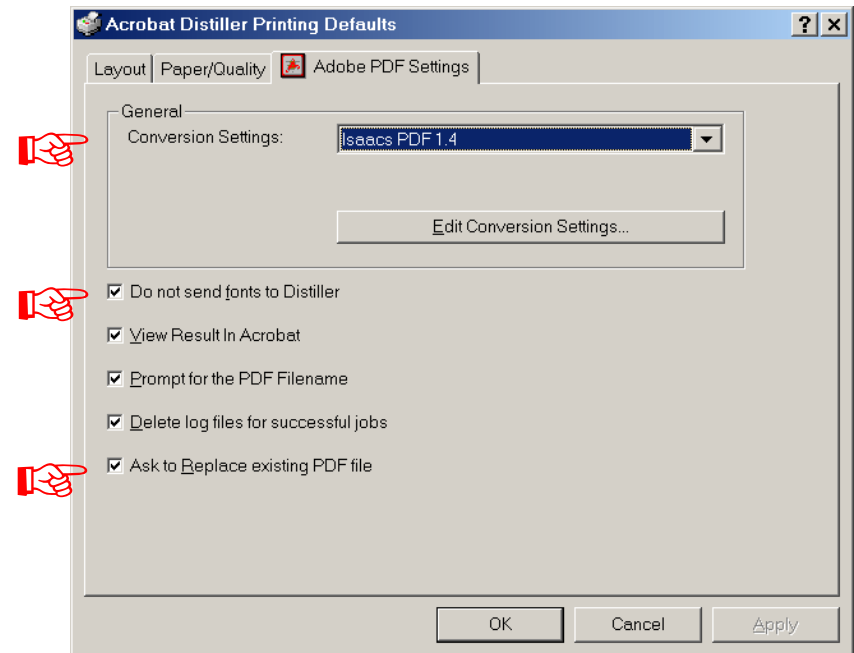
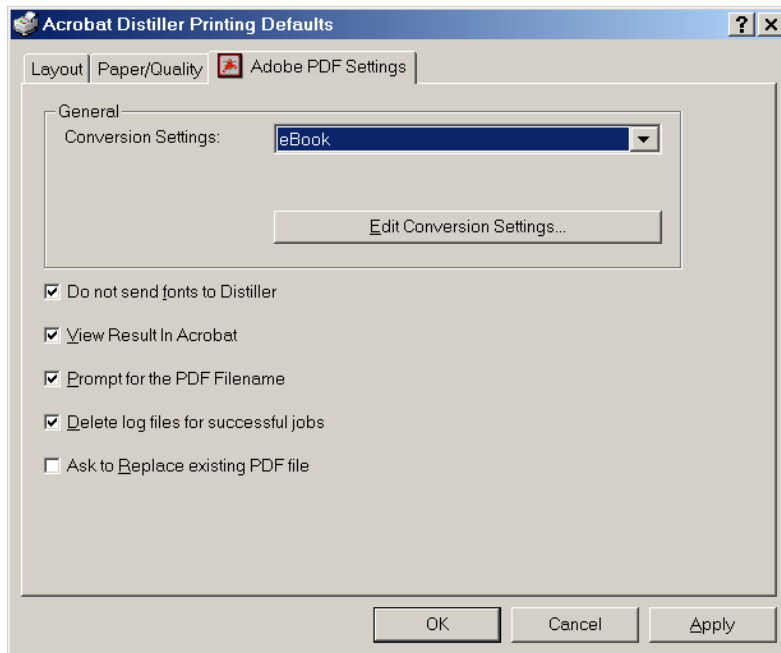
PostScript Driver Setup

PDF Production & Otherwise



Windows 2000/XP – Properties → Advanced → Printing Defaults → Adobe PDF Settings
Properties → General → Printing Preferences → Adobe PDF Settings

- Controls interface between PostScript driver and the “background” Distiller *plus* job options specification





PostScript Driver Setup

PDF Production & Otherwise



Windows 2000/XP – *Properties* → *Advanced* → *Printing Defaults* → *Adobe PDF Settings*
Properties → *General* → *Printing Preferences* → *Adobe PDF Settings*

■ Conversion settings

- Specify the appropriate job options for distillation (the *eBook* settings are most likely inappropriate for you!)
- Defaults for printer, once set, can be or overridden on a job-by-job basis
- Live dangerously; create and use your own job options appropriate to your needs!
- ***Ask to Replace* existing PDF file option prevents accidental overwrite of existing PDF file with the same name**



PostScript Driver Setup

PDF Production & Otherwise



Windows 2000/XP – *Properties* → *Advanced* → *Printing Defaults* → *Adobe PDF Settings*
Properties → *General* → *Printing Preferences* → *Adobe PDF Settings*

- **Do not send fonts to Distiller – *Huh?***
 - Very counter-intuitive to what we've *been* preaching!
 - Distiller 5 now find and embeds Type 1, TrueType, and OpenType fonts from system any user-specified locations
 - Why?
 - Efficient and compact intermediate PostScript
 - Faster distillation and less chance of VM problems
 - Better and more consistent embedding of font subsets
 - Exceptions? Private, application-installable fonts



PostScript Driver Setup

PDF Production & Otherwise



Windows 2000/XP – Fixing “Font Problems” via PPD Hackery

- **PPD enumeration of “printer resident fonts” causes major problems:**
 - *Phantom Fonts* – Fonts listed as “printer resident” in PPD file, but not installed on user’s host computer
 - *ITC Zapf Dingbats Display Bug* – Certain fonts print correctly but always display on-screen as Wingdings from some applications!
 - The “Fix” (done by system “Administrator”):
 - Edit out all fonts except Courier from all .PPD files in system driver directory `C:\WINNT\system32\spool\drivers\w32x86\3`
 - Delete all .BPD files in the system driver directory

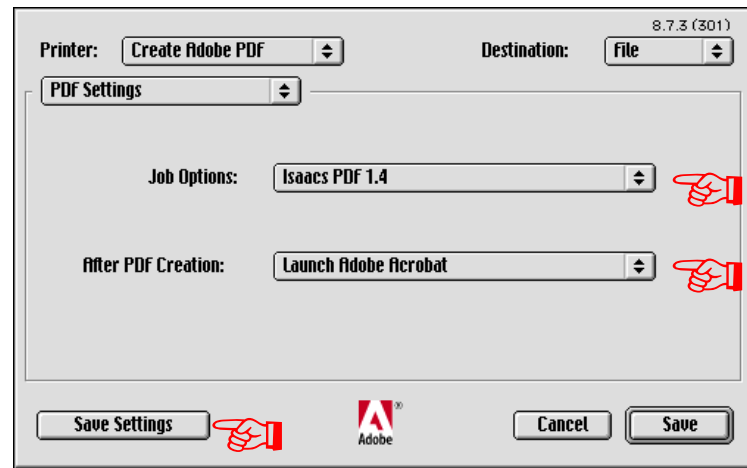
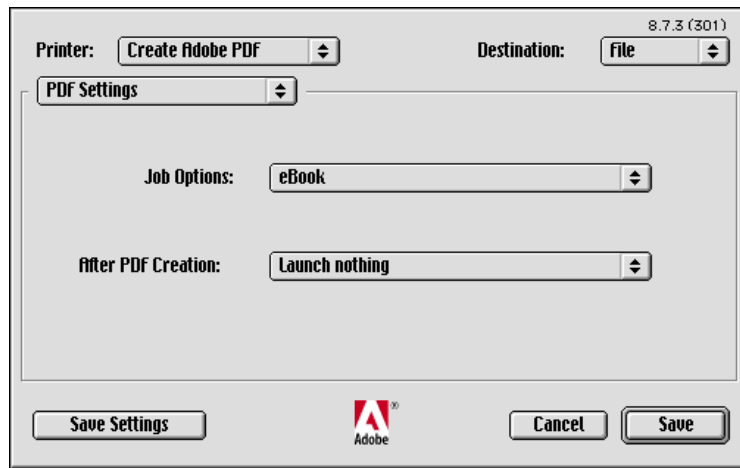


PostScript Driver Setup

PDF Production & Otherwise

MacOS 9.X – Print → PDF Settings

- Controls interface between PostScript driver and the “background” Distiller *plus* job options specification





PostScript Driver Setup

PDF Production & Otherwise



MacOS 9.X – *Print* → *PDF Settings*

- **Conversion settings**
 - Specify the appropriate job options for distillation (the *eBook* settings are most likely inappropriate for you!)
 - Live dangerously; create and use your own job options appropriate to your needs!
- ***After PDF Creation* option allows for PDF file preview**
 - Unlike Windows, default is *Launch Nothing*
 - Reasonable option is to *Launch Adobe Acrobat*
- ***Save Settings* allows “stickiness” of settings by application program**

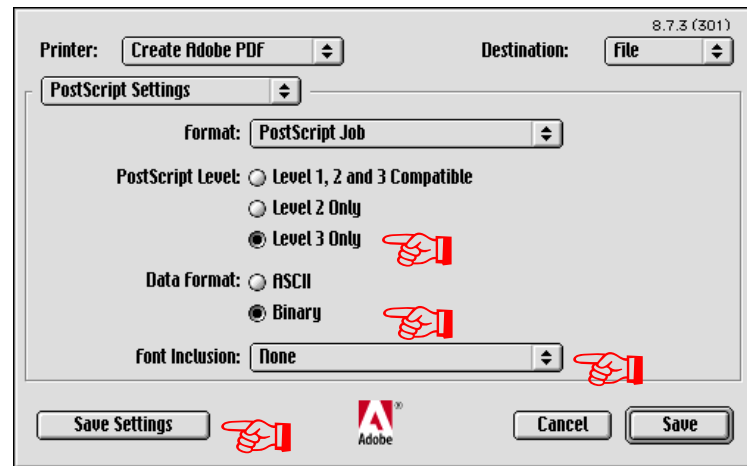
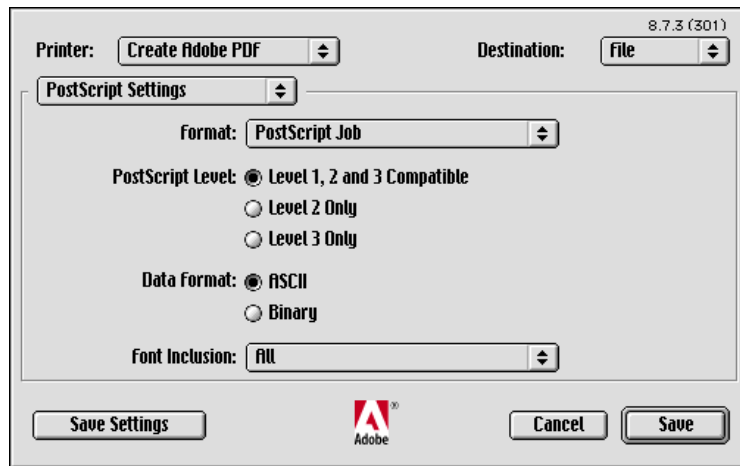


PostScript Driver Setup

PDF Production & Otherwise

MacOS 9.X – Print → PostScript Settings

- Determines type and format of PostScript generated plus options for font embedding in the PostScript stream





PostScript Driver Setup

PDF Production & Otherwise



MacOS 9.X – *Print* → *PostScript Settings*

- **PostScript Language Level 3 for Distiller**
 - Disregard the language level of the final printing device
 - Acrobat / Acrobat Reader printing capable of printing all constructs to PostScript printers of all language levels
- **Output Protocol *Binary* yields a smaller PostScript file size and more efficient PostScript for distillation**



PostScript Driver Setup

PDF Production & Otherwise

MacOS 9.X – *Print* → *PostScript Settings*

- ***Font Inclusion: None***
 - Same issues and reasoning as under Windows
 - Works around TrueType font embedding bug on Mac:
 - All TrueType fonts embedded in PostScript stream by MacOS end up as “unhinted” Type 1 outlines
 - Quality degradation
 - PDF text touch-up problems
 - MacOS (PrintingLib 8.7.x module) bug!!
- ***Save Settings* allows “stickiness” of settings by application program**



PostScript Driver Setup

PDF Production & Otherwise

MacOS 9.x – *How to Drive a Mac User Crazy!*

- PDF file *fully* produced under MacOS 9.1
- Encoding names are historical
- PDF files with fonts “Windows-encoded” display, print, and touch-up without any problems on Macintosh (and vice-versa)!

Document Fonts

Fonts in: Maddening Fonts.doc.pdf

Original Font	Type	Encoding	Actual Font	Type
Times-Roman	Type 1	MacRoman	Embedded Subset	Type 1
Times-Bold	Type 1	Windows	Embedded Subset	Type 1
ArrusBT-Roman	TrueType	Windows	Embedded Subset	TrueType
ArrusBT-Bold	TrueType	Windows	Embedded Subset	TrueType
Symbol	Type 1	Custom	Embedded Subset	Type 1
LetterGothicMT	TrueType	Windows	Embedded Subset	TrueType
LetterGothicMT-Oblique	TrueType	Windows	Embedded Subset	TrueType
ZapfDingbats	Type 1	Custom	Embedded Subset	Type 1
Wingdings	TrueType (CID)	Identity-H	Embedded Subset	TrueType

List All Fonts... OK



PostScript Driver Setup

PDF Production & Otherwise



MacOS X – *Good News / Bad News – A Few Words ...*

■ **The Good News:**

- PDF is an integral part of the MacOS X imaging model
- A PDF file *viewer* is provided with MacOS X
- Anyplace in an application program or in a system function where you can *print* under MacOS X, you can choose to *save as PDF* without Acrobat
- Acrobat Reader 5.0.5 and 5.1 run in *native mode*
- Most of Acrobat 5.0.5 runs in *native mode*
- InDesign 2, Illustrator 10, and Photoshop 7 all run in *native mode* and have fully functional PDF export features



PostScript Driver Setup

PDF Production & Otherwise

MacOS X – *Good News / Bad News – A Few Words ...*

■ **The Bad News:**

- MacOS X PDF is currently only PDF 1.2+ or PDF 1.3- depending upon your viewpoint
- PDF created by the MacOS X *save as PDF* function is *not* generally considered to be production quality PDF
- The MacOS X PDF file *viewer* currently supports only MacOS X PDF (i.e., it can fail with PDF 1.3 and 1.4 files)
- Acrobat Distiller 5.0.5 runs only in *classic mode*
- The Acrobat 5.0.5 installer does not create any printer driver instances configured for automation with Distiller
- MacOS X PostScript drivers are not yet mature



PostScript Driver Setup

PDF Production & Otherwise

MacOS X – *Good News / Bad News – A Few Words ...*

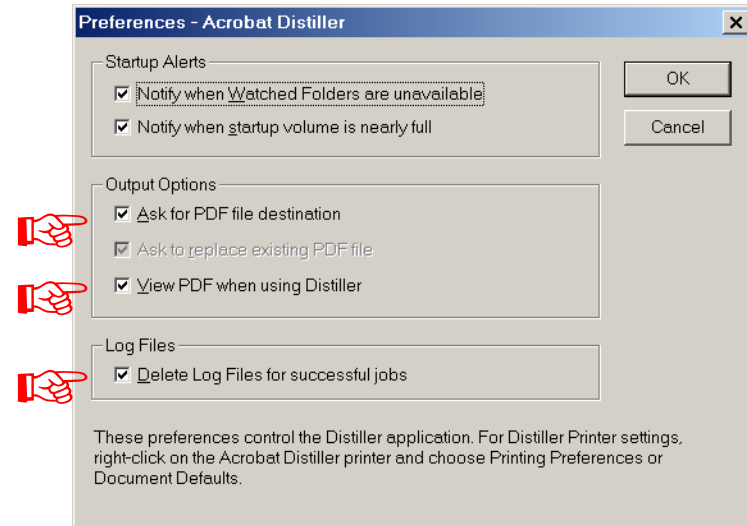
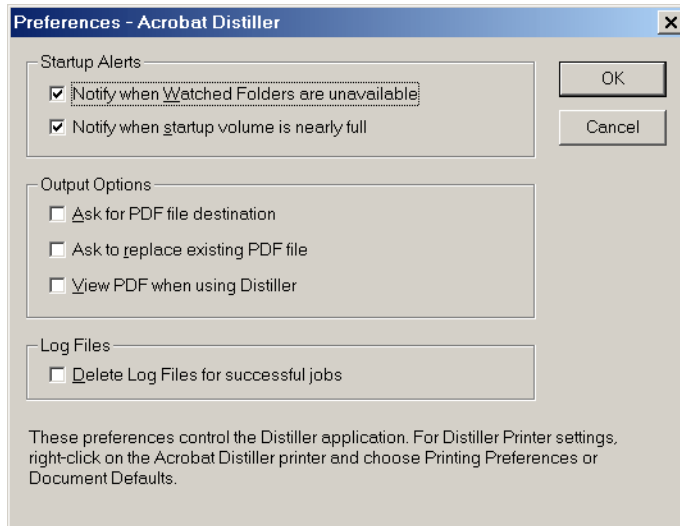
- **Creating PDF under MacOS X:**
 - Manually create a PostScript printer driver instance based upon the Acrobat Distiller PPD
 - Print “PostScript” to file
 - Distill the resultant PostScript file with Distiller 5.0.5 in *classic mode*
- **Looking forward ...**
 - The next major release of Acrobat will more fully support MacOS X (including Distiller in *native mode*)
 - Future versions of MacOS X will (hopefully) better support the PDF standard



Distiller Setup

Preferences

- Provides output options for when Distiller is invoked “manually”
- *Delete Log Files for successful jobs* option for all invocations of Distiller
 - You’ve been asking for this feature for years!
 - Turn off only for debugging purposes





Distiller Setup

Job Options

- **Acrobat Distiller provides four sets of predefined job options:**
 - *Screen, eBook, Print, and Press*
 - Job options based on intended usage and audience;
Screen ▶ Press:
 - Low resolution ▶ High resolution
 - Medium quality, highly compressed images
▶ Maximum quality, less compressed images
 - Less emphasis on typographical fidelity
▶ Perfect typographical fidelity
 - RGB, screen-oriented managed color
▶ Use color exactly as specified in PostScript file
 - Smaller PDF files ▶ Larger PDF files



Distiller Setup

Job Options

- **The predefined job options attempt to optimize PDF files by intended usage**
 - Yields scenarios in which “view and print anywhere” with a single PDF file is not quite true!
 - Assumes that:
 - Display PDF doesn’t require high quality typography
 - Print or press quality PDF is *necessarily* too big or otherwise unacceptable for screen display purposes
 - OS / driver / PostScript-based color management actually works and is properly invoked by enterprise application programs and users
 - Poor quality printed output from screen display PDF is OK
 - Repurposing of existing PDF is not important



Distiller Setup

Job Options

- You can do better using fewer sets of customized job options in conjunction with more carefully and consistently-prepared content!
Two samples of customized job options are provided to illustrate this point. The only real difference is the dpi value for image downsampling:
 - **Isaacs-150** – used for most all my PDF creation, except when the emphasis is highest quality printing
 - **Isaacs-300** – used for my PDF creation when there is a strong possibility that the PDF file will be printed on a high resolution device and that image quality will matter



Distiller Setup

Job Options

	Screen	eBook	Print	Press	Isaacs 150	Isaacs 300
Compatibility	PDF 1.2		PDF 1.3		PDF 1.4 (1)	
Optimize for Fast Web View		✓			✓	
Embed Thumbnails		✗		✓	✗ (2)	
Auto-Rotate Pages	Individually	Collectively	✗	✗	Individually (3)	
Binding	Left				Left	
Resolution (Distiller)	600 dpi		1200 dpi	2400 dpi	2400 dpi (4)	
Default Page Size	612 x 792 pts				612 x 792 pts	
Color Image Downsampling	Average 72 dpi, images over 108 dpi	Bicubic 150 dpi, images over 225 dpi	Bicubic 300 dpi, images over 450 dpi		Bicubic 150 dpi, images over 225 dpi	Bicubic 300 dpi, images over 450 dpi
Color Image Compression	Automatic, Medium Quality		Automatic, High Quality	Automatic, Maximum Quality	Automatic, Maximum Quality	
Grayscale Image Downsampling	Average 72 dpi, images over 108 dpi	Bicubic 150 dpi, images over 225 dpi	Bicubic 300 dpi, images over 450 dpi		Bicubic 150 dpi, images over 225 dpi	Bicubic 300 dpi, images over 450 dpi
Grayscale Image Compression	Automatic, Medium Quality		Automatic, High Quality	Automatic, Maximum Quality	Automatic, Maximum Quality	
Monochrome Image Downsampling	Average 300 dpi, images over 450 dpi	Bicubic 300 dpi, images over 450 dpi	Bicubic 1200 dpi, images over 1800 dpi		Bicubic 600 dpi, images over 900 dpi	Bicubic 1200 dpi, images over 1800 dpi
Monochrome Image Compression	CITT Group 4				CITT Group 4	
Monochrome Image Anti-Alias to Gray		✗			✗	
Compress Text & Line Art		✓			✓	



Distiller Setup

Job Options

	Screen	eBook	Print	Press	Isaacs 150	Isaacs 300
Embed All Fonts	✗		✓			✓
Subset Embedded Fonts	Percent of characters used is less than 100%				Percent of characters used is less than 100%	
If Embedding Fails	Warn & Continue			Cancel Job	Cancel Job (5)	
Always Embed	(none)				(none)	
Never Embed	Base 14 Fonts (Courier, Times, and Helvetica families plus Symbol and ITC Zapf Dingbats)		(none)		(none)	
Color Settings File	(none)				(none)	
Color Management Policies	Convert Everything to CalRGB; Default Intent	Convert All Colors to sRGB; Default Intent	Tag Everything for Color Management; Default Intent	Leave Color Unchanged; Default Intent	Leave Color Unchanged; Default Intent	
Workspace: Gray	(none)				(none)	
Workspace: RGB	sRGB IEC61966-2.1			(none)	(none)	
Workspace: CMYK	US Web Coated (SWOP) v2			(none)	(none)	
Preserve Overprint Settings	✗		✓		✓	
Preserve UCR and BG Settings	✗		✓		✓	
Transfer Functions	Preserve				Preserve	
Preserve Halftone Information			✗		✗	
Use Prologue.ps and Epilogue.ps			✗		✓ (6)	



Distiller Setup

Job Options

	Screen	eBook	Print	Press	Isaacs 150	Isaacs 300
PostScript Job May Override Job Options		✓				✓
Preserve Level 2 Copypage		✓				✓
Save PJT in PDF		✗		✓		✓
Illustrator Overprint Mode		✓				✓
Convert Gradients to Smooth Shades	✓ effectively ✗		✓			✓
ASCII Format		✗				✗ (7)
Log DSC Warnings		✗				✗
Resize & Center EPS	✗		✓			✓
Preserve EPS DSC Information		✗		✓		✓
Preserve OPI Comments		✗		✓		✓
Preserve DSC Document Info		✓				✓



Distiller Setup

Job Options

■ Notes:

- (1) PDF 1.4 is necessary for full Acrobat 5 feature support; PDF 1.2 does not support smooth-shaded gradients!
- (2) Acrobat 5 creates thumbnails on the fly. No need to bulk-up the PDF file unnecessarily unless you really need thumbnails displayed with earlier Acrobat versions
- (3) Let Distiller rotate the pages as appropriate unless you like doing menial labor yourself!
- (4) This resolution value is only used when a PostScript program file explicitly queries the PostScript interpreter (in this case, the Acrobat Distiller) for same; it has nothing to do with image resolution or anything else!



Distiller Setup

Job Options

■ **Notes** *(continued)*:

- (5) Unconditionally embed all fonts as subsets and don't let any failures get passed you!
- (6) Enabling *prologue.ps* and *epilogue.ps* allows neat tricks, but don't abuse!
- (7) Creation of an "ASCII" PDF file really gains you very little:
 - The file is *not*, repeat *not*, editable in an ASCII text editor
 - ASCII format is generally much bulkier than non-ASCII
 - ASCII format does not decrease chances of file corruption via email or web download protocols
 - ASCII format is readily lost upon changes made in Acrobat



Cheap *Prologue.ps* Trick

Forcing the Image Interpolation Option

- **The *Prologue.ps* and *Epilogue.ps* facility**
 - Designed for special effects via custom PostScript run by Distiller at the start and end of each PostScript job
 - Requires detailed knowledge of PostScript to write *Prologue.ps* and *Epilogue.ps* code.
- **Examples:**
 - Cover page generation
 - Logging of Distiller parameters
 - Global fixup of bum PostScript
- **Not generally recommended for normal use of Acrobat in the enterprise**



Cheap *Prologue.ps* Trick

Forcing the Image Interpolation Option

- Useful example of use of *Prologue.ps* to force the high quality image interpolation option “on” for all images:

% Redefine image operator to set Interpolate to true unconditionally.

```
/image {  
    dup type /dicttype eq {  
        dup /Interpolate true put}  
    if  
    //image}  
bind def
```

Post-PDF File Creation Tweaking & “Other” Considerations

- Introduction
- Guiding Principles
- Content Creation
- PDF File Creation
- **Post-PDF File Creation Tweaking & “Other” Considerations**
- Q&A





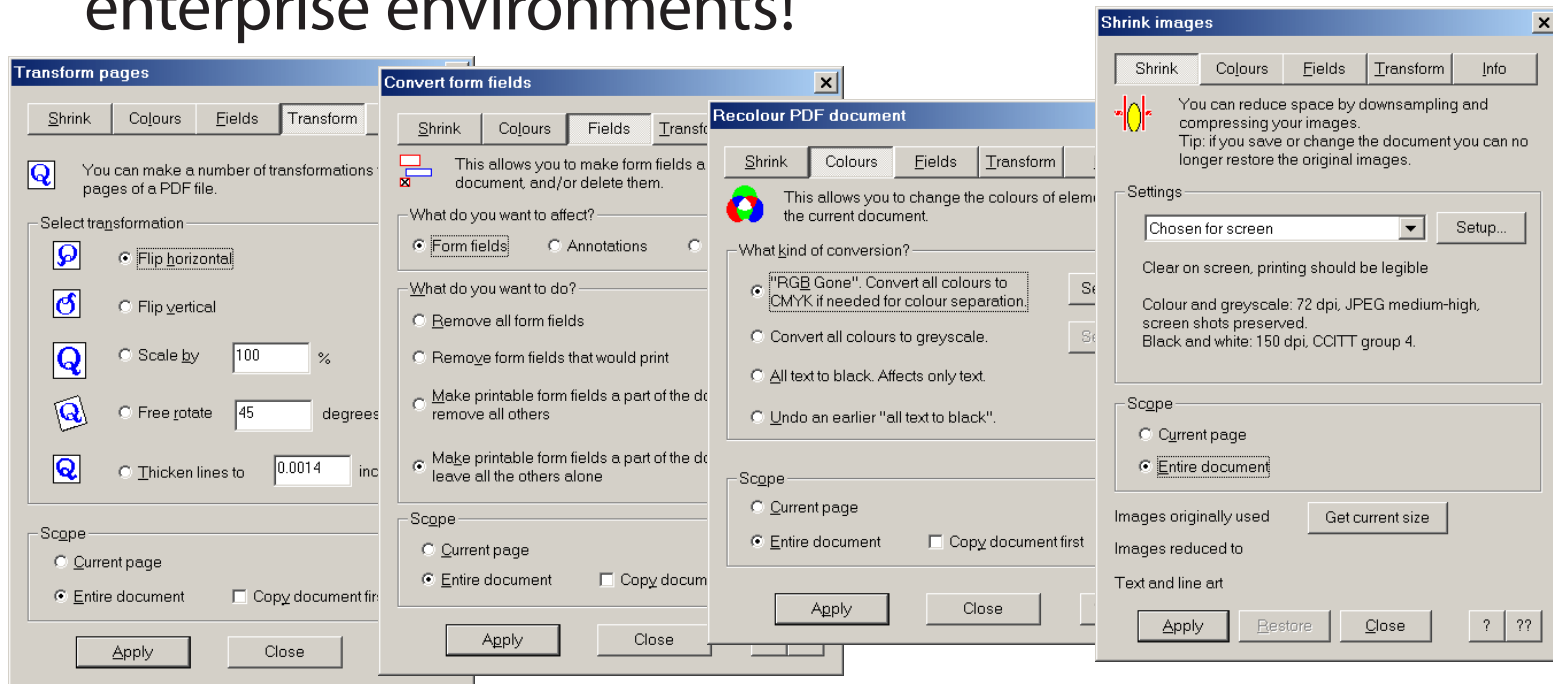
Wonderful Plug-Ins for Acrobat

- **For certain functions not built-into Acrobat 5, available third-party plug-ins provide excellent solutions. For example:**
 - Color and colorspace modifications
 - Advanced touch-up
 - Image resampling and compression
 - Document imposition
(n-up, booklets, step & repeat, etc.)
 - Separations



Wonderful Plug-Ins for Acrobat

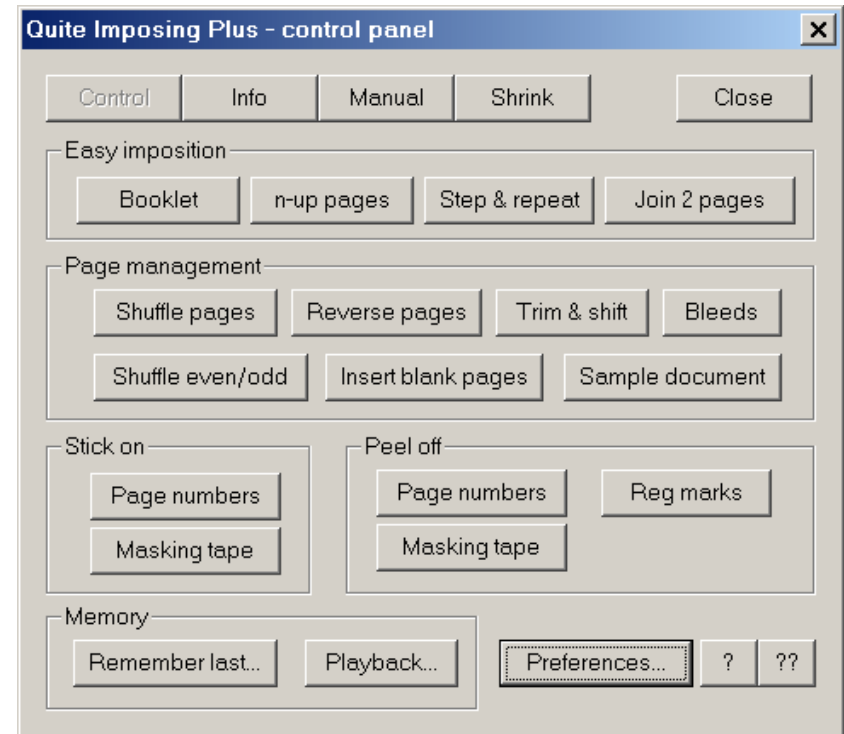
- **Quite A Box of Tricks – Quite Software**
 - Wide variety of commonly-needed, simple tools for color, image compression, page scaling / rotation, etc.
 - Professional quality, but usable by mere mortals in enterprise environments!





Wonderful Plug-Ins for Acrobat

- ***Quite Imposing / Quite Imposing Plus* – Quite Software**
 - Booklet creation, n-up pages, step & repeat, as well as general page imposition functions
 - Easy step-by-step “easy imposition” functions
 - For most functions, readily usable by office workers

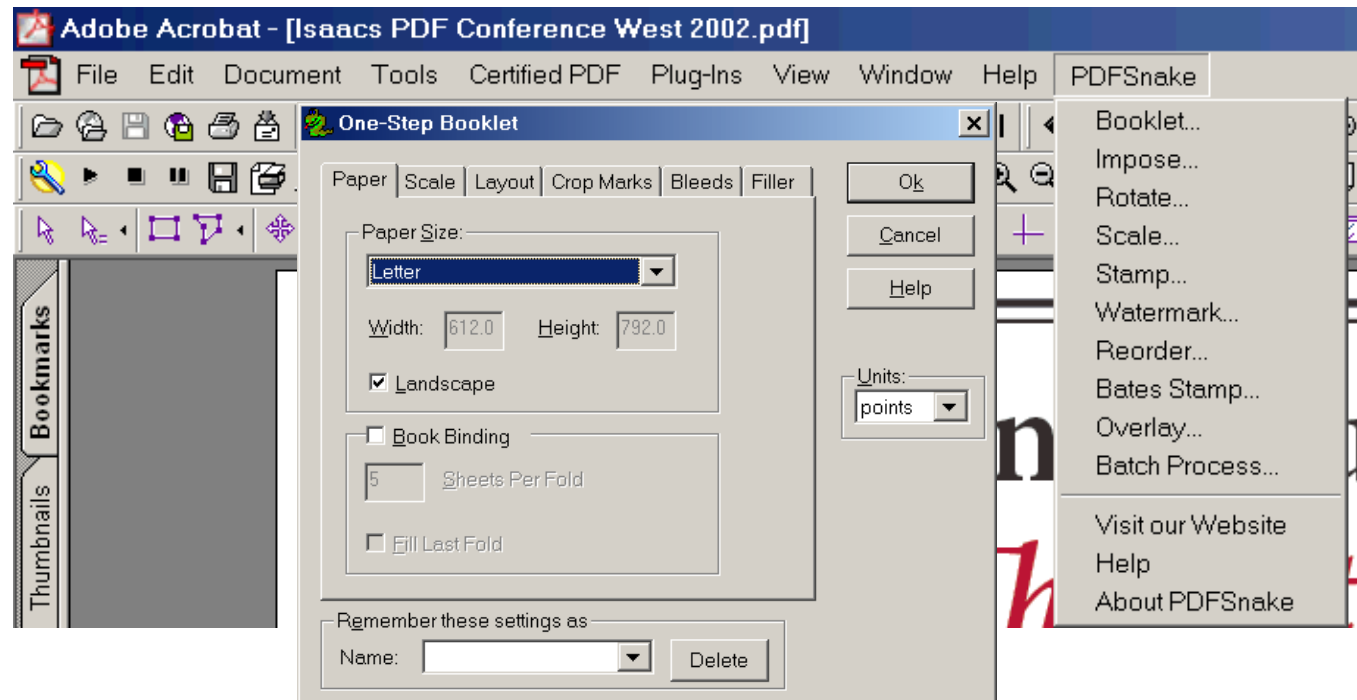




Wonderful Plug-Ins for Acrobat

■ PDFSnake

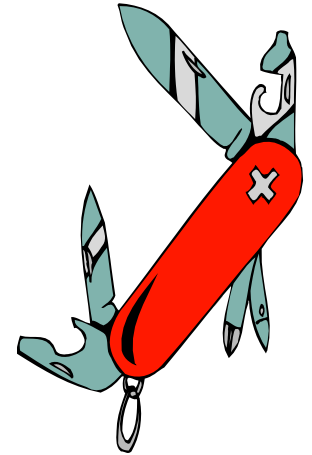
- Booklet creation, general page imposition, and other tools including batch processing
- More information and availability: <http://www.pdfsnake.com/>





Wonderful Plug-Ins for Acrobat

- ***PitStop Professional*** – Enfocus Software
 - A veritable “Swiss Army Knife” of tools for interactive and batch analysis and fixup of PDF files
 - Oriented primarily towards publishing and prepress professionals



- ***CrackerJack*** – Lantana Research Software Corp
Color separations printing (and other prepress preparation functions) from within Acrobat

- **Others ...**

Starting resource to find source of Acrobat plug-in solutions:

<http://www.adobe.com/store/plugins/acrobat/main.html>



Color Issues

- **CMYK versus RGB in the enterprise**
 - NOT an issue for high-end publishing programs that provide for CMYK color and managed color
 - Generally NOT an issue for composite color output devices (i.e., color laser and high-end inkjet printers)
 - PostScript does automatic conversion of RGB to CMYK (or vice versa) when and as necessary
 - Acrobat 5 color management and printing options
 - Rich black problem under Windows solved by driver TrueGray options (R=G=B text & vector graphics to K)
 - Primarily an issue for typical “enterprise applications” under Windows and Macintosh that only support RGB



Color Issues

- However, for many prepress professionals ...

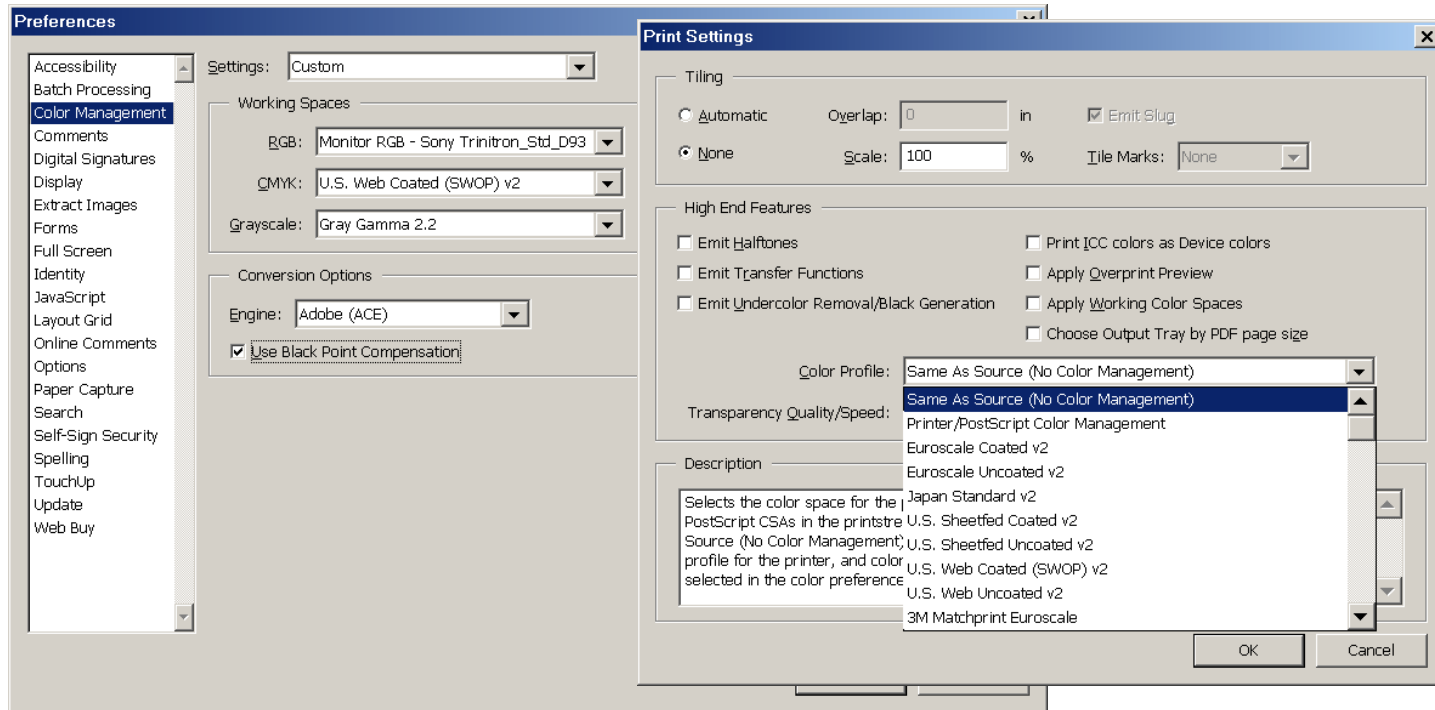
 *It's a **CMYK** World After All ...* 

- Solutions in the enterprise ...
 - Excellent and inexpensive global RGB to CMYK conversion via *Quite A Box of Tricks* plug-in
 - Use EPS from CMYK-capable applications for precise CMYK (or managed color) as well as spot color where and when necessary
 - PostScript pre-processing programs such as *Preflight2000 Colour Chameleon* from Grafikhuset
 - Acrobat 5 color management and printing features



Color Issues

- **Acrobat 5 color management and printing features**
 - Provides full support for ICC color management
 - Display and color-managed printing of untagged RGB & CMYK via assumption of default working colorspaces

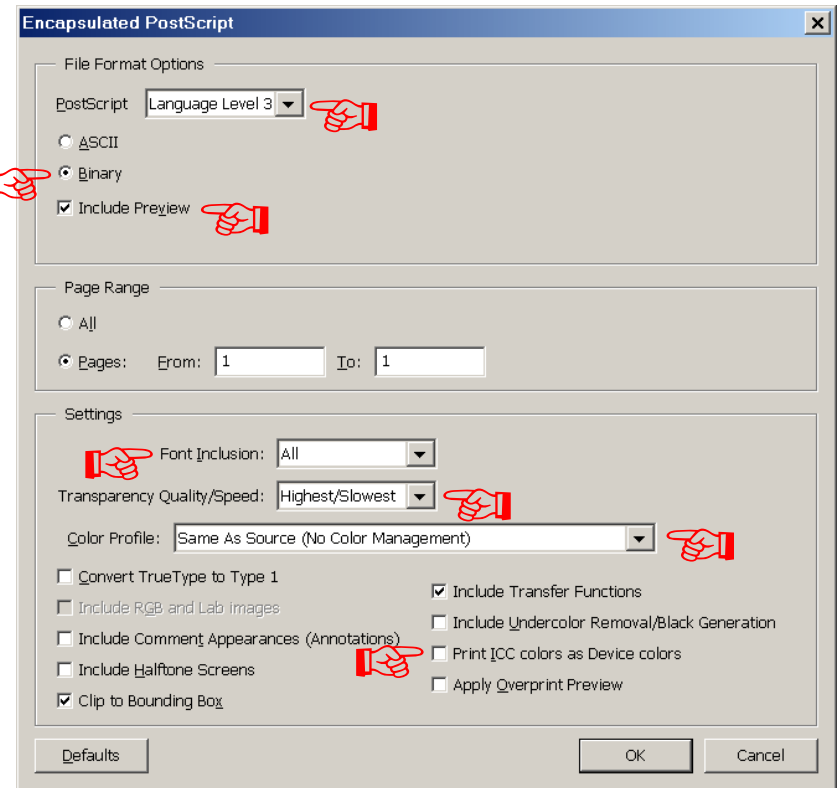
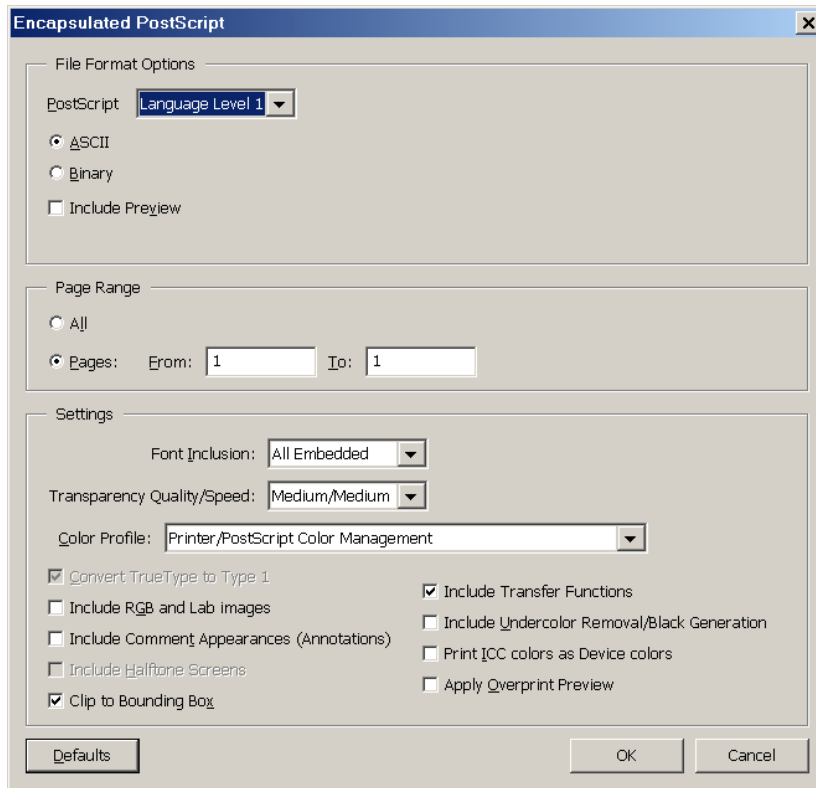




Acrobat “Save as EPS”

EPS Generation Options

- Controls the options by which EPS can be exported by Acrobat’s “Save as EPS” capability
- The “defaults” are likely *not* what you want!

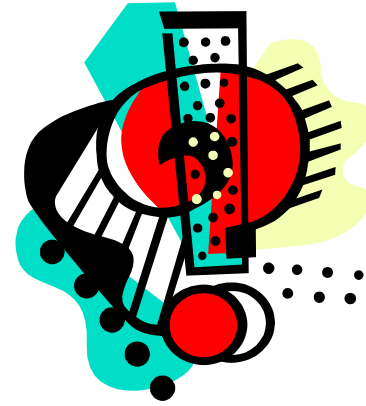




Acrobat “Save as EPS”

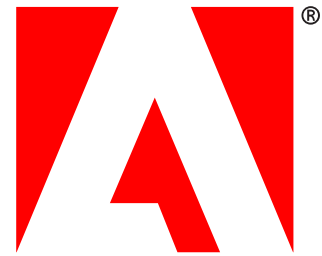
EPS Generation Options

- Any PostScript language level other than 3 can result in lower quality-lowering transformations
- *Binary* format yields significantly smaller EPS files
- *Include preview* is necessary to visualize the EPS file’s contents when imported into most applications
- *Font inclusion All* is prudent to assure printability of any documents into which the EPS file is imported
- *Transparency Quality/Speed Highest/Slowest* yields best results when “flattening” content using transparency
- Color options depend upon your needs



Q&A

- Introduction
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- PDF File Creation
- Post-PDF File Creation Tweaking & “Other” Considerations
- **Q&A**



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