# The pdfTeX FAQ
# Version 0.10

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**Abstract**

This document is a preliminary version of pdfTeX's frequently asked questions (FAQ) and answers. If you can contribute to this document, please mail Jody Klymak (mailto:jklymak@apl.washington.edu) or pdfTeX's mailing list (mailto:pdftex@tug.org). Including the key FAQ in the subject line of your contribution will help the FAQ maintainer stay organized. This document is in TeX syntax. The character set is ISO-8859-2.

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# 1 General

## 1.1 TeX and PDF

### 1.1.1 What is pdfTeX?

pdfTeX is a variant of well known typesetting program of prof. Donald E. Knuth – TeX. Output of Knuth’s TeX is a file in DVI format. The difference between TeX and pdfTeX is that pdfTeX directly generates PDF. You can also create PDF with Adobe’s Distiller program, using a DVI to PostScript program to create PS from TeX’s DVI file.

WARNING: pdfTeX is alpha software!

### 1.1.2 What is TeX?

From ‘TeX – The Program’ by Donald E. Knuth: “This is TeX, a document compiler intended to produce typesetting of high quality”. TeX is a batch oriented typesetting system. When we talk about TeX we mean the macro programming language as well as the program that interprets and executed this language.

### 1.1.3 What is PDF?

This question is answered in the Adobe Systems’ document *Portable Document Format Reference Manual* available at `http://www.adobe.com/supportservice/`

devrelations/PDFS/TN/PDFSPEC.PDF on page 27. It can not be reproduced here for strange copyright reasons.

Think of PDF as PostScript without programming constructs. A PDF file consists of graphical objects tight together in such a way that fast viewing is possible and incremental updates become possible.

#### 1.1.4 How can I view a PDF file?

There are several .pdf readers available as freeware over the internet.

Adobe's Acrobat Reader is available for many operating systems, including Windows 95, NT, and 3.1, Macintosh, Linux, Sun, and OS/2. Download the self-installing executabale from Adobe's website: http://www.adobe.com/prodindex/acrobat/.

Ghostscipt is a .ps interpreter and Ghostview is its graphical front-end. Ghostscript is also available for many operating systems, including UNIX and VMS, MS-DOS, MS-Windows, OS/2 and Macintosh. See the Ghostscript homepage at http://www.cs.wisc.edu/~ghost/ for details, documentation, and downloads.

Another previewer is xpdf, a PDF viewer for X maintained by Derek B. Noonburg (mailto:derekn@aimnet.com) with a home page at http://www.aimnet.com/~derekn/xpdf. Xpdf runs under the X Window System on UNIX, VMS, and OS/2 and is designed to be small and efficient. It does not use the Motif or Xt libraries and only uses standard X fonts.

[FIXME: some words about Xpdf and other PDF vievers]

### 1.2 Authors

#### 1.2.1 Who is the author of pdfTeX?

The primary author of pdfTeX is Han The Thanh (mailto:thanh@fi.muni.cz). [FIXME: in pdftex.ch there is also Petr Sojka and the current head (rector) of Masaryk's University - prof. Jiří Zlatuška.]

## 2 Information

### 2.1 Locations

#### 2.1.1 Where can I find pdfTeX?

[FIXME: ftp://ftp.cstug.cz/pub/tex/local/cstug/{janik,thanh} daily mirror on ftp://ftp.inet.cz/pub/Mirrors/pdfTeX

### 2.1.2 What is the latest version?

The latest version of pdfTeX is pdfTeX-0.12n. This is the latest version of pdfTeX approved by Han The Thanh (for now). After this version the primary author (Han The Thanh) left Czech Republic and is away for about three or four months. When he comes back, he will continue on the pdfTeX's development. In the meantime pdfTeX's maintainer is Pavel Janík ml (he is also student of Masaryk's University). He releases bug-fixes to pdfTeX-0.12n as versions pdfTeX-0.12o-?, where '?' is a small number. The latest bug-fix release is pdfTeX-0.12o-6.

### 2.1.3 Where can I find some docs about pdfTeX?

A website for the pdfTeX project is maintained by Sebastian Rahtz (mailto:s.rahtz@elsevier.co.uk), and can be found at:
http://www.tug.org/applications/pdftex/
In it you will find:

- The pdfTeX manual in PDF format:
  http://www.tug.org/applications/pdftex/pdftexman.pdf
  and HTML format:
  http://www.tug.org/applications/pdftex/pdftexman.html
- The pdfTeX mailing list archives:
  http://tug.org/ListsArchives/pdftex/threads.html
- This FAQ in PDF format:
  http://www.tug.org/applications/pdftex/pdfTeX-FAQ.pdf
  and DVI format: http://www.tug.org/applications/pdftex/pdfTeX-FAQ.dvi

[FIXME: The best documentation is in the source files...]

### 2.1.4 Is there a pdfTeX mailing list?

Yes, to subscribe send mail to mailto:majordomo@tug.org, and put the line:

```
subscribe pdftex username@hostname
```

in the body of the message, where username@hostname is your complete email address.

### 2.1.5 Where can I find an archive of the pdfTeX mailing list?

An ftp site of the mailing list, arranged chronologicaly can be found at: ftp://ftp.tug.org/mail-archives/pdftex/ Daily mirror is also at ftp://ftp.inet.cz/pub/Mirrors/pdfTeX-MailArchive/

### 2.1.6 How do I get new versions of this FAQ?

The TeX version of this document is periodically posted to pdfTeX's mailing list.

It is also uploaded to http://www.tug.org/applications/pdftex/pdfTeX-FAQ.pdf with its LaTeX source: http://www.tug.org/applications/pdftex/pdfTeX-FAQ.tex

### 2.1.7 How do I contribute to this FAQ?

Send email to the FAQ maintainer: Jody Klymak mailto:jklymak@apl.washington.eduwith the word FAQ in the subject line. If possible FAQ entries should be formatted like this example:

```
\question{This_is_a_template_faq_question}{This is a tem-
plate faq question}{1998/09/24}

{

\contributor{Pavel Jan\'{\i}k jr}
{mailto:Pavel.Janik@inet.cz}{1998/09/10}
\contributor{Jody Klymak}
{mailto:jklymak@apl.washington.edu}{1998/09/24}

This is a sample FAQ question.  It can reference other
questions, like Question \ref{q:what_is_TeX}, or sections
(See Section \ref{sec:General}).  This FAQ can be found
at \url{http://www.tug.org/applications/pdftex/pdfTeX-FAQ.pdf},
and is maintained by Jody Klymak
\url{mailto:jklymak@apl.washington.edu}

}
```

# 3 Installation

## 3.1 General Installation

### 3.1.1 How do I install the latest version of pdfTeX?

[FIXME: see script Install and comment it!, add some URLS of web-*, web2c-*, ...]

### 3.1.2 How do I use pdflatex (how to generate pdflatex.fmt)?

### 3.1.3 Why use pdflatex vs (??? i.e. latex2html)?

### 3.1.4 How do I compress my PDF files?

pdfTeX can compress its output, but by default pdfTeX does not (depending on your configuration). You can manually specify compression from 0 to 9 in the source file by the tag `\pdfcompresslevel`:

```
\pdfcompresslevel9
```

or in the configuration file (pdftex.cfg):

```
compress_level 9
```

0 means no compression and 9 is the most (and the slowest) compression.

### 3.1.5 What can I do with this pdftex.cfg file?

### 3.1.6 How can I make a document portable to both latex and pdflatex

Check for the existence of the variable `\pdfoutput`:

```
\newif\ifpdf
\ifx\pdfoutput\undefined
   \pdffalse              % we are not running PDFLaTeX
\else
   \pdfoutput=1           % we are running PDFLaTeX
   \pdftrue
\fi
```

Then use your new variable `\ifpdf`

```
\ifpdf
  \usepackage[pdftex]{graphicx}
  \pdfcompresslevel=9
\else
  \usepackage{graphicx}
\fi
```

# 4 Fonts in pdfTeX

## 4.1 Fonts in general

### 4.1.1 What kind of fonts can I use?

## 4.2 Type1 fonts

### 4.2.1 How do I use Type1 fonts?

### 4.2.2 How do I generate TFM files for Type1 fonts?

## 4.3 TrueType fonts

### 4.3.1 How do I use TrueType fonts?

### 4.3.2 How do I generate TFM files for TrueType fonts?

## 4.4 pk fonts

### 4.4.1 How do I use pk fonts?

### 4.4.2 Why does Acrobat Reader display pk fonts so poorly?

# 5 Graphics

## 5.1 Graphics in general

### 5.1.1 How do I include pictures in pdfLaTeX?

Pictures come in two formats, vector or bitmapped. When possible, use vector formats when making a PDF document since they can support an arbitrary ammount of magnification. So far, pdfLaTeX supports graphics inclusions in PDF, JPEG, PNG, and MetaPost formats [FIXME: what others? Also which are vector or not?]

As with LaTeX, the best package for image inclusion is graphics/graphicx, available on CTAN. In order to get the graphicx package working with pdflatex you must get http://tug.org/applications/pdftex/pdftex.def

and put it in your TeX tree (mine is at `C:\TeX\share\texmf\tex\latex\graphics`). Then some slight modifications to your source file:

```
%% In the preamble add
\usepackage[pdftex]{graphicx}

%% OPTIONAL: In the main document, immediately after \begin{document}
\DeclareGraphicsExtensions{.jpg,.pdf,.mps,.png}

%% To include a graphics file
\includegraphics{filename_to_include}
```

The package will then search for the filename with the above extensions if one isn't provided. With this package the image can also be scaled or cropped. This uses D. Carlisle's "graphics" package and is available on CTAN at `/macros/latex/packages/graphics`. Note that by not including file-extensions in the `\includegraphics` command, you can maintain PDF and DVI versions of your document, especially if you include postscript figures (see question 5.2.2 and question 3.1.6)

## 5.2 Vector Formats

### 5.2.1 How do I include PDF pictures?

In order to include PDF pictures you need pdfLaTeX 0.12n or later. Make sure that the PDF figure is properly cropped. See Question 5.2.3 for how to do this for EPS files. [FIXME: How do you get Distiller to do this?] Then follow the steps outlined in Question 5.1.1.

### 5.2.2 How do I include EPS pictures?

You cannot directly do so. You must convert encapsulated postscript pictures to PDF first, explained in question 5.2.3, and then include them (see question 5.2.1)

### 5.2.3 How do I convert an EPS figure to PDF?

You can use epstopdf (a Perl script which uses Ghostscript for conversion) at `http://tug.org/applications/pdftex/epstopdf` or Distiller to do the work for you. [FIXME: add an example here]

To use epstopdf, you need Perl 5. Usage of epstopdf is easy:

```
epstopdf.pl myfile.eps
```

converts your eps-graphic file myfile.eps to the file myfile.pdf.

Valid options for epstopdf (v2.1) are: [FIXME]

Change the line

```
$GS="gs";
```

in this script to the name of your Ghostscript executable if it is different, e.g.

```
$GS="gswin32c";
```

on a Win32 system.

On some systems it is necessary to invoke Perl explicitly, e.g. with

```
perl epstopdf.pl myfile.eps
```

[FIXME: How do you use distiller??]

#### 5.2.4 Why doesn't my pdf picture show up when I include it?

You are using Distiler to convert your .eps file to pdf. Distiller does not always set the bounding box correctly. The bounding box of an enbedable pdf document must be the page size, and if any part of your figure extends beyond the bounding box, the figure will not show up. There are two solutions.

1. Get texutil.pl from http://www.ntg.nl/context/zipped/texutil.zip and say

   ```
   texutil --fig --epspage file.eps
   ```

   and the file is corrected for distiller. (This solution is from Hans Hagen mailto:pragma@wxs.nl.)

2. Instead of running distiller, use http://www.tug.org/applications/pdftex/epstopdf (see question 5.2.3)

Another tool that might be of some help is *aimaker*. *Aimaker* ia a perl script that is designed to convert generic .eps files into .aieps files that can be read by adobe ilustrator. *Aimaker* calculates the bounding box for the eps file. *Aimaker* is available at ftp://ftp.aos.princeton.edu/pub/olszewsk/aimaker.shar

### 5.3 Bitmap Formats

#### 5.3.1 How do I include TIFF pictures?

### 5.4 Other Graphics

#### 5.4.1 How can I use MetaPost in pdfTeX?

## 6 Miscellaneous

### 6.1 Kpathsea

#### 6.1.1 What is this kpathsea?

### 6.2 Hyperref

#### 6.2.1 What is hyperref?

The hyperref package is a way of adding hyper-references to a LaTeX document. For instance, a reference to a figure in the text can be marked up with a hyper-link, allowing the user to jump to the figure without scrolling through a lot of text. [FIXME: but for now see the hyperref package documentation hyperref.dvi or manual.pdf]

The `hyperref` package is available on CTAN (or a CTAN mirror) at `ftp://ftp.ctan.org/tex-archive/macros/latex/contrib/supported/hyperref`

#### 6.2.2 How can I use it?

[FIXME: but for now see the hyperref package documentation hyperref.dvi or manual.pdf]

#### 6.2.3 My pdftex.cfg says to use A4 paper, but the document comes out in Letter format.

You certainly use hyperref. This package sets the page dimensions according to your settings in LaTeX. If you do not specify "a4paper" in your options to `\documentclass`, it assumes Letter paper and overrides the entries in your `pdftex.cfg` file.

#### 6.2.4 I get the message: "Warning (ext1): destination with the same identifier already exists!"

You get this message if you use hyperref and have some page numbers more than once, e.g. when re-starting page numbering with each chapter or having an appendix.

Circumvent this with

```
\usepackage[pdftex,plainpages=false]{hyperref}
```

or put

```
plainpages=false
```

into your hyperref.cfg.

### 6.3 ConTeXt

#### 6.3.1 What is ConTeXt?

ConTeXt is a full featured macro package that has build in support for pdfTeX. More information can be found at `http://www.ntg.nl/context` (manuals, source code, examples).

#### 6.3.2 How can I use ConTeXt?

## A Contributors

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  Q5.2.4–10

- Carl Zmola `zmola@campbellsci.com`

  Q5.2.1–9

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  Q3.1.6–7

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  Q2.1.3–5 Q2.1.4–5 Q2.1.5–6 Q2.1.6–6 Q5.1.1–8 Q5.2.2–9

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  Q1.1.1–3 Q1.1.2–3 Q1.1.3–3 Q1.2.1–4 Q2.1.1–4 Q2.1.2–5 Q3.1.1–7 Q3.1.4–7 Q6.2.1–11 Q6.3.1–12

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  Q1.1.4–4