



Desktop Publishing v2

On completion of this module you will have developed a solid understanding of the tasks of Desktop Publishing and its workflows and applications.

The specific areas and applications covered are:

The tasks and characteristics of Desktop Publishing

The workflow of Desktop Publishing

DTP applications and their characteristics

The Open Prepress Interface and its use within DTP

PDF and its role as an important export format of DTP

Module Training Overview

Target audience will be:

All employees and co-workers of Konica Minolta and our partners obtaining the Outward certification level

Expert Color.or

Expert Office Solutions

Attainment Targets:

- To know the basic characteristics of Desktop Publishing and its area of application
- To know the steps of the Desktop Publishing workflow
- To know the most important DTP applications and their advantages and disadvantages
- To understand how the Open Prepress Interface (OPI) supports the DTP workflow
- To understand the importance of PDF in the DTP world and to know how PDF files can be created

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1 What is DTP?

1.1 Introduction

In the **age of computers**, it is quite simple to create documents and to produce professional printouts. Nevertheless, the results of the work with the computer clearly show the differences between specialists and amateurs.

A few years ago, many specialists were involved in order to produce professional printouts: a graphic designer, a typography specialist, an illustrator, a photographer, a touch up specialist and a reprographic specialist.

With a computer and special software, anyone is able to produce a layout and the data needed by the printing office (but to produce appealing and useful documents, the DTP operator also requires the knowledge about processes, techniques and applications).

DTP is the abbreviation of “Desktop Publishing” which means the production of printouts like catalogues, brochures and newspapers on a computer with special software. The **main task of DTP** or rather DTP-applications is to combine text- and graphic elements (illustrations, photos) within a printable layout. The focus of these kinds of applications is the text and graphics processing and arrangement.

1.2 Differences to Word processors

The possibilities of DTP applications are more powerful than the ones of text processors like Microsoft Word or Open Office. The tasks of text processors are, among other things, to register and to save text. The capability of text processors to arrange text is sufficient concerning the printing of these files on a laser- or inkjet printer, but not for extensive documents and professional printouts. Professional printouts are usually made with offset printing. Therefore, newspaper or magazine publishers use DTP applications.

The **benefits of DTP applications** in comparison with word processors are:

- Possibilities to judge the printout (Soft proof).
- More possibilities to manipulate the typography (kerning, spacing, sizes etc.).
- Text and images are placed in frames which can be handled independently.
- More possibilities to design the layout.
- Color management capabilities.
- Exact positioning of objects (text, graphics) with the help of grid- and auxiliary lines.

- Possibility to place objects outside of the document temporarily in order to use the whole area of the screen.
- Tool palettes to manipulate objects.

1.3 WYSIWYG

Advanced WYSIWYG ability is a feature of DTP applications. “**What You See Is What You Get**” means that the layout on the monitor corresponds with the printout. If the colors match on equipment used in the workflow (Color management), the colors of the monitor and the layout document will correspond with the printout, too.



Picture 1: Page view function of Microsoft Word

With text processors, it is only possible to estimate the printout using the page view function. A prediction related to the color is usually not included.

1.4 Typography & typeface

The task of print media is to transport information. The biggest part of information is usually text, except catalogues that may have mainly picture information.

The term “typography” means the art of process of printing with type (Greek: *typos* = print; *graphein* = writing). In the figurative sense, it depends on the design of all used media, like lines, surfaces, colors, used paper, typefaces and pictures.

In this context, the design is determined by the printed area as well as by the not printed area, like the margins, paragraph-, letter- and line spaces.

The targets of typography are:

- The optimization of the legibility
- A consequent and harmonic design
- A clear structure

The quality of the typography depends on:

- The page structure
- The used fonts
- The font sizes
- The paragraph alignment
- Paragraph and line spacing
- The colors

1.5 Appearance of Fonts

The used fonts depend on the purpose of the document. There are **different types of fonts** which differ, among other things, from their appearance. The appearance can be subdivided into three classes:

1. Serif fonts
2. Sans-serif (serif less) fonts
3. Handwriting fonts

Serif fonts have little lines at the beginning and the end of the letters. They are mainly used for a big quantity of text, like main text modules. The use of serifs fonts increases the legibility of the text.

Serif fonts are for instance:

Times
Book Antiqua
Courier
Garamond

Picture 2: Serif fonts

Sans-serif fonts do not have any lines at the letters. They are mainly used for headings and titles. Besides, they can be used to reduce the speed of reading in order to increase the relevance of the text.

Sans-serif fonts are for instance:

Arial
Helvetica
Impact
Verdana

Picture 3: Sans-serif fonts

Handwriting fonts are very hard to read, especially with little font sizes. Because of this, they are mainly used for headlines as a design element.

Mistral
Brush Script
Edwardian Script

Picture 4: Handwriting fonts

Frequently, there are some modifications of the mentioned types. The modifications of the regular fonts are named *Bold*, *Italic*, *Light* or *Condensed*, for example.



Picture 5: Different font modifications in the Fonts folder of Windows (Vista)



Picture 6: Different fonts in the Fonts folder of Apple Mac OS X (10.5)

The appearances of these kinds of font are based on the regular type but with modifications concerning their thickness, their inclination, or both.

Helmet Normal
Helmet Bold
Helmet BoldItalic
Helmet Italic

Picture 7: Helmet font in Normal, Bold, BoldItalic and Italic

Apart from the three classes, the appearances of the typefaces can be distinguished additionally in **proportional**- and **non-proportional** types. Proportional fonts require the space of the specific letter. An “i” requires not so much space like an “m”. The appearance of these kinds of fonts looks well balanced. The font type Arial, for example, is a proportional font.



Arial

Picture 8: Proportional font type Arial

Non-proportional fonts always require the same space for each letter. The consequence is that the view of the text can have gaps between the letters. These fonts are also called “Mono spaced”. The font type Courier, for example, is a non-proportional font.



Courier

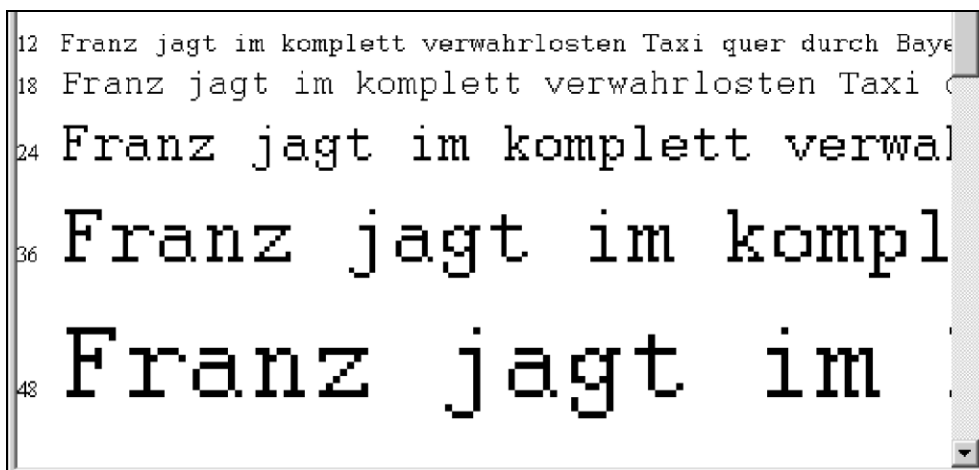
Picture 9: Non-proportional font type Courier

1.6 Technical realization of fonts

From a technical point of view, fonts can be subdivided into two different kinds:

- Bitmap fonts
- Outline fonts

A **bitmap font** stores each character as a picture made of a pattern of dots. The basic disadvantage of bitmap fonts is that the fonts are only available for a defined size. They are combined in font sets with different sizes: 8, 10, 12 points for instance.



Picture 10: Courier bitmap font for 12, 18, 24, 36 and 48 points in different sizes

If the size of a bitmap font is changed to a size that is not in the font set (36 points for instance), the original typeface is destroyed. So if a bitmap font is scaled up, the edges of the letters or symbols may become jagged. In modern operating systems, the Bitmap font format is not used anymore. Today, only a few Windows applications need Bitmap fonts for the representation of their menus on the screen. The suffix of these kind of fonts is “.fon”.

The Mac OS X operating system does not use the Bitmap font format anymore, either. The same applies to the applications within its environment.

Today, the function of Bitmap fonts is carried out by the OpenType font format.



Picture 11: Bitmap font icon of Windows (Vista)

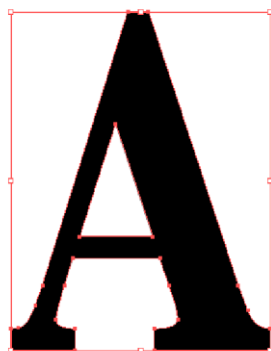
The other kind of fonts related to the technical realization is the Outline font format. Outline fonts can be subdivided again into three different kinds:

- Postscript fonts
- TrueType fonts.
- OpenType fonts.



Picture 12: PostScript-, TrueType- and OpenType font icons of Windows (Vista)

The shape of **outline fonts**, such as TrueType, Adobe PostScript or OpenType fonts, is defined by mathematical formulas. These formulas contain, among other things, so-called “Hints” which define the appearance of the fonts for the different sizes.



Picture 13: Font with hints

The scaling of these fonts is non-proportional. That means that the Hints define the thickness of the lines for all elements of one letter and their spaces to the others. With the help of the Hints, a RIP defines the appearance of the font of the output. That means that only after the raster image is processed in the RIP, the appearance is defined.

Compared to bitmap fonts, outline fonts can be scaled to any size, but there are differences related to the quality between Postscript- and TrueType fonts.

It must be taken into account that there are differences between PostScript- and TrueType fonts concerning their appearance. They may differ from their line-lengths, sizes, and letter- and line spaces. The reason for that is the completely different technical realization and design.

PostScript fonts are vector based and therefore it is possible to scale them in all sizes without quality loss – you already know vector objects from the vector applications like Adobe Illustrator or CorelDraw. Vectors are based on the industry standard and page description language PostScript.



Picture 14: PostScript font icons of Windows (Vista)

In order to use PostScript fonts on a computer with old operating systems like Windows 95, 98, NT, Mac OS or Mac OS Classic, you first have to install a so-called **Type Manager**, e.g. ATM Light (Adobe Type Manager). ATM Light can be downloaded from Adobe's Web page for free. This (small) application makes it possible to show these fonts on a monitor and to print them on a non-PostScript capable printer. ATM works like a RIP (Raster Image Processor) between an operating system and the graphic output (Windows GDI; Apple Mac OS QuickDraw).

The Apple operating system **Mac OS X** uses PostScript directly in its operating system. The graphical engine of Mac OS X, **Quartz**, is based on Adobe's **Display PDF** in contrast to the old QuickDraw. Accordingly, there is no need of a Type Manager.

The same applies to Microsoft Windows 2000, Windows XP, Windows Vista and Windows 7. PostScript font support is built directly into its operating system.

Because of the strict license politic of Adobe, Apple and Microsoft developed together the **TrueType fonts** in 1991. PostScript licenses were rather expensive and any manufacturer of RIPs, PostScript capable soft- and hardware had to pay a lot. With the appearance of the TrueType in 1992 and its big success, Adobe changed their license politic. They reduced the price for a license and published the code of PostScript for the manufacturers of hardware and software.



Picture 15: TrueType font icon of Windows (Vista)

The advantage of TrueType fonts is that they contain the data for the monitor and the printer in one font set, which saves main memory.

These kinds of fonts are scalable and printable on PostScript printers as well, but only with quality loss. The reason is that they use less Hints for each letter compared to PostScript fonts. This is the explanation why it is preferable to use PostScript fonts in the DTP workflow if possible.

OpenType fonts are a combination of TrueType or PostScript with advantageous additional features. They are based on the TrueType font format, adding support for

PostScript font data. Every OpenType font includes the outline, the metric, and the bitmap data in one file. Adobe and Microsoft developed this font format in 1996. Like Adobe, most suppliers of fonts have changed the font format from TrueType and PostScript to OpenType. Today, it is the most commonly used font type.



Picture 16: OpenType font icon of Windows (Vista)

OpenType fonts can be subdivided into two so-called flavours:

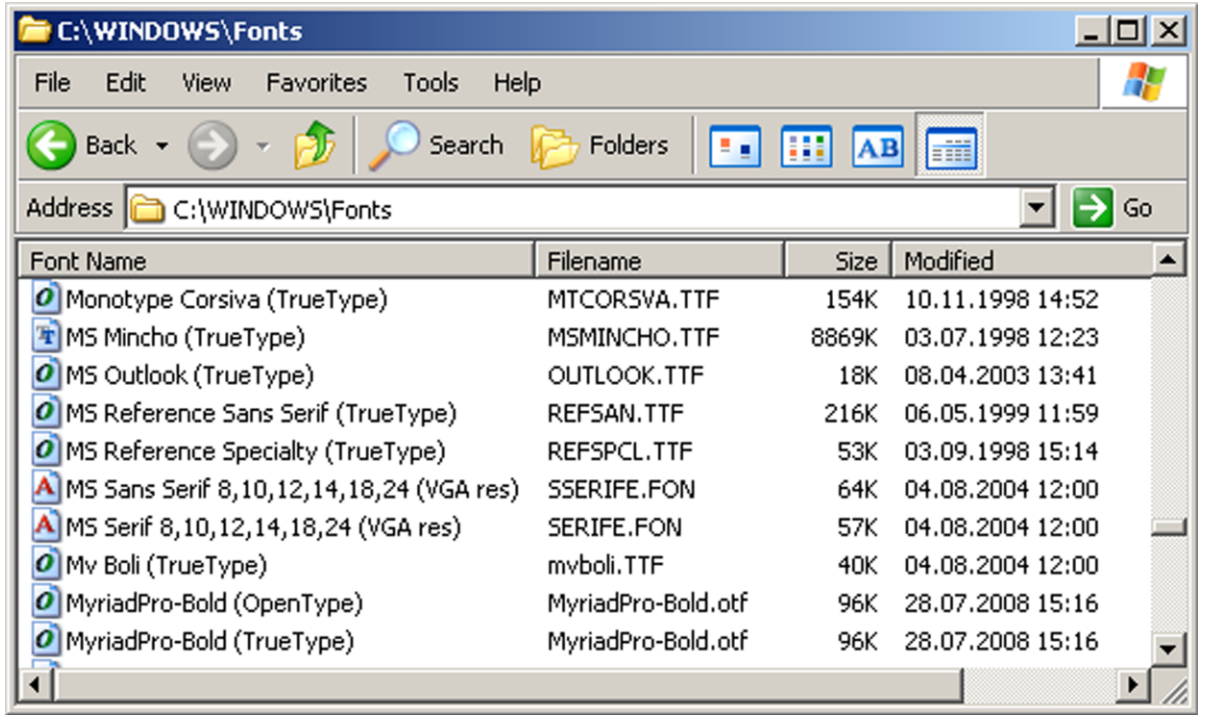
- TrueType-flavoured OpenType (.ttf) and
- PostScript-flavoured OpenType (.otf)

The two flavours differ in how the data for the outlines is managed. The realization is made either in the TrueType format with square splines or in the Compact font format (CCF) which is based on PostScript with cubic splines.

The main advantages of OpenType in comparison with TrueType and PostScript are

- Cross-platform font file format:
The font files can be used without modifications on Windows (since Windows 2000), Apple (since Max OS X) and some Unix operating systems.
- Better language support:
Based on Unicode, one font file is able to include multiple language sets with special characters and symbols.
- Advanced typography and layout features:
With up to 65536 glyphs (PostScript has only 256), OpenType provides a better support for non-standard glyphs in one file, such as ligatures, fractions, capitals, etc.
- Digital signatures:
The OpenType font format enables developers to include a digital signature in the font file.

With Windows operating systems, it is only possible to have a look at the TrueType, OpenType, and Bitmap fonts in Explorer: C:\WINDOWS\FONTS or in Control Panel \FONTS. The fonts are indicated by the suffix (".ttf" or ".otf") in combination with the icon.



Picture 17: Microsoft Fonts folder (with OpenType, TrueType and Bitmap fonts)

The PostScript fonts of Windows are in another folder. The location of it is not prescribed.

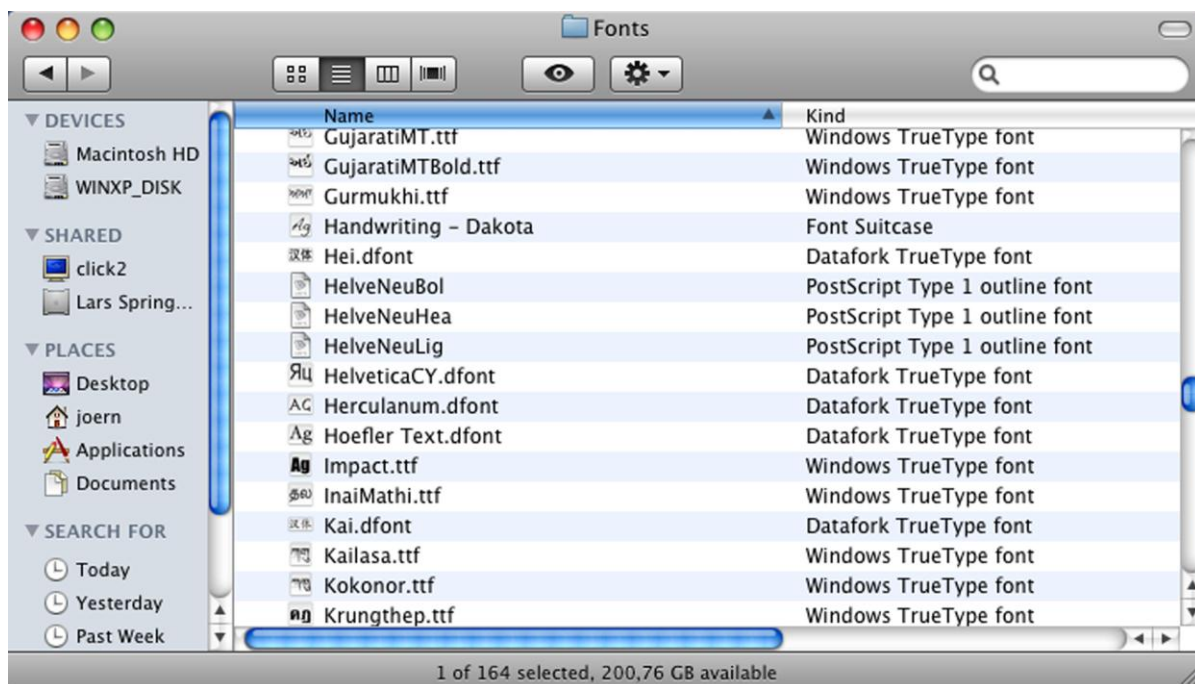


Picture 18: Font folder of PostScript fonts (Windows)

On Mac OS X, the fonts can be found in 5 different locations:

- **/System/Library/Fonts:**
These fonts are used by the operating system.
- **/Library/Fonts:**
All local users of the operating system and all applications are able to use these fonts. This is the standard folder of the installed fonts.
- **User/*Username*/Library/Fonts:**
These fonts are only for active local users (user fonts) of the operating system (*Username* = name of a local user).
- **/Library/Application Support/*manufacturer*/Fonts:**
These fonts are used by particular applications only. Some manufacturers install fonts in this directory which can only be used by their applications (*manufacturer* = manufacturer name of an installed application). For example, Adobe:
/Library/Application Support/Adobe/Fonts
- **/Applications/*Application name*/.../Fonts:**
Only a few application manufacturers install additional fonts in the application folder. For example, Microsoft: /Application/Microsoft Office X/Office/Fonts.
As in the previous point, these fonts can only be used by particular applications (in this example Microsoft Office X applications only).
However, Microsoft's Office 2004/2007 use the fonts in another way. If a user starts an Office application for the first time, it copies the fonts from the Office applications folder to the user font folder (user fonts). As a result, the same fonts are stored in every user font folder if a Microsoft Office application is used.

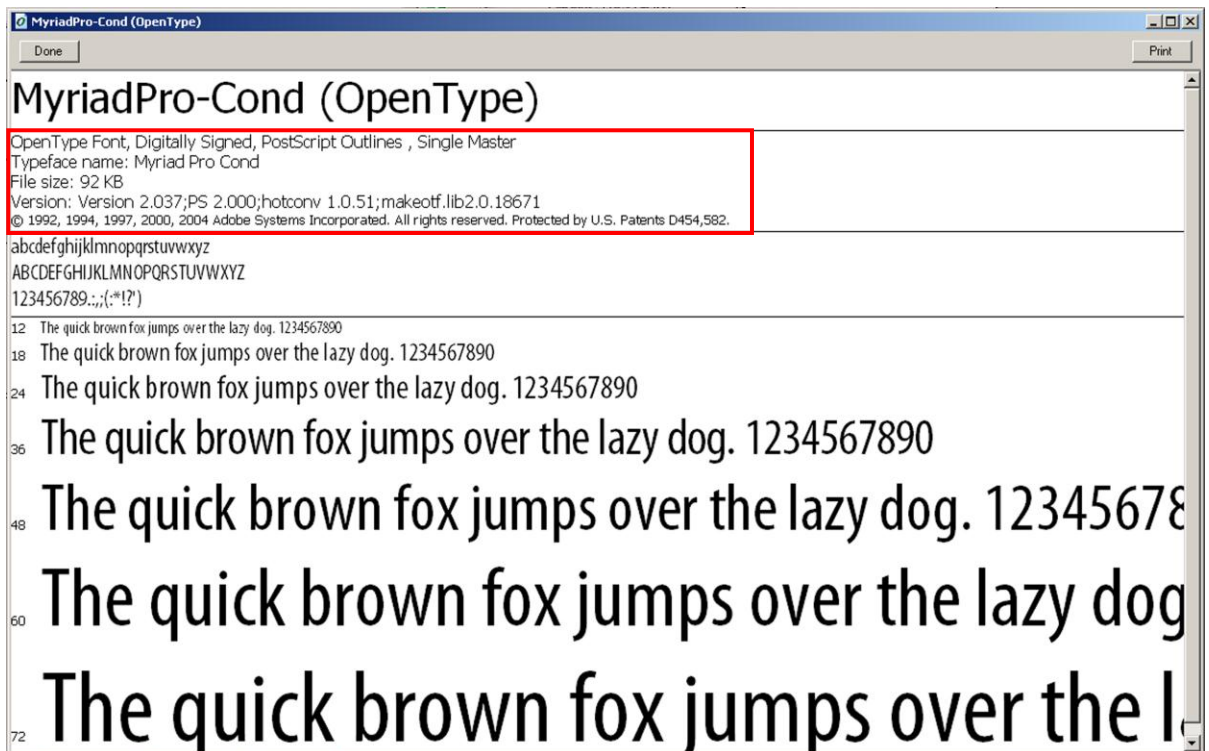
In contrast to Windows, these folders can contain all kinds of fonts.



Picture 19: Font folder (/Library/Fonts) of Mac OS X (10.5)

On Mac OS X and Windows, additional information about a font is available by a viewer program of the operating system. In order to display the font information, you have to double-click the desired font which opens the Font Viewer application (Windows XP/Vista) or the Font Book application (Mac OS X since version 10.3) respectively.

On Windows, the Font Viewer application shows information about the font type, typeface name, version, and a preview of the font.



Picture 20: Microsoft Font Viewer application

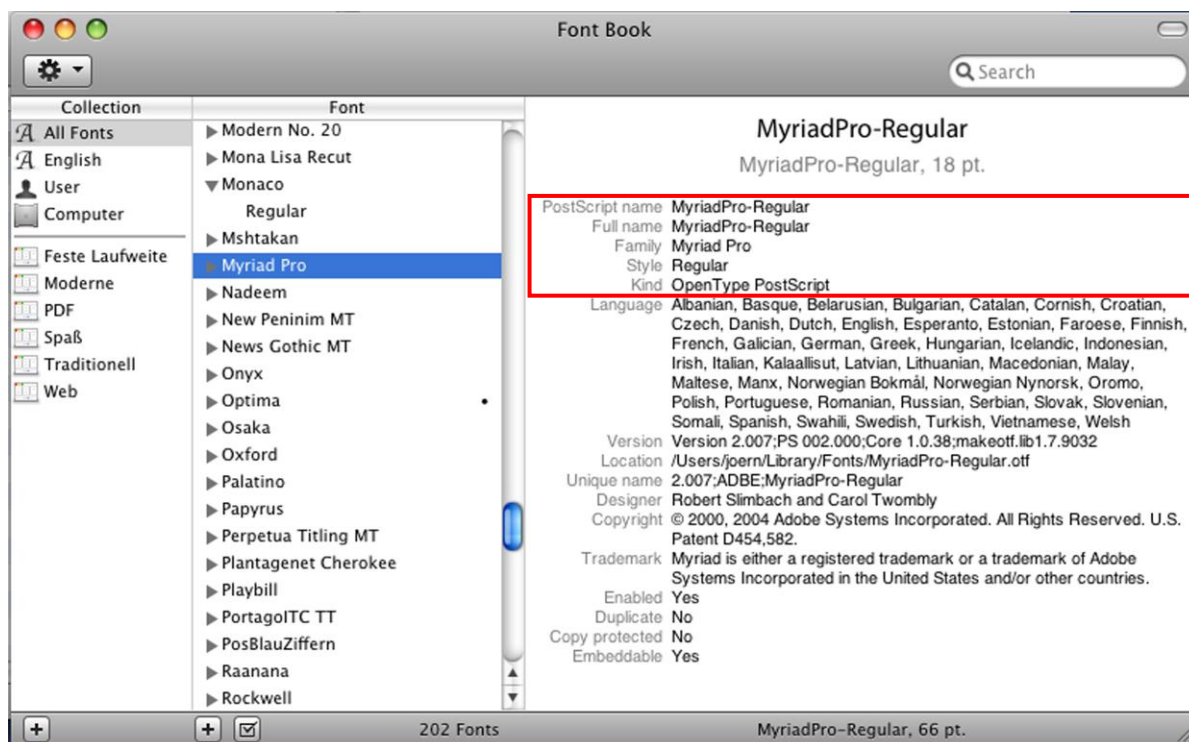
To import a font on Windows, you have to store the font file in the font file folder (C:\WINDOWS\FONTS).

Another way is to open the font folder via the Control Panel (Control Panel/FONTS). In the file menu, you have to choose "Install New Font". In the dialog, you have to select the font file and to confirm with the Import button that the font should be imported into the font folder.

With the Font Book of Mac OS X, additional functions are available. For example: An overview of all installed fonts, the possibility to activate or deactivate fonts (Edit menu) and to group fonts to a collection (File menu/New Collection), etc.

Since Mac OS X 10.5, further features are included: the export of fonts or font collections (File menu/Export Fonts or Export Collection), displaying detailed information about a font (Preview menu/Show Font Info), etc.

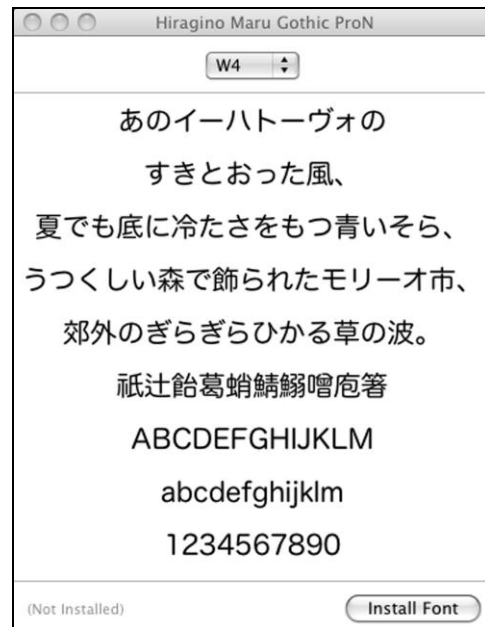
The Font Book lists all installed fonts, except for fonts which are located within the "Application Support" font folder and fonts within the application folder.



Picture 21: Mac OS X Font Book application (Preview menu/Show Font Info)

There are 3 ways to import a font file on Mac OS X. You can:

- store the font file in one of the font file folders (usually in the folder /Library/Fonts).
- use the Font Book application (File/Add font), and
- double-click on the font file. The operating system displays a preview of the character set, examines whether the font is already installed or not and provides a button to install the font in an easy way.



Picture 22: Mac OS X font file and its preview

There are some other font types which are not explained in this module because this would go beyond the scope of this module. They include AGFA Intellifont and Multiple Master fonts. Some of them are AGFA Intellifont and Multiple Master fonts for instance.

1.7 Review questions

- What does Desktop Publishing mean and what is the main task of it?

- What are the differences between word processors and DTP applications?

- What is the advantage of frames concerning DTP applications?

- What does typography mean and which factors determine the quality of it?

- In which way is it possible to subdivide fonts, concerning their appearances and their technical realization?

- What are the advantages of the OpenType font format?

2 Data preparation

2.1 Introduction

DTP- or layout applications respectively are not able to cover all functions that are needed for a complete workflow. From the input, production, modification and output, there are many programs which are built for a special use. DTP applications are actually built to arrange all needed media to a final layout document.

2.2 Sequence of the realization

The fact that DTP applications are not able to cover all functions has the consequence that we need to use supplementary software to prepare the layout document. Some parts of these tasks can be solved directly by the DTP application, but only basically. Besides, additional Software like Illustrator or Photoshop makes it easier to share the work between different specialists.

The conventional workflow includes tasks for text-, graphic-, designer- and prepress specialists. In the final layout document, all parts of their work are summarized.

Illustration

Text

Table

Kriterien	relative Wertigkeit	Adobe Presenter		Lectora		Articulate Presenter	
		Rating	Rating	Rating	Rating		
Usability:							
Installation	5	1	5	2	10	1	5
Intuitivität des Bedienkonzepts	2	2	4	4	8	1	2
Einarbeitungsaufwand	1	2	2	4	4	2	2
Workflow	2	2	4	3	6	2	4

Photo

Presentation

Picture 1: Final DTP layout document with different file elements

2.3 Production of the contents

The elements combined in the layout document are usually

- text,
- bitmaps (such as TIFF or PSD),
- vectors, and
- tables (sometimes).

The text production of the contents is the task of **text- or word processors** respectively. There are many products at the market: Microsoft Word, or the office suits like Microsoft Office and OpenOffice for instance.

All layout applications are able to import the text from the processors mentioned above including their standard formats for the headings and the text. The most popular word processor is Microsoft Word and because of that, most layout programs are able to import the “.doc” format. If using another word processor, there is the possibility to save the text file as rich text format (.rtf), which can also be imported by most layout programs.

If the allocation of the standard formats for the text and headings is carried out directly in the layout document, it is sufficient to import it as a text file (.txt). The disadvantage of this format is that there is no possibility to define and save standard formats for headings and text in the word processor.

The formats mentioned (Doc, rtf and txt) are the most common text formats for the import of layout documents.

The bitmap production or processing takes place in an **image editing software** like Adobe Photoshop or Ulead PhotolImpact. The formats most used concerning the DTP are the Tagged Image File is TIFF (.tif)- and the Encapsulated PostScript (.eps) format. TIFF files are the most flexible formats, relating to the exchange between different programs. EPS files consist of PostScript data which describe the picture and a preview-picture file for the view on a monitor. A special kind of the EPS is the DCS format (Desktop Color Separation) which consists of five separate files: four for each color (CMYK) and one for the preview-picture.

Vector files can be saved as an EPS or DCS format as well. The most popular **vector programs** are Adobe Illustrator and CorelDraw.

Most of the **spreadsheet application** manufacturers realized that there is the need for spreadsheet functions or the implementing of it respectively in their products. At last, all

new layout applications have these capabilities. Programs to produce spreadsheets are Microsoft Excel or Open Office, for instance.

DTP applications have special **import filters** for the most popular programs, like Word-, Excel-, Photoshop-, Illustrator- and others to support their proprietary formats directly. If using programs of one manufacturer, it is very likely that the DTP program includes the import filters of the other programs which prepare the data. Adobe is one of these manufacturers, for instance.

Another way, in contrast to the import, is the direct linking (cross-reference) of the layout document or rather its elements with the programs which produced them. For example, the layout file in this case would only contain a small version of an image which is suitable for on screen viewing but not good enough for the print out. However, the layout file is accompanied by the original Illustrator file, which contains the respective image in high quality. Because the two files are linked, the low-quality image will be replaced by the image with the higher quality, automatically in case of a print out. This option is provided by most of the layout applications, but not for every program. The advantage is that the layout document will be updated if the contents of the document are changed, or reverse. On the other hand the linked files always have to be provided with the layout file.

2.4 Review questions

- Which contents of a DTP document are usually created by other programs and why?

- Describe the usual DTP production workflow!

- Which file formats can be implemented in a DTP workflow with most DTP applications?

- What are the advantages of cross-references and which factors have to be taken into account if using them?

3 DTP applications

3.1 Introduction

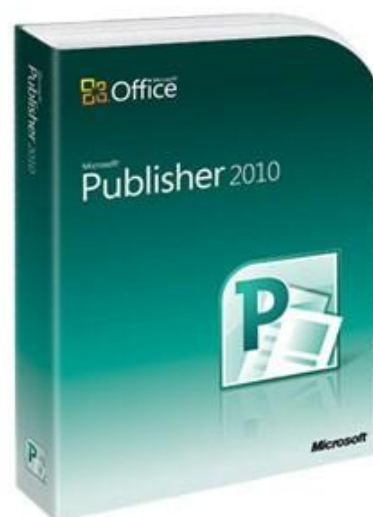
There are several different DTP applications to produce professional layouts. They are distinguished by their different functions and manufacturers. Some of them are even from the same manufacturer like the Adobe products InDesign and FrameMaker. In this module, it is impossible to describe all functions and features for each program. For detailed information, visit their web pages. We can only give an overall view relating to their biggest differences.

The most commonly used DTP applications are:

- Adobe InDesign
- Adobe FrameMaker
- QuarkXPress

3.2 Microsoft Publisher

This inexpensive application is provided as a standalone version and as part of the Microsoft Office Professional. The current version is Office Publisher 2010 and is supported for Windows only. It does not claim to be a professional DTP application, but it is designed to fit in the Microsoft Office environment (Word, Excel, PowerPoint, Outlook, Access, etc). The target groups are SOHO users with limited or no professional knowledge about the DTP workflow and its applications. Templates and a guide are used to help the user access the features of the product and lead users through the process of creating and distributing in print, Web, and e-mail. Microsoft Publisher is designed to “share, print, and publish professional-looking layouts with ease”.



The **output formats** are:

- PDF
- XPS

- HTML
- Word and RTF
- several graphic formats (gif, jpg, png, bmp, wmf, emf)
- (Office Publisher)

3.3 Adobe InDesign

Version 1.0 of Adobe InDesign was released in 1999, the current version is InDesign CS5 (CS = Creative Suite, the name of Adobe's software bundle including programs such as InDesign, Photoshop and Illustrator). It is made for leading-edge graphic designers, production artists, and prepress professionals to create:



- Graphically rich layouts
- Fine typography
- Newspapers
- Brochures
- Packaging
- Catalogues
- Advertisements
- Graphically rich eBooks

The focus is **graphic intensive layouts for books, magazines and newspapers.**

The **output formats** are for professional printouts, Adobe PDF files and the Web. The file formats are:

- Adobe PDF

- XML
- SVG
- HTML
- EPS
- Prepress files
- (InDesign)

The **advantages** of InDesign are, among other things, the graphic functions and the possibilities to design the typography. InDesign works well together with other Adobe software like Photoshop, Illustrator and Acrobat through import functions and filters. Handling InDesign is fairly easy if you are familiar with other Adobe products because the user interface is very similar. In InDesign you can work frame oriented or by Drag and Drop - the frames are generated automatically.

A disadvantage of the first versions (up to version 1.5) was the processing speed of InDesign. But today, the application works fine.

The direct opening of QuarkXPress documents is possible since version 1.5.

3.4 Adobe FrameMaker

FrameMaker became part of the Adobe suite of products in 1995. It has been underdevelopment since this time. The current version is 10. In the range of DTP programs, FrameMaker is a special case. Adobe InDesign and QuarkXPress have their focus to graphic intensive layouts, whereas FrameMaker is designed to work with **extensive text documents** like:

- Books
- Manuals
- Product specifications / documentations
- Online help pages
- Catalogues and directories
- Policies and procedures
- Research reports
- Content-rich eBooks



The **target groups** are publishers, technical writers, and documentation specialists who deliver volumes of information across multiple channels, like print, Web and CD-ROM. The method of creating documents in FrameMaker is different to the other DTP programs. One difference is the work needed by the **production-sequence**:

- Creating the structure
- Creating the layout
- Input of the content
- Output

The documents are subdivided into a layout page and an input page:

The **Master Pages** determine the layout. The editing of the document layout happens on this kind of page. They control the general appearance of the document, such as

- the size of the document,
- the margins,
- single or double sided,
- the number and position of the text frames and text columns,
- the background- text and graphics which appear on every page (headers, footers etc.).

The **Body Pages** correspond with the Master Pages and are used to type the text, to apply the formats and to insert the graphics.

It takes some time to get familiar with this program because the menus and the interface are quite different compared to other DTP programs. FrameMaker offers an extensive amount of functions and features for text and layout editing. The catchword “**cross media publishing**” is true for this program. The technical structure of it (Master- and Body Pages) enables the reliable and easy **output** of several file **formats** for different media types:

- Adobe PDF
- HTML and DHTML
- XML
- MIF*
- SVG (Scaleable Vector Graphics)
- RTF
- FM (FrameMaker)

* The MIF-format (Maker Interchange Format) makes it possible that FrameMaker shares information with other programs without the loss of format-, graphic- and text information by creating import- and export filters. Other purposes are the performance of database publishing and custom document processing and the sharing of files with earlier versions of FrameMaker.

If working with extensive text documents, FrameMaker is the first choice.

3.5 QuarkXPress

The biggest competitor of the Adobe DTP product range is QuarkXPress. Concerning program features and functions, QuarkXPress can be compared to Adobe InDesign.

In the past, it had the biggest shares of the market, but with the appearance of InDesign the market position had to be shared with Adobe. Nearly every publishing company of newspapers and magazines uses QuarkXPress or InDesign.



At the time of writing this module, the current is version 9.0 which allows the import of PDF files, native Adobe Photoshop and Illustrator files as well as Excel files. The user interface can be switched to several languages and the program offers dictionary and hyphenation support for more than 30 languages.

The **output file formats** are:

- HTML
- PDF (PDF/X support)
- XML
- EPS
- Flash
- (QuarkXPress)

3.6 Others

Another DTP program which we have not mentioned yet is **Corel Ventura**, the former **Ventura Publisher**. This program was developed in 1985 and became the market leader in the late 1980s outselling. Because of slow and faulty versions that only supported an English user interface, Ventura became less important and never managed to catch up with and QuarkXPress, the market leaders in the 1990s. The current version Ventura 10 e.g. provides XML import and PDF export. In contrast to other DTP programs named in this chapter, Ventura is only provided for Windows (version 10 requires Windows 2000 or XP). All other programs support Windows as well as Apple operating systems.

<http://www.fatpaint.com/> is an online DTP, that is free and capable of producing simple documents. It can be used to export to multiple formats.

In order to produce graphic intensive layouts of only a few pages, a vector program like **Adobe Illustrator** can be sufficient. They provide many functions to create professional layouts and output file formats like EPS and Adobe PDF. The possibility to edit the view of text is much better than the abilities of word processors, but they are not comparable with DTP programs.

3.7 Selection of a DTP program

In order to choose one of the DTP programs for both platforms, there is the need to specify the purpose of the use. Already existing programs and their support in the DTP programs are important, too. Altogether, the selection can be divided into the mentioned target groups:

- SOHO: Microsoft Office Publisher
- Professionals with graphic intensive work: Adobe InDesign or QuarkXPress. InDesign corresponds better with the Adobe product range, like Photoshop, Acrobat and Illustrator. QuarkXPress is more expensive and supports Adobe PDF only in case of an Acrobat Distiller license. But QuarkXPress works much faster than InDesign.
- Text intensive work: Adobe FrameMaker

3.8 Review questions

- Name and describe 4 DTP applications concerning their target groups!

- What are the standard export file formats of DTP applications today?

- What is the difference of FrameMaker compared to the technical realization of the other DTP applications?

- What are the disadvantages of QuarkXPress concerning the other software products which are needed for data preparation and data export?

- What could be an alternative to the classic DTP application and in which case would it be useful?

4 Open Prepress Interface

4.1 Introduction

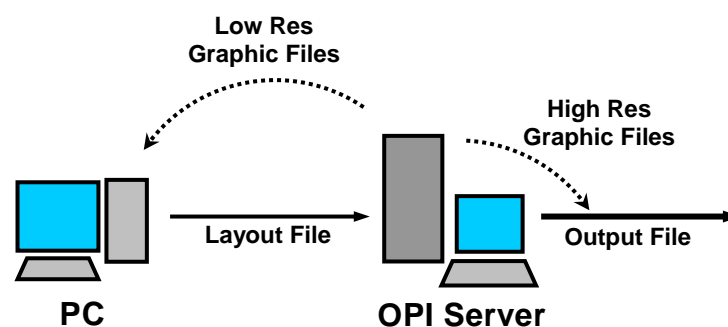
When working with a layout document that includes **large graphic files** (high resolution, large size) the system can become slow and unresponsive, due to the processing required. Dealing with these types of files, which need a lot of memory, in the workflow can be simplified with an Open Prepress Interface (OPI) System. OPI is used for in the **Prepress workflow** in order to minimize the waiting period. It has been available for more than 10 years, however few people know of this application.

4.2 OPI- principle

If a graphic file is placed into a document, layout applications normally integrate the full graphic file. If the graphic files are large, the processing of the document becomes very slow due to the quantity of the graphic data. The resources needed by the PC and the network (if used) are unnecessary, because low resolution graphic files are sufficient for the work on a monitor in order to create the layout or to judge the colors.

Because of this, OPI-programs create **low-resolution graphic files** with the same dimensions and place them into the layout document instead of the originals. The high-resolution files are integrated by an **OPI-server** just after the print job is started. The OPI-server finds the data by **OPI-comments**, which are included in the PostScript print file or in a PDF file. These OPI-comments describe, among other things, the memory needed, the sizes, and the position of the graphics in the layout document.

Another aspect is the possibility to **share the work** of one project between the graphics and the layout, because the final graphics are embedded after the print job is started.



Picture 1: OPI workflow

Therefore, the layout files include only references to the original high-resolution graphic files in order to save resources of the PC and the network. The big **advantage** is that the resources which are needed by the computer for the document layout are moved from the PC to the server. This saves time and costs. If there is a powerful OPI-server, the print job is sped up, too.

4.3 OPI-server programs

There are, among others, three popular OPI-server programs. All three programs are offered for different platforms:

- EtherShare OPI from Helios
 - UNIX (Solaris, AIX, HP-UX, IRIX, Compaq UNIX)
 - LINUX
 - Windows 2000
 - Mac OS X

- Color Central from Scenicsoft
 - Apple Mac OS
 - Windows NT 4 Server
 - Windows 2000

- Full Press from Xinet
 - UNIX (Solaris, Solaris x86, IRIX)
 - Mac OS X
 - Windows NT 4
 - Windows 2000 Server

4.4 OPI 1.3 – 2.0

In order to reduce incompatibility between different layout applications, there is a more recent specification – the **OPI 2.0**. It has stronger and extended commands compared to the old OPI 1.3 specification. For example, with OPI 2.0 it is possible to describe that the low-resolution graphics are in the EPS- or TIFF format. In practice both specifications work very well.

The three OPI-server programs mentioned are able to interpret both versions of OPI commands, but only Color Central from Scenicsoft is additionally able to consider the OPI 2.0 specification during the writing of commands in the wildcards, which include the low-resolution graphic files.

4.5 Data export

All new OPI-server programs are able to create **PostScript** Level 1, Level 2, 3 or **PDF** output files. The high resolution graphic files are added by the OPI server, if the option is activated. Otherwise, only the low resolution data of the preview is included. The colors and the **ICC profiles**, respectively (concerning of a Color Management workflow) can be saved with the PostScript or PDF files. The same applies to the used fonts.

The export is explained in the next chapters.

4.6 Review questions

- What is OPI and in which case is it useful?

- What are the tasks of the OPI comments?

- What is the difference between OPI 1.3 and 2.0, and which ways do you know to avoid conflicts concerning different versions?

- What is the simplest way to identify an OPI 1.3 or 2.0 file? Describe the method.

- Name some points which can be described in the OPI part of an PostScript or PDF file.

5 Data export

5.1 Introduction

If the layout document is finished, mostly, it has to transport, to exchange, to archive and to print. The file format to be selected depends on purpose. Is the layout or the document really finished or should it be editable? Do you want to archive it, publish it in the web or do you want to transport it to a printing distributor? The purpose determines the format.

5.2 Export of open application data

In praxis, **open application data** are exchanged when there is collaboration between a number of people. Open data means, that the used layout program determines the file format. For example, with the layout program InDesign, the file format is the proprietary format of InDesign (suffix = .indd) which can only be opened and edited by this program. The **advantage** is that the recipient of the file has all possibilities to change or to adjust the data. The **disadvantage** is that the recipient needs the application and the same or higher version. Besides, there is the **risk of missing data**, such as:

- the used fonts
- graphics and pictures with the printable resolution (High Res)

The typical mistake is the delivery of incomplete or wrong data, like low resolution instead of high resolution graphics or missing fonts. Some programs like InDesign help with the packing of a complete folder with all needed elements. It generates a folder which contains the linked high resolution graphic files, the used fonts and a text file with all needed technical data of the layout document, automatically.

Name	Date Modified	Size	Kind
▼ InDesign Package	Today, 14:12	--	Folder
InDesign File.indd	6. November 2007, 16:54	6,6 MB	InDesign® CS2 Document
Information	6. November 2007, 16:55	8 KB	SimpleText Document
▼ Fonts	Today, 14:10	--	Folder
Ag Helvetica.dfont	21. März 2005, 00:32	972 KB	Datafork TrueType font
Wingdings	3. November 2001, 00:00	72 KB	Font Suitcase
ZapfDingbats.dfont	21. März 2005, 00:32	152 KB	Datafork TrueType font
▼ Links	Today, 14:12	--	Folder
Image01.ai	1. Dezember 2005, 11:51	36 KB	Adobe Illustrator Document
Image02.eps	7. September 2006, 09:58	356 KB	EPS File
Image03.eps	8. September 2006, 14:41	356 KB	EPS File
Image04.eps	8. September 2006, 13:41	356 KB	EPS File
Image05.eps	20. September 2007, 15:50	9,1 MB	EPS File
Image06.eps	8. September 2006, 14:42	344 KB	EPS File
Image07.tif	13. April 2005, 15:39	152 KB	Adobe Photoshop TIFF file

Picture 1: Adobe InDesign Package Folder

Some programs like QuarkXpress and InDesign can cause problems, if files are opened on different PCs. Especially, if XTensions of other manufacturers are not present.

Generally, all used data like fonts and graphics have to be delivered with the layout document.

5.3 Export as PostScript and PDF

The possibility of error with open data is high. This was the main reason to develop a **standard for data exchange**. Originally with the development of the PostScript standard in the early 1980s, this was followed in 1993 by the Portable Document File. The advantages of **PostScript (PS)** and the **Portable Document File (PDF)** format concerning the open data file formats are:

- Platform independence
- The files are able to contain all needed data for a professional printout.

5.4 PostScript



PostScript was the first standard for the data printout. The method is, in contrast to other procedures, that the whole document will be transformed into object orientated PostScript code by a PostScript printer driver. This code is vector-based, which means, among other things, that there is no restriction of the quality concerning to the size. This file format is able to send to a printer with the independence of the used layout program. The requirement is only that the printer has to have the ability to interpret the PostScript code with a Raster Image Processor (RIP). In the RIP, the data is converted to raster points.

Some of the disadvantages of PostScript files are the large file sizes and the vulnerability of the code. If a file is damaged, there are only a few possibilities to restore it. In the most cases, a new file has to be created. The editing of its file contents is only possible in the program, which created it.

There are different levels of PostScript: Level 1, Level 2 and 3. The differences are explained in the Outward module "Adobe PostScript" in detail. The compatibility is downwards from Level 3 to 1. The most important differences are the supported colors and graphic formats or functions, respectively. Most PostScript printers are able to convert PostScript level 2. Today, new printers are able to convert level 3.

5.5 Export of EPS files



The EPS file format was introduced for the publishing industry. This format is a usual PostScript format, with the difference that there is no information of the output device included. It also has the option to save an additional low resolution file (72 dpi) for **preview** on a monitor. This file is used in the OPI workflow or direct in the layout program for graphics which are placed in the layout document.

But there are additional **restrictions**:

- Every page has to be exported separately
- No possibility to start the Acrobat Distiller
- No possibility to make a four color separation output

5.6 Portable Document File



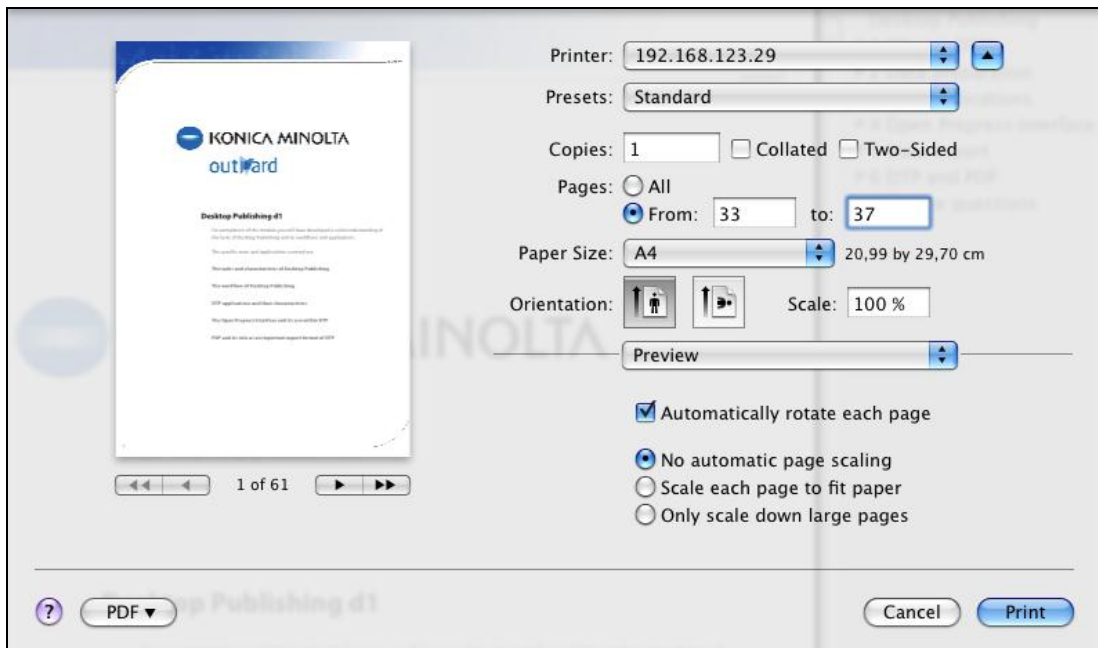
The first PDF version in 1993, was not able to support the properties of printers. The change came with the PDF version 1.2, which corresponds with the PostScript level 2. The next PDF version 1.3, corresponds with the PostScript level 3. This PDF version supports, among other things, OPI comments version 2.0 and the integration of ICC profiles for Color Management. At the time of writing this module, the latest PDF release is version 1.7 which came with the version 9 of the Acrobat software. PDF 1.7 is approved as ISO 32000 standard.

In the next chapter, we will explain the possibilities and how to create a PostScript- and a PDF file.

5.7 Differences of PDF and PostScript

At first sight, PDF and PostScript are similar, but there are differences concerning their coding. PostScript is a programming language which is theoretically directly programmable, but nobody does that, because of the complexity. If these files work off on a RIP, the data processed sequentially.

PDF is a file format which is more dependable and its data is not processed sequentially. That makes it possible to print every page separately. That means, if printing a PostScript file, all included pages have to be printed. With a PDF file a selection of pages could be printed.



Picture 2: Printing dialogue of a PDF document (on Mac OS X)

Additionally, it is possible to change, delete and rotate the chosen pages or to insert a new page.

PDF files are much smaller than PostScript files which make data transfer and archiving much faster, dependable and cheaper. The reasons are, among other things, the efficient compression methods.

5.8 Review questions

- Describe the possibilities of data export including the pros and cons of the methods.

- What is strictly recommended concerning “open data” and its export?

- What is an EPS file and what are its advantages?

- Describe the safest way for data export you know and specify its advantages.

- What are the differences between PostScript and PDF? Specify the pros and cons.

6 DTP and PDF

6.1 Introduction

In the era of several different media types, there is the need of multifunctional file types. The format which is extremely well suited for this demand is the Adobe Portable Document File (PDF).

The biggest **advantages** of this kind of format are:

- Small file size
- Open standard
- Availability to look at its contents on all platforms with the Acrobat Reader
- Possibility to embed all needed data like the used fonts, all graphics and the color data (Color Management) with Acrobat Distiller
- Possibility to make a full text search with the Reader
- Possibility to create high quality files for the web, printing, eBooks, etc.
- Possibility of limited editing textual content with Acrobat
- Possibility of editing the embedded graphics by launching the programs that the graphics were originally made in, from Acrobat.
- Possibility to limit the access or functions of the Acrobat, Acrobat Reader and the file, respectively with coding.

In this chapter, we will show you, how to create PDF and PostScript files:

6.2 Creating PostScript files

Generally, the best method to produce a safe and error-free PDF file is to create a PostScript file first. But there are also other ways to produce a PDF file:

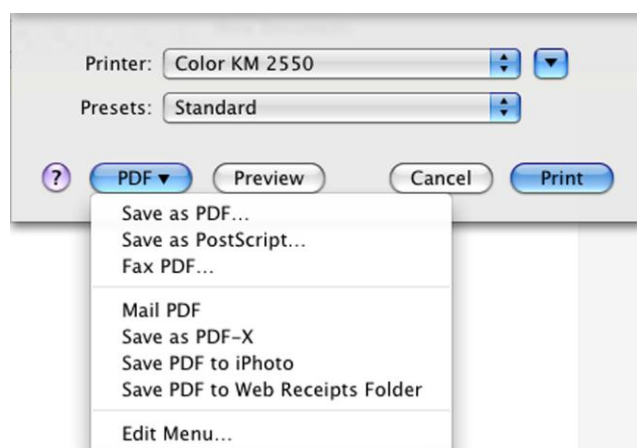
- Via the Adobe Acrobat PDFMaker
- Via the print menu of an Adobe PDF printer driver

The **PDFMaker** method is not recommended because of its low printing quality. It was developed to exchange low resolution files for the monitor only.

The **Adobe PDF printer driver** method is also not recommended because there is a risk of faulty generated code in the PDF file compared to the the PostScript file.

Therefore, the main condition to create a PostScript file is the installation of a **PostScript printer driver** into your operating system. The Adobe printer driver **AdobePS** is free for several platforms and operating systems at their Web pages. Besides, it is included in most CD-ROM's of Adobe software. But it is recommended to use the latest version.

With the **Apple operating system** Mac OS X, there is no need for this driver because the PostScript printer driver is part of the operating system.



Picture 1: Printing dialogue of Mac OS X

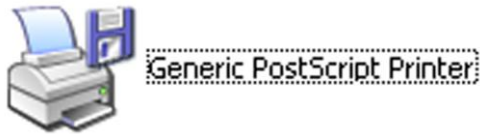
With the old Apple operating system Mac OS or Mac OS X Classic, there is no need for this driver because due to the latest Apple LaserWriter driver which has PostScript-ability and uses the same code-library as AdobePS.



Picture 2: AdobePS and Apple LaserWriter printer driver of Mac OS

But the Adobe driver supports more options for the print and the creation of PS-files and offers a better handling. You have to pay attention to the fact that since version 8.6, only the PostScript level 3 is included. The latest version of the Mac OS Printer driver AdobePS is 8.7.3.

The **Windows operating systems** 95, 98, 98 ME and NT do not have the needed driver. Windows 2000 was the first Microsoft OS with an included PostScript driver.



Picture 3: AdobePS printer driver of Windows XP

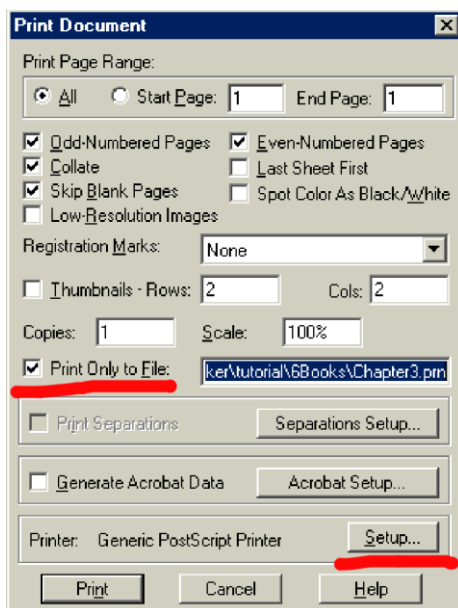
If you install AdobePS, the new printer in the printer menu has to be set to File-port and not to parallel or serial. The current version of the Windows Printer driver AdobePS is 6.0

The PCL (Printer Command Language) of Hewlett-Packard and the GDI (Graphics Device Interface) of Windows cannot be used for the creation of PostScript files. They have their own printer languages.

With the mentioned DTP programs, additional options are offered in the printing dialogue.

In order to create the PS file, you have to make the same steps compared to the printing of documents on a printer, like the page setup and the orientation of the document, but with some differences:

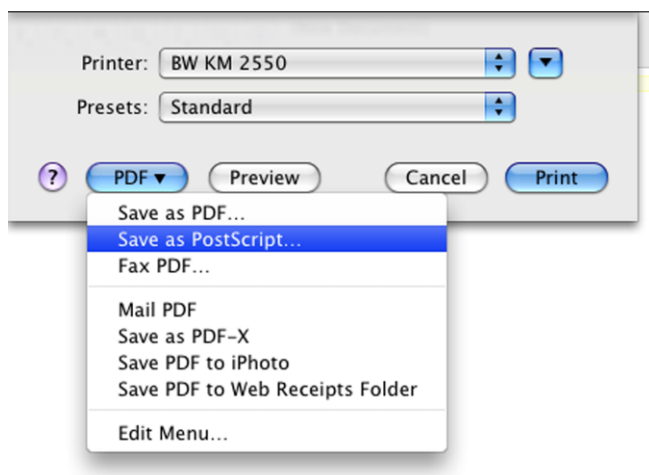
You have to adjust the target of the document. In order to do this, you have to choose the option "Print to file".



Picture 4: Printing dialogue of Filemaker for Windows

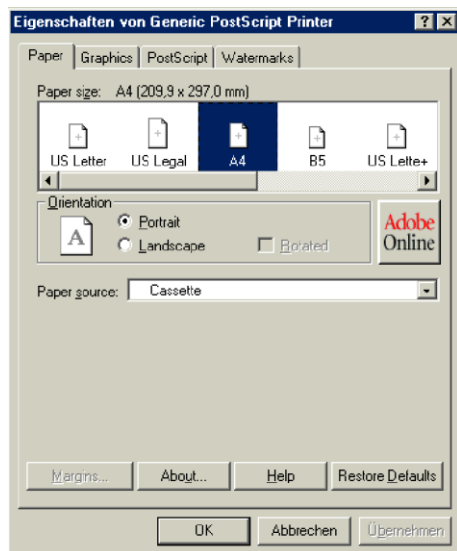
And you have to choose the target printer: in the printing dialogue /Printer/setup: Generic PostScript Printer.

With the Apple operating system Mac OS X, you have to choose “Print.../PDF/Save as PostScript...”.



Picture 5: Printing dialogue of Mac OS X to create a PostScript file

In the Printer setup/Properties some additionally options of the PostScript file are offered, like the resolution of the graphics and the document size.



Picture 6: Printer properties of Microsoft Windows

After all, you only have to start the print job.

There is always the possibility to create a PostScript file of any document, if the application supports the printing to PostScript.

6.3 Creating PDF files

In order to convert the PostScript file into a PDF file, it is necessary to install the **Adobe Acrobat Distiller**. It is part of the full version of Acrobat. The task of the Distiller is to convert PostScript-files into PDF files only.

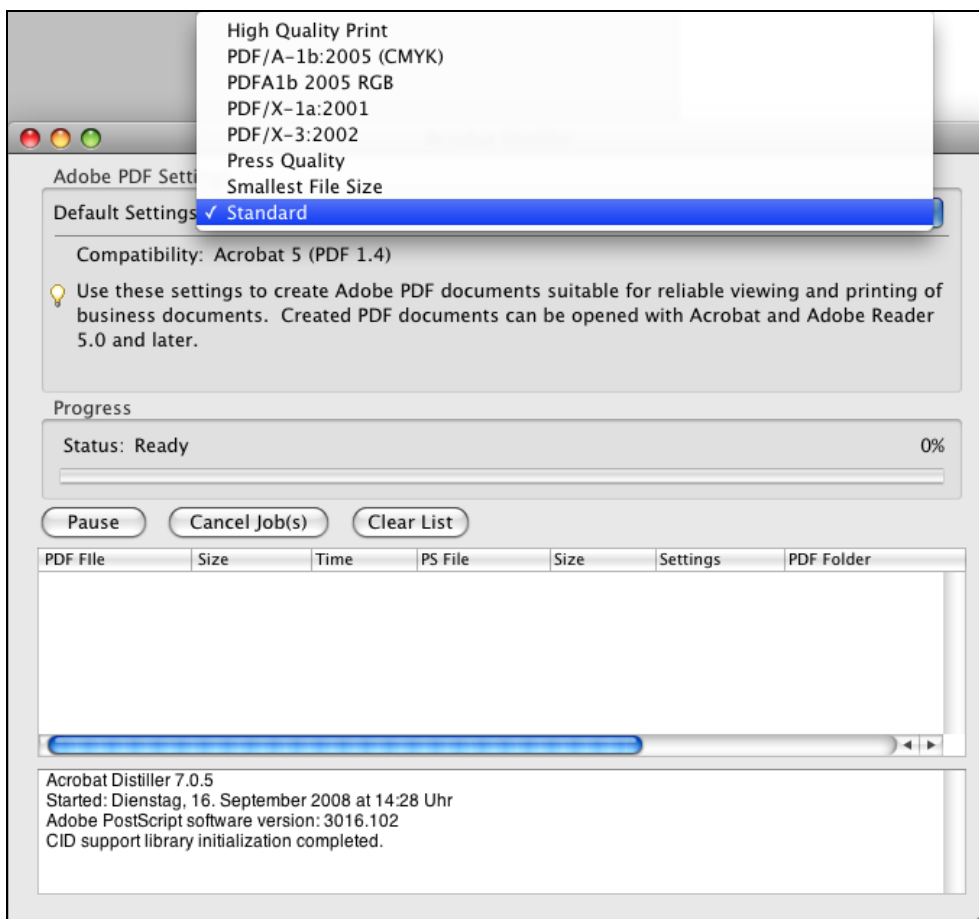
The full version of Adobe Acrobat consists of:

- PostScript driver (Adobe PDF)
- Acrobat Distiller
- Acrobat software
- Several fonts

Only with a full version of Acrobat, you have the possibility to modify / edit the contents of the PDF files and to export them into other formats, like RTF, PostScript, EPS etc. One of the most used functions of Acrobat is the creation of bookmarks, thumbnails and hyperlinks. Other functions are the direct scanning of documents, the full text search, the generation of full text indices (Document Management System) and many other things which make this program a multifunctional software. It is not possible to describe all functions of Adobe Acrobat in this module.

In the distiller start dialogue box there are a number of settings that can be changed depending on the purpose of the document. The following questions should be asked before selecting the settings in Acrobat Distiller: Where do you want to publish it - in the Web, on CD-ROM or as print? With printing option or only for viewing on the monitor? Do you want to send it over the Internet? All these questions have effects on the Distiller adjustments, the quality, and the file size of the PDF. The default settings (formerly "Job Options") are: Standard, Smallest File Size, Press Quality, High Quality Print and several PDF standards including two PDF/X standards (PDF/X is a subset of PDF that is optimized for digital prepress purposes).

There is also the possibility to modify default settings in order to create your own settings and save them so they will be provided by the Default Settings menu. To create a new default setting or check an existing setting, open the Adobe PDF settings dialogue which is located in the menu bar under settings.

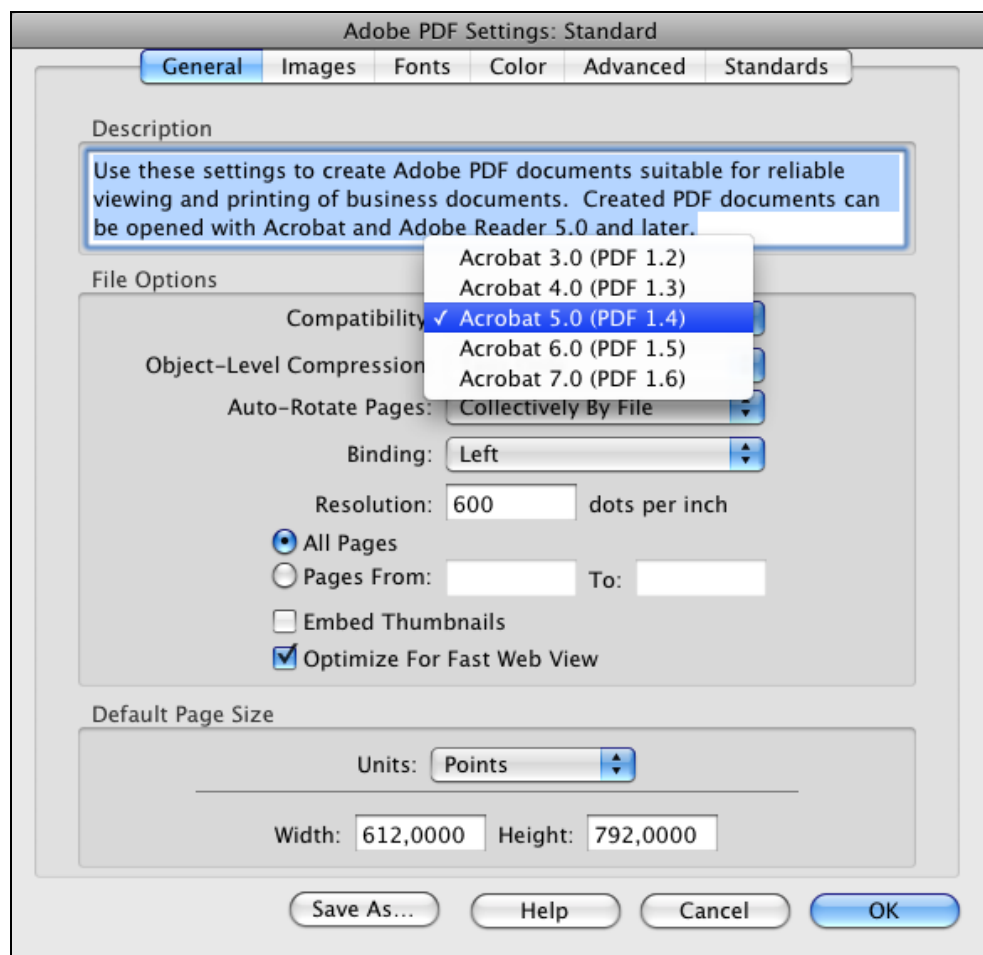


Picture 7: Adobe Acrobat Distiller

The following parameters can be adjusted:

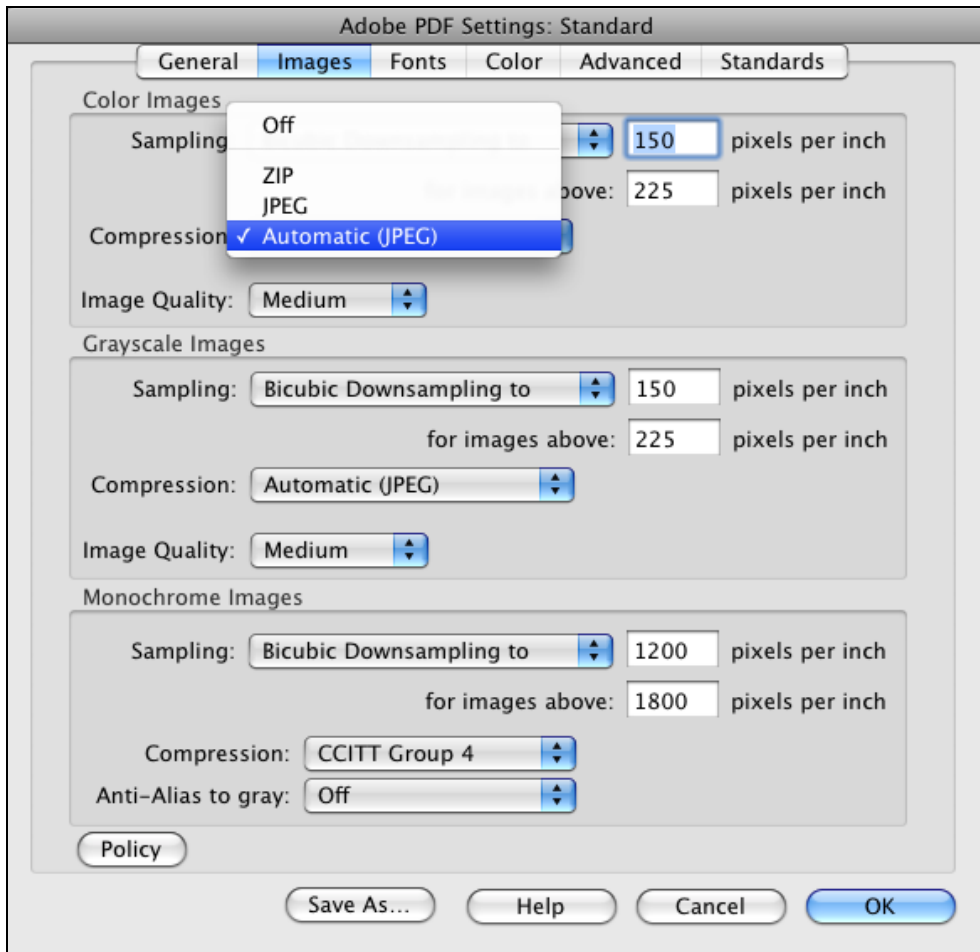
- General
- Images
- Fonts
- Color
- Advanced
- Standards

The “General” tab contains the possibility to adjust the compatibility of the PDF file. The option “Optimize For Fast Web View” is recommended. The option “Embed Thumbnails” produces little preview graphics which can be looked at in Acrobat or the Acrobat Reader. The option “Auto-Rotate Pages” allows it to rotate all or individual pages. The file size of the PDF is decided, among other things, by the resolution and the document size which depends on the purpose. Another important aspect concerning the file size is the compression of the graphics. These settings are available in the tab “Compression”.



Picture 8: General tab

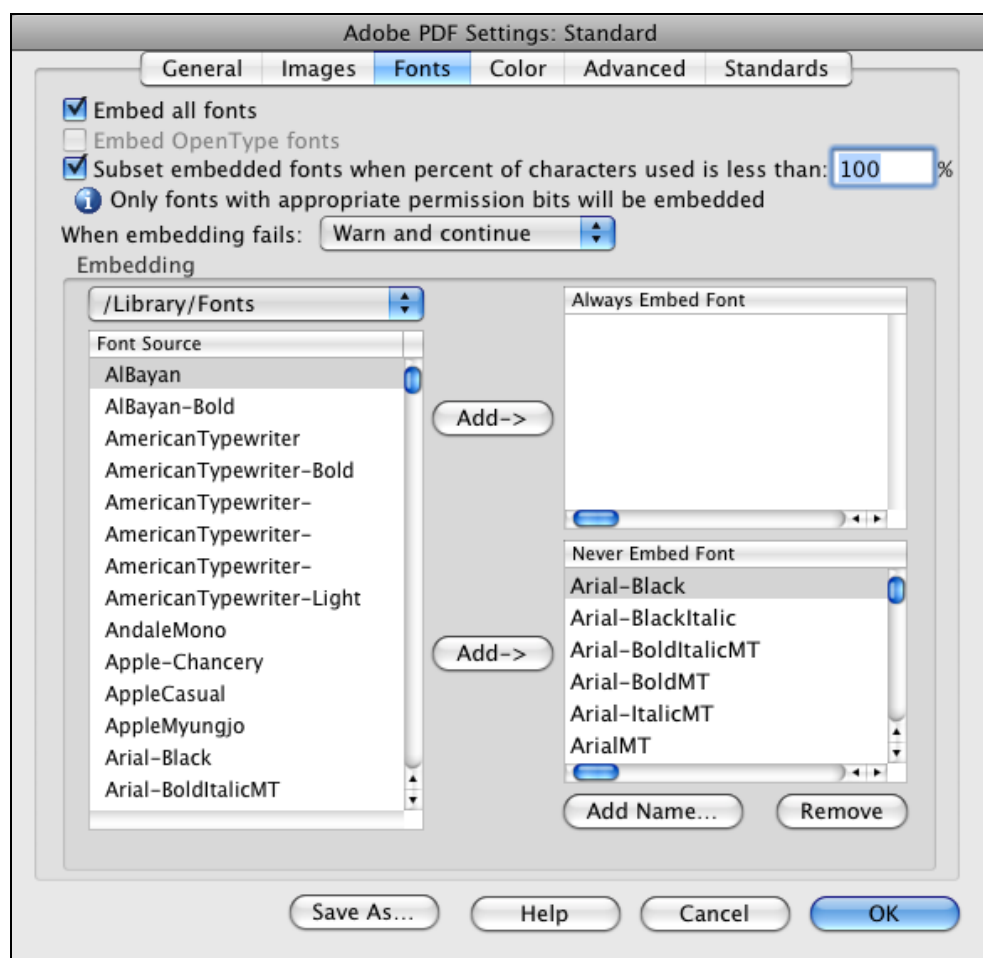
The resolution, the compression method (“Compression”), and the levels of the compression (“Image Quality”) depend on the target use of the document.



Picture 9: Image tab

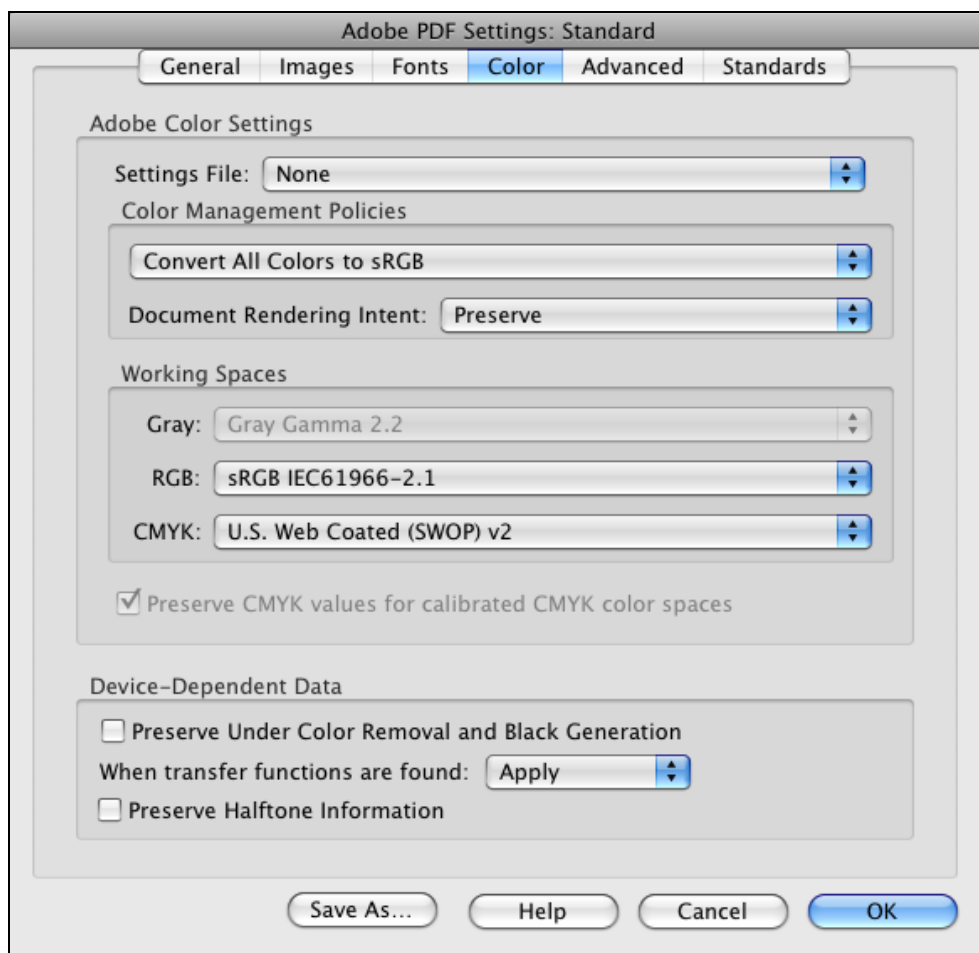
In the “Fonts” tab you have the ability to embed the fonts that are used in the document in order to guarantee the uniform look on all platforms and PCs.

There are several options to embed fonts. If you take the option “Embed All Fonts”, every font used in the document will be embedded in the source of the PDF file. If you want to exclude some fonts in order to control the file size, you have to drag them in the field “Never”. This only makes sense if you know that the users of the PDF document have these fonts on their PCs.



Picture 10: Font tab

The “Color” tab has the function to adjust all settings which are necessary for color management. If no color management software is installed on your PC or you do not have expertise in this topic, it is recommended to choose the setting “Leave Color Unchanged” and the Rendering Intent “Default” in the pull down menus of “Color Management Policies”.



Picture 11: Color tab

The options in the “Advanced” tab are for advanced users of Acrobat and the printing process respectively. Normally, there is no reason to change them. The options of the “Standards” tab are related to settings which are based on a standard (e.g. PDF/X).

If you have finished the adjustment, you have to click the “Save As...” button to save the individual settings with a characteristic name.

To create the PDF from a PostScript file, Drag & Drop the file on the Distiller Window or to open it with the open command of the Distiller’s file menu.

6.4 Review questions

- Why is the PDF format one of the most flexible solutions in the DTP workflow?

- Which software is needed to create a PDF file?

- Which method do you know to create an error-free PDF? Describe all necessary steps.

- What is the first step, concerning the production of PDF files, if all needed components are installed on your PC? Why is this step so important?

- What is the function of the Acrobat Distiller and what are the main functions that the full version of Acrobat offers?

7 Review questions

- What does Desktop Publishing mean and what is the main task of it?
- What are the differences between word processors and DTP applications?
- What is the advantage of frames concerning DTP applications?
- What does typography mean and which factors determine the quality of it?
- In which way is it possible to subdivide fonts, concerning their appearances and their technical realization?
- What are the advantages of the OpenType font format?
- Which contents of a DTP document are usually created by other programs and why?
- Describe the usual DTP production workflow!
- Which file formats can be implemented in a DTP workflow with most DTP applications?
- What are the advantages of cross-references and which factors have to be taken into account if using them?
- Name and describe 4 DTP applications and their target groups.
- What are the standard export file formats of DTP applications today?
- What is the difference of FrameMaker compared to the technical realization of the other DTP applications?
- What are the disadvantages of QuarkXPress concerning the other software products which are needed for data preparation and data export?
- What could be an alternative to the classic DTP application and in which case would it be useful?
- What is OPI and in which case is it useful?
- What are the tasks of the OPI comments?
- What is the difference between OPI 1.3 and 2.0, and which ways do you know to avoid conflicts concerning different versions?
- What is the simplest way to identify an OPI 1.3 or 2.0 file? Describe the method.
- Name some points which can be described in the OPI part of a PostScript or PDF file.

- Describe the possibilities of data export including the pros and cons of the methods.
- What is highly recommended concerning “open data” and its export?
- What is an EPS file and what are its advantages?
- Describe the safest way for data export you know and specify its advantages.
- What are the differences between PostScript and PDF? Specify the pros and cons.
- Why is the PDF format one of the most flexible solutions concerning the DTP workflow?
- Which software is needed to create a PDF file?
- Which method do you know to create an error-free PDF? Describe all necessary steps.
- What is the first step, concerning the production of PDF files, if all needed components are installed on your PC? Why is this step so important?
- What is the function of the Acrobat Distiller and what are the main functions that the full version of Acrobat offers?