

# Barrier-free PDF.

## Invisible Handicaps

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# Overview

- 1 Who Am I
- 2 Data Exchange with PDF Documents
- 3 Barrier-free – an Overview
- 4 Creating Barrier-free PDF Documents
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# Open Source Activities and Projects



- organisation
  - Chemnitzer Linux-Tage (2000-2007)
  - Brandenburger Linux Infotag (BLIT) (since 2006)
  - OpenSource-Tag Magdeburg (2008)
- LinuxBus (since 2006)
- member of
  - Brandenburger Linux User Group (BraLUG)
  - Linux User Group Potsdam (upLUG)
- regional meeting of the Linux User Groups of Berlin and the Berlin region (since 2008)

# About Hofmann EDV – Linux, Layout und Satz



Linux, Layout & Satz

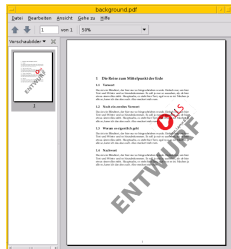


- administration and service
  - installation Linux systems (Debian)
  - programming and automatisisation (based on PHP and Python)
- distribution of indoor and outdoor wireless devices
- layout and typesetting  
prepress preparation and coordination
- member of Büro 2.0 (Berlin)  
open source office community (17 companies, 1100m<sup>2</sup>, 60 developers)

# Communication und Data Exchange

- communication between people and technical systems requires an agreement
  - how to interchange data
  - how to interpret these data to transform them into information
- necessity that both sides understand each other:
  - for people: similar language and the context
  - for computer programs: data format (the way one bit/byte follows the former one)
- data formats (selection):
  - ODT: OpenOffice Writer, text documents
  - T<sub>E</sub>X: L<sup>A</sup>T<sub>E</sub>X type settings system
  - PDF: Portable Document Format

# PDF in 2 Minutes



- developed in 1984, Adobe Systems
- defined, widely distributed and accepted data format
- creating, editing and displaying PDF is possible on all platforms
- completely documented (Adobe PDF specification)
- usage: all kinds of documents (contracts, offers, bills, scientific documents, presentation slides)

# Barrier-free – 3 Perspectives (1)



law to help people with handicaps (§4 BGG, Germany):

- includes buildings, public transport, technical devices, information systems, acoustic and visual communication systems, living areas
- can be accessed and used without the help of other people

# Barrier-free – 3 Perspectives (2)

from the users point of view:

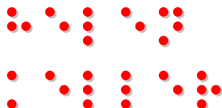
- “I use pdftotext [...] Some layout information is lost, but in most cases the result suits my needs.” (Henning Oswald)
- “In my opinion a document is barrier-free, if I can access the information content, completely.” (Klaus Knopper)



# Affected People

- visual handicaps (blindness, bad-sight, colour-blind)
- acoustic handicaps
- physical handicaps
- speech handicaps
- cognitive / neurologic handicaps
- multi-level handicaps
- age-dependending limitations
- foreigners (language)

# Tools that Blind People Can Use (Linux)



- Screenreader
  - prepares the on-screen information for language and Braille terminal output
    - Orca
    - SUE Screenreader & Usability Extensions
- Braille Terminal
  - displays characters in Braille language
- command-line tools:
  - pdfTOText, eLinks

# In Reality



# Problems While Using the Screenreader

- artefacts  
lines, textmarks, images, emphasized items
- multi-column documents
- images without additional information
- footnotes and bookmarks
- page headers, page footers, page numbers
- page breaks, explicit hyphenation
- PDF extensions such as JavaScript
- PDF restrictions for usage

# Example: Calendar

## SEPTEMBER

Mo	Di	Mi	Do	Fr	Sa	So
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

headline in a container

remaining part in a table  
without logical markup

September

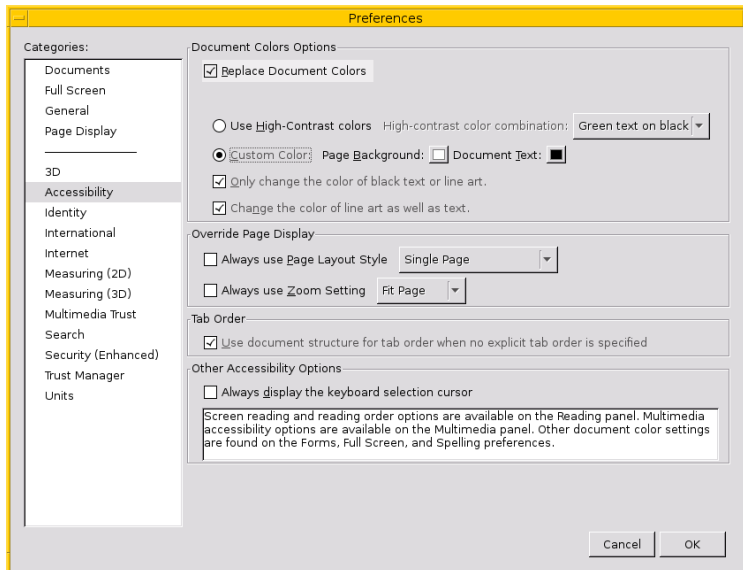
Mo Di Mi Do Fr Sa So 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

# PDF – Target Conflicts

- developers concept:  
display a document identically on all platforms
- from the perspective of barrier-free requirements:  
it is necessary to adjust the visibility according to the needs of the individual (user)
  - enlarged view, f.e. with an software lense
  - changing the colours for both text and background
  - text extraction
  - keyboard-based navigation
  - keep the reading linearity of the document



# Example 2: Adobe Acrobat Reader Settings





## Example 3: Okular / Inverted View

Barrierefreies PDF. Undurchschaubare Hindernisse Ein Zustandsbericht - Okular

File Edit View Go Bookmarks Tools Settings Help

Previous Next Fit Width Zoom Out Zoom In Browse Zoom Selection

## Barrierefreie PDFs erstellen – aber wie? (1)

- Vollständige Metainformationen setzen  
Beispiel:  $\text{\LaTeX}$

```

Terminal - RN.tex (~/projekte/li...wasserzeichen/latex) - VIM
Datei Bearbeiten Anzeige Terminal Gehe zu Hilfe
\usepackage{hyperref}
\hypersetup{
  pdfauthor={Frank Hofmann <frank.hofmann@efho.de>},
  pdfkeywords={Rechnung, Geld, Money},
  pdftitle={Jetzt geht es!}
}
36,1 22%

```

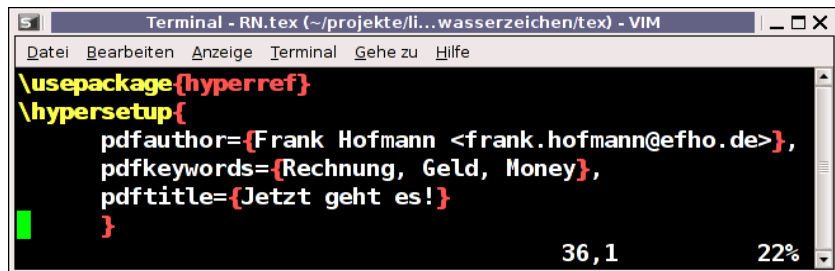
anzeigen mit `pdftinfo pdfdatei`

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# How To Create Barrier-free PDF Documents (1)

- include meta informationen

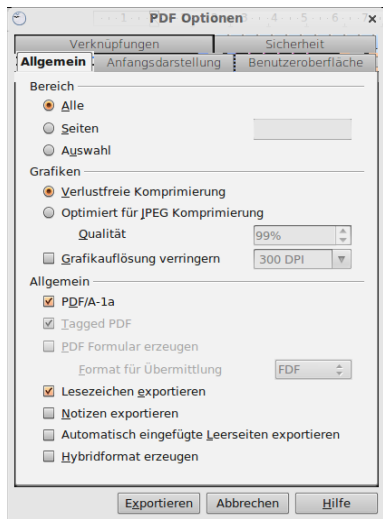
example:  $\text{\LaTeX}$



```
Terminal - RN.tex (~/projekte/li...wasserzeichen/tex) - VIM
Datei Bearbeiten Anzeige Terminal Gehe zu Hilfe
\usepackage{hyperref}
\hypersetup{
  pdfauthor={Frank Hofmann <frank.hofmann@efho.de>},
  pdfkeywords={Rechnung, Geld, Money},
  pdftitle={Jetzt geht es!}
}
36,1 22%
```

display with `pdftinfo pdffile`

# How To Create Barrier-free PDF documents (2)



- include text as text, not as a picture  
do not scan text documents and offer them “as they are”
- pictures need useful file names and alternative information
- use format styles (OpenOffice)

# Validate PDF documents



- PDF Accessibility Checker (PAC), University of Winterthur (CH)
- Intarsys PDF/A Live!

# Links and References

- Orca  
<http://projects.gnome.org/orca/>
- SUE Screenreader & Usability Extensions  
<http://service.it-science-center.de/mediawiki/index.php>
- Jan Eric Hellbusch: Gestaltung barrierefreier Dokumente  
<http://www.einfach-fuer-alle.de/artikel/pdf-barrierefrei-umsetzen/>
- Markus Erle: Was Sie schon immer über barrierefreie Dokumente wissen wollten. Fachtagung zu barrierefreier Aufbereitung von Dokumenten, Leipzig, 2009
- Sebastian Andres/Petra Kubina/Frank Hofmann: Barrierefreie PDFs  
Part One: LinuxUser 07/2010  
Part Two: LinuxUser 08/2010

# Many thanks!

## Lassen Sie es setzen.



Linux, Layout & Satz



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web <http://www.efho.de>

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