The hypdestopt package

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Abstract

Package hypdestopt supports hyperref's pdftex driver. It removes unnecessary destinations and shortens the destination names or uses numbered destinations to get smaller PDF files.

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*Please report any issues at https://github.com/ho-tex/oberdiek/issues

1 User interface

1.1 Introduction

Before PDF-1.5 annotations and destinations cannot be compressed. If the destination names are not needed for external use, the file size can be decreased by the following means:

- Unused destinations are removed.

- The destination names are shortened (option `name`).

- Using numbered destinations (option `num`).

1.2 Requirements

- Package hyperref 2006/06/01 v6.75a or newer ([2]).

- Package alphalph 2006/05/30 v1.4 or newer ([1]), if option `name` is used.

- Package iftex.

- pdfTeX 1.30.0 or newer.

- pdfTeX in PDF mode.

- ε-TeX extensions enabled.

- Probably an additional compile run of pdfLaTeX is necessary.

In the first compile runs you can get warnings such as:

```
! pdfTeX warning (dest): name{...} has been referenced ...
```

These warnings should vanish in later compile runs. However these warnings also can occur without this package. The package does not cure them, thus these warnings will remain, but the destination name can be different. In such cases test without package, too.

1.3 Use

If the requirements are met, load the package:

    \usepackage{hypdestopt}

The following options are supported:

verbose: Verbose debug output is enabled and written in the protocol file.

num: Numbered destinations are used. The file size is smaller, because names are no longer used. This is the default.

name: Destinations are identified by names.

1.4 Limitations

- Forget this package, if you need preserved destination names.

- Destination name strings use all bytes (0..255) except the carriage return (13), left parenthesis (40), right parenthesis (41), and backslash (92), because they must be quoted in general and therefore occupy two bytes instead of one.

  Further the zero byte (0) is avoided for programs that implement strings using zero terminated C strings. And 255 (0xFF) is avoided to get rid of a possible unicode marker at the begin.

  So far I have not seen problems with:

  - AcrobatReader 5.08/Linux
  - AcrobatReader 7.0/Linux
  - xpdf 3.00
  - Ghostscript 8.50
  - gv 3.5.8
  - GSview 4.6

  But I have not tested all and all possible PDF viewers.

- Use of named destinations (`\pdfdest`, `\pdfoutline`, `\pdfstartlink`, ...) that are not supported by this package.

- Currently only hyperref with pdfTeX in PDF mode is supported.

1.5 Future

A more general approach is a PDF postprocessor that takes a PDF file, performs some transformations and writes the result in a more optimized PDF file. Then it does not depend, how the original PDF file was generated and further improvements are easier to apply. For example, the destination names could be sorted: often used destination names would then be shorter than seldom used ones.

2 Implementation

2.1 Identification

```
1 ⟨*package⟩
2 \NeedsTeXFormat{LaTeX2e}
3 \ProvidesPackage{hypdestopt}%
4   [2019/12/29 v2.6 Hyperref destination optimizer (HO)]%
```

2.2 Options

2.2.1 Option **verbose**

```
5 \newif\ifHypDest@Verbose
6 \DeclareOption{verbose}{\HypDest@Verbosetrue}
```

\HypDest@VerboseInfo   Wrapper for verbose messages.

```
7 \def\HypDest@VerboseInfo#1{%
8   \ifHypDest@Verbose
9     \PackageInfo{hypdestopt}{#1}%
10   \fi
11 }
```

2.2.2 Options **num** and **name**

The options num or name specify the method, how destinations are referenced (by name or number). Default is option num.

```
12 \newif\ifHypDest@name
13 \DeclareOption{num}{\HypDest@namefalse}
14 \DeclareOption{name}{\HypDest@nametrue}

15 \ProcessOptions*\relax
```

2.3 Check requirements

First pdfTeX must running in PDF mode.

```
16 \RequirePackage{iftex}[2019/11/07]
17 \RequirePackage{pdftexcmds}[2007/11/11]
18 \ifpdf
19 \else
20   \PackageError{hypdestopt}{%
21     This package requires pdfTeX in PDF mode%
22   }\@ehc
23   \expandafter\endinput
24 \fi
```

The version of pdfTeX must not be too old, because \pdfescapehex and \pdfunescapehex are used.

```
25 \begingroup\expandafter\expandafter\expandafter\endgroup
26 \expandafter\ifx\csname pdf@escapehex\endcsname\relax
27   \PackageError{hypdestopt}{%
28     This pdfTeX is too old, at least 1.30.0 is required%
29   }\@ehc
30   \expandafter\endinput
31 \fi
```

Features of ε-TeX are used, e.g. \numexpr.

```
32 \begingroup\expandafter\expandafter\expandafter\endgroup
33 \expandafter\ifx\csname numexpr\endcsname\relax
34   \PackageError{hypdestopt}{%
```

```
35      e-TeX features are missing%
36    }\@ehc
37    \expandafter\endinput
38 \fi
```

Package `alphalph` provides `\newalphalph` since version 2006/05/30 v1.4.

```
39 \ifHypDest@name
40   \RequirePackage{alphalph}[2006/05/30]%
41 \fi

42 \RequirePackage{auxhook}[2009/12/14]
43 \RequirePackage{pdfescape}[2007/04/21]
```

2.4   Preamble for auxiliary file

Provide dummy definitions for the macros that are used in the auxiliary files. If
the package is used no longer, then these commands will not generate errors.

\HypDest@PrependDocument   We add our stuff in front of the `\AtBeginDocument` hook to ensure that we are
before hyperref's stuff.

```
44 \long\def\HypDest@PrependDocument#1{%
45   \begingroup
46     \toks\z@{#1}%
47     \toks\tw@\expandafter{\@begindocumenthook}%
48     \xdef\@begindocumenthook{\the\toks\z@\the\toks\tw@}%
49   \endgroup
50 }

51 \AddLineBeginAux{%
52   \string\providecommand{\string\HypDest@Use}[1]{}%
53 }
```

2.5   Generation of destination names

Counter `HypDest` is used for identifying destinations.

```
54 \newcounter{HypDest}

55 \ifHypDest@name
```

\HypDest@HexChar   Destination names are generated by automatically numbering with the help of
package `alphalph`. `\HypDest@HexChar` converts a number of the range 1 until 252
into the hexadecimal representation of the string character.

```
56   \def\HypDest@HexChar#1{%
57     \ifcase#1\or
```

Avoid zero byte because of C strings in PDF viewer applications.

```
58       01\or 02\or 03\or 04\or 05\or 06\or 07\or
```

Omit carriage return (13/^^0d). It needs quoting, otherwise it would be converted
to line feed (10/^^0a).

```
59       08\or 09\or 0A\or 0B\or 0C\or 0E\or 0F\or
60       10\or 11\or 12\or 13\or 14\or 15\or 16\or 17\or
61       18\or 19\or 1A\or 1B\or 1C\or 1D\or 1E\or 1F\or
62       20\or 21\or 22\or 23\or 24\or 25\or 26\or 27\or
```

Omit left and right parentheses (40/^^28, 41/^^39), they need quoting in general.

```
63       2A\or 2B\or 2C\or 2D\or 2E\or 2F\or
64       30\or 31\or 32\or 33\or 34\or 35\or 36\or 37\or
65       38\or 39\or 3A\or 3B\or 3C\or 3D\or 3E\or 3F\or
66       40\or 41\or 42\or 43\or 44\or 45\or 46\or 47\or
```

```
67          48\or 49\or 4A\or 4B\or 4C\or 4D\or 4E\or 4F\or
68          50\or 51\or 52\or 53\or 54\or 55\or 56\or 57\or
```

Omit backslash (92/^^5C), it needs quoting.

```
69          58\or 59\or 5A\or 5B\or 5D\or 5E\or 5F\or
70          60\or 61\or 62\or 63\or 64\or 65\or 66\or 67\or
71          68\or 69\or 6A\or 6B\or 6C\or 6D\or 6E\or 6F\or
72          70\or 71\or 72\or 73\or 74\or 75\or 76\or 77\or
73          78\or 79\or 7A\or 7B\or 7C\or 7D\or 7E\or 7F\or
74          80\or 81\or 82\or 83\or 84\or 85\or 86\or 87\or
75          88\or 89\or 8A\or 8B\or 8C\or 8D\or 8E\or 8F\or
76          90\or 91\or 92\or 93\or 94\or 95\or 96\or 97\or
77          98\or 99\or 9A\or 9B\or 9C\or 9D\or 9E\or 9F\or
78          A0\or A1\or A2\or A3\or A4\or A5\or A6\or A7\or
79          A8\or A9\or AA\or AB\or AC\or AD\or AE\or AF\or
80          B0\or B1\or B2\or B3\or B4\or B5\or B6\or B7\or
81          B8\or B9\or BA\or BB\or BC\or BD\or BE\or BF\or
82          C0\or C1\or C2\or C3\or C4\or C5\or C6\or C7\or
83          C8\or C9\or CA\or CB\or CC\or CD\or CE\or CF\or
84          D0\or D1\or D2\or D3\or D4\or D5\or D6\or D7\or
85          D8\or D9\or DA\or DB\or DC\or DD\or DE\or DF\or
86          E0\or E1\or E2\or E3\or E4\or E5\or E6\or E7\or
87          E8\or E9\or EA\or EB\or EC\or ED\or EE\or EF\or
88          F0\or F1\or F2\or F3\or F4\or F5\or F6\or F7\or
```

Avoid 255 (0xFF) to get rid of a possible unicode marker at the begin of the string.

```
89          F8\or F9\or FA\or FB\or FC\or FD\or FE%
90        \fi
91      }%
```

HypDest@HexString Now package alphalph comes into play. `\HypDest@HexString` is defined and converts a positive number into a string, given in hexadecimal representation.

```
92    \newalphalph\HypDest@HexString\HypDest@HexChar{250}%
```

\theHypDest For use, the hexadecimal string is converted back.

```
93    \renewcommand*{\theHypDest}{%
94      \pdf@unescapehex{\HypDest@HexString{\value{HypDest}}}%
95    }%
```

With option num we use the number directly.

```
96  \else
97    \renewcommand*{\theHypDest}{%
98      \number\value{HypDest}%
99    }%
100 \fi
```

2.6   Assign destination names

\HypDest@Prefix The new destination names are remembered in macros whose names start with prefix `\HypDest@Prefix`.

```
101 \edef\HypDest@Prefix{HypDest\string:}
```

\HypDest@Use During the first read of the auxiliary files, the used destinations get fresh generated short destination names. Also for the old destination names we use the hexadecimal representation. That avoid problems with arbitrary names.

```
102 \def\HypDest@Use#1{%
103   \begingroup
104     \edef\x{%
```

6

```
105       \expandafter\noexpand
106       \csname\HypDest@Prefix\pdf@unescapehex{#1}\endcsname
107     }%
108     \expandafter\ifx\x\relax
109       \stepcounter{HypDest}%
110       \expandafter\xdef\x{\theHypDest}%
111       \let\on@line\@empty
112       \ifHypDest@name
113         \HypDest@VerboseInfo{%
114           Use: (\pdf@unescapehex{#1}) -\string> %
115           0x\pdf@escapehex{\x} (\number\value{HypDest})%
116         }%
117       \else
118         \HypDest@VerboseInfo{%
119           Use: (\pdf@unescapehex{#1}) -\string> num \x
120         }%
121       \fi
122     \fi
123   \endgroup
124 }
```

After the first `.aux` file processing the destination names are assigned and we can disable `\HypDest@Use`.

```
125 \AtBeginDocument{%
126   \let\HypDest@Use\@gobble
127 }
```

\HypDest@MarkUsed   Destinations that are actually used are marked by `\HypDest@MarkUsed`. `\nofiles` is respected.

```
128 \def\HypDest@MarkUsed#1{%
129   \HypDest@VerboseInfo{%
130     MarkUsed: (#1)%
131   }%
132   \if@filesw
133     \immediate\write\@auxout{%
134       \string\HypDest@Use{\pdf@escapehex{#1}}%
135     }%
136   \fi
137 }%
```

2.7   Redefinition of **hyperref**'s hooks

Package hyperref can be loaded later, therefore we redefine hyperref's macros at `\begin{document}`.

```
138 \HypDest@PrependDocument{%
```

Check hyperref version.

```
139   \@ifpackagelater{hyperref}{2006/06/01}{}{%
140     \PackageError{hypdestopt}{%
141       hyperref 2006/06/01 v6.75a or later is required%
142     }\@ehc
143   }%
```

2.7.1   Destination setting

luatex compatibility

```
144 \ifx\pdfextension\@undefined\else
```

```
145   \protected\def\pdfdest{\pdfextension dest }
146 \fi
147   \ifHypDest@name
148     \let\HypDest@Org@DestName\Hy@DestName
149     \renewcommand*{\Hy@DestName}[2]{%
150       \EdefUnescapeString\HypDest@temp{#1}%
151       \@ifundefined{\HypDest@Prefix\HypDest@temp}{%
152         \HypDest@VerboseInfo{%
153           DestName: (\HypDest@temp) unused%
154         }%
155       }{%
156         \HypDest@Org@DestName{%
157           \csname\HypDest@Prefix\HypDest@temp\endcsname
158         }{#2}%
159         \HypDest@VerboseInfo{%
160           DestName: (\HypDest@temp) %
161           0x\pdf@escapehex{%
162             \csname\HypDest@Prefix\HypDest@temp\endcsname
163           }%
164         }%
165       }%
166     }%
167   \else
168     \renewcommand*{\Hy@DestName}[2]{%
169       \EdefUnescapeString\HypDest@temp{#1}%
170       \@ifundefined{\HypDest@Prefix\HypDest@temp}{%
171         \HypDest@VerboseInfo{%
172           DestName: (\HypDest@temp) unused%
173         }%
174       }{%
175         \pdfdest num%
176         \csname\HypDest@Prefix\HypDest@temp\endcsname#2\relax
177         \HypDest@VerboseInfo{%
178           DestName: (\HypDest@temp) %
179           num \csname\HypDest@Prefix\HypDest@temp\endcsname
180         }%
181       }%
182     }%
183   \fi
```

2.7.2   Links

```
184   \let\HypDest@Org@StartlinkName\Hy@StartlinkName
185   \ifHypDest@name
186     \renewcommand*{\Hy@StartlinkName}[2]{%
187       \HypDest@MarkUsed{#2}%
188       \HypDest@Org@StartlinkName{#1}{%
189         \@ifundefined{\HypDest@Prefix#2}{%
190           #2%
191         }{%
192           \csname\HypDest@Prefix#2\endcsname
193         }%
194       }%
195     }%
196   \else
197     \renewcommand*{\Hy@StartlinkName}[2]{%
198       \HypDest@MarkUsed{#2}%
199       \@ifundefined{\HypDest@Prefix#2}{%
```

```
200        \HypDest@Org@StartlinkName{#1}{#2}%
201      }{%
202        \pdfstartlink attr{#1}%
203                    goto num\csname\HypDest@Prefix#2\endcsname
204        \relax
205      }%
206    }%
207  \fi
```

2.7.3 Outlines of package **hyperref**

```
208  \let\HypDest@Org@OutlineName\Hy@OutlineName
209  \ifHypDest@name
210    \renewcommand*{\Hy@OutlineName}[4]{%
211      \HypDest@Org@OutlineName{#1}{%
212        \@ifundefined{\HypDest@Prefix#2}{%
213          #2%
214        }{%
215          \csname\HypDest@Prefix#2\endcsname
216        }%
217      }{#3}{#4}%
218    }%
219  \else
220    \renewcommand*{\Hy@OutlineName}[4]{%
221      \@ifundefined{\HypDest@Prefix#2}{%
222        \HypDest@Org@OutlineName{#1}{#2}{#3}{#4}%
223      }{%
224        \pdfoutline goto num\csname\HypDest@Prefix#2\endcsname
225                    count#3{#4}%
226      }%
227    }%
228  \fi
```

Because \Hy@OutlineName is called after the .out file is written in the previous
run. Therefore we mark the destination earlier in \@@writetorep.

```
229  \let\HypDest@Org@@writetorep\@@writetorep
230  \renewcommand*{\@@writetorep}[5]{%
231    \begingroup
232      \edef\Hy@tempa{#5}%
233      \ifx\Hy@tempa\Hy@bookmarkstype
234        \HypDest@MarkUsed{#3}%
235      \fi
236    \endgroup
237    \HypDest@Org@@writetorep{#1}{#2}{#3}{#4}{#5}%
238  }%
```

2.7.4 Outlines of package **bookmark**

```
239  \@ifpackageloaded{bookmark}{%
240    \@ifpackagelater{bookmark}{2008/08/08}{%
241      \renewcommand*{\BKM@DefGotoNameAction}[2]{%
242        \@ifundefined{\HypDest@Prefix#2}{%
243          \edef#1{goto name{hypdestopt\string :unknown}}%
244        }{%
245          \ifHypDest@name
246            \edef#1{goto name{\csname\HypDest@Prefix#2\endcsname}}%
247          \else
248            \edef#1{goto num\csname\HypDest@Prefix#2\endcsname}%
249          \fi
250        }%
251      }%
```

```
252        \def\BKM@HypDestOptHook{%
253          \ifx\BKM@dest\@empty
254          \else
255            \ifx\BKM@gotor\@empty
256              \HypDest@MarkUsed\BKM@dest
257            \fi
258          \fi
259        }%
260      }{%
261        \@PackageError{hypdestopt}{%
262          Package `bookmark' is too old.\MessageBreak
263          Version 2008/08/08 or later is needed%
264        }\@ehc
265      }%
266    }{}%
267 }
```

268 ⟨/package⟩

3 Installation

3.1 Download

Package.   This package is available on CTAN[1]:

CTAN:macros/latex/contrib/oberdiek/hypdestopt.dtx The source file.

CTAN:macros/latex/contrib/oberdiek/hypdestopt.pdf Documentation.

Bundle.   All the packages of the bundle 'oberdiek' are also available in a TDS compliant ZIP archive. There the packages are already unpacked and the documentation files are generated. The files and directories obey the TDS standard.

CTAN:install/macros/latex/contrib/oberdiek.tds.zip

TDS refers to the standard "A Directory Structure for TeX Files" (CTAN:pkg/tds). Directories with `texmf` in their name are usually organized this way.

3.2 Bundle installation

Unpacking.   Unpack the `oberdiek.tds.zip` in the TDS tree (also known as `texmf` tree) of your choice. Example (linux):

    unzip oberdiek.tds.zip -d ~/texmf

3.3 Package installation

Unpacking.   The `.dtx` file is a self-extracting `docstrip` archive. The files are extracted by running the `.dtx` through plain TeX:

    tex hypdestopt.dtx

---

[1][CTAN:pkg/hypdestopt](CTAN:pkg/hypdestopt)

TDS. Now the different files must be moved into the different directories in your installation TDS tree (also known as `texmf` tree):

```
hypdestopt.sty → tex/latex/oberdiek/hypdestopt.sty
hypdestopt.pdf → doc/latex/oberdiek/hypdestopt.pdf
hypdestopt.dtx → source/latex/oberdiek/hypdestopt.dtx
```

If you have a `docstrip.cfg` that configures and enables `docstrip`'s TDS installing feature, then some files can already be in the right place, see the documentation of `docstrip`.

3.4 Refresh file name databases

If your TeX distribution (TeX Live, MiKTeX, . . .) relies on file name databases, you must refresh these. For example, TeX Live users run `texhash` or `mktexlsr`.

3.5 Some details for the interested

Unpacking with LaTeX. The `.dtx` chooses its action depending on the format:

plain TeX: Run `docstrip` and extract the files.

LaTeX: Generate the documentation.

If you insist on using LaTeX for `docstrip` (really, `docstrip` does not need LaTeX), then inform the autodetect routine about your intention:

```
latex \let\install=y\input{hypdestopt.dtx}
```

Do not forget to quote the argument according to the demands of your shell.

Generating the documentation. You can use both the `.dtx` or the `.drv` to generate the documentation. The process can be configured by the configuration file `ltxdoc.cfg`. For instance, put this line into this file, if you want to have A4 as paper format:

```
\PassOptionsToClass{a4paper}{article}
```

An example follows how to generate the documentation with pdfLaTeX:

```
pdflatex hypdestopt.dtx
makeindex -s gind.ist hypdestopt.idx
pdflatex hypdestopt.dtx
makeindex -s gind.ist hypdestopt.idx
pdflatex hypdestopt.dtx
```

4 References

[1] Heiko Oberdiek: *The alphalph package*; 2006/05/30 v1.4; CTAN:pkg/alphalph.

[2] Sebastian Rahtz, Heiko Oberdiek: *The hyperref package*; 2006/06/01 v6.75a; CTAN:pkg/hyperref.

5 History

[2006/06/01 v1.0]

- First version.

[2006/06/01 v2.0]

- New method for referencing destinations by number; an idea proposed by Lars Hellström in the mailing list LATEX-L.

- Options name and num added.

[2007/11/11 v2.1]

- Use of package pdftexcmds for LuaTEX support.

[2008/08/08 v2.2]

- Support for package bookmark added.

[2011/05/13 v2.3]

- Fix for \Hy@DestName if the destination name contains special characters.

- Fix for option name and package bookmark.

[2016/05/16 v2.4]

- Documentation updates.

[2016/05/21 v2.5]

- LuaTeX compatibility

[2019/12/29 v2.6]

- use iftex package.

6 Index

Numbers written in italic refer to the page where the corresponding entry is described; numbers underlined refer to the code line of the definition; plain numbers refer to the code lines where the entry is used.

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