README for hyperref bundle

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1 Introduction

This package is used to emend cross-referencing commands in \LaTeX{} to produce some sort of \texttt{\special} commands; there are backends for the \texttt{\special} set defined for HyperTeX dvi processors, for embedded pdfmark commands for processing by Acrobat Distiller (dvips and dvipsone), for dviwindo, for pdfTeX, for dvipdfm, for \TeX{}4ht, and for VTEX’s pdf and HTML backends.

Included are:

a) ‘backref’ a package by David Carlisle to provide links back from bibliography to the main text; these are hypertext links after using hyperref.

b) nameref’ a package to allow reference to the *names* of sections rather than their numbers.

2 Download

`hyperref` is available on CTAN:

\texttt{CTAN:macros/latex/contrib/hyperref/}

Also a ZIP file is provided that contains the files, already sorted in a TDS tree:

\texttt{CTAN:install/macros/latex/contrib/hyperref.tds.zip}

‘CTAN:’ means one of the ‘Comprehensive \TeX{} Archive Network’ nodes or one of its mirrors. This is explained in

\url{http://www.tex.ac.uk/cgi-bin/texfaq2html?label=archives}
The main repository of hyperref is located at github
https://github.com/ho-tex/hyperref

3 Installation

Installation with ZIP file in TDS format

The ZIP file `hyperref.tds.zip' contains the files sorted in a TDS tree. Thus you can directly unpack the ZIP file inside a TDS tree. (See CTAN:tds.zip for an explanation of TDS.)

Example:
   cd /...somewhere.../texmf
   unzip /...downloadpath.../hyperref.tds.zip

Do not forget to refresh the file name database of this TDS tree,
Example:
   texhash /...somewhere.../texmf

Manual installation

a) Download the hyperref files from CTAN or the TUG server.
   If necessary, unpack them.
b) If directory `beta' exists, replace the files by the counterparts
   in this directory, if you want to use the latest versions.
c) Generate the package and driver files:
   tex hyperref.ins
d) Install the files `*.sty', `*.def', and `*.cfg' in your TDS tree:
   cp *.* sty *.* def *.* cfg TDS:tex/latex/hyperref/
   Replace `TDS:' by the prefix of your TDS tree (texmf directory).
   The exception is bmhydoc.sty, it belongs to the source files
   (TDS:source/latex/hyperref/).
e) Copy the documentation files to "TDS:doc/latex/hyperref/":
   manual.pdf, README, README.pdf, ChangeLog, ChangeLog.pdf,
   slides.pdf, paper.pdf, options.pdf, hyperref.pdf, backref.pdf,
   nameref.pdf (Also the HTML version of the manual can be put there.)
f) Update the databases if necessary, eg. for TeX:
   mktexlsr .../texmf

4 Additional Packages

Depending on the driver and option settings, hyperref loads other packages:
* atbegshi.sty:
   CTAN:macros/latex/contrib/oberdiek/atbegshi.pdf
* atveryend.sty:
   CTAN:macros/latex/contrib/oberdiek/atveryend.pdf
* backref.sty (loaded by option `backref' or `pagebackref'):
   CTAN:macros/latex/contrib/hyperref/backref.dtx
* bigintcalc.sty (loaded by package `bitset'):
   CTAN:macros/latex/contrib/oberdiek/bigintcalc.pdf
* bitset.sty:
   CTAN:macros/latex/contrib/oberdiek/bitset.pdf
**color.sty** (loaded by option `colorlinks'):
CTAN:macros/latex/required/graphics/
**etexcmds.sty**:
CTAN:macros/latex/contrib/oberdiek/etexcmds.pdf
**gettitlestring.sty** (loaded by package `nameref'):
CTAN:macros/latex/contrib/oberdiek/gettitlestring.pdf
**hycolor.sty**:
CTAN:macros/latex/contrib/oberdiek/hycolor.pdf
**infwarerr.sty** (loaded by packages `etexcmds', `stringenc', `atbegshi', `bitset'):
CTAN:macros/latex/contrib/oberdiek/infwarerr.pdf
**intcalc.sty**:
CTAN:macros/latex/contrib/oberdiek/intcalc.pdf
**ifpdf.sty** (loaded by package `atbegshi'):
CTAN:macros/latex/contrib/oberdiek/atbegshi.pdf
**ifluatex.sty** (loaded by package `pdfetexcmds'):
CTAN:macros/latex/contrib/oberdiek/ifluatex.pdf
**ifvtex.sty**:
CTAN:macros/latex/contrib/oberdiek/ifvtex.pdf
**ifxetex.sty**:
CTAN:macros/generic/ifxetex/ifxetex.sty
**intcalc.sty** (loaded by package `bitset'):
CTAN:macros/latex/contrib/oberdiek/intcalc.pdf
**keyval.sty**
CTAN:macros/latex/required/graphics/
**kvdefinekeys.sty**
CTAN:macros/latex/contrib/oberdiek/kvsetkeys.pdf
**kvoptions.sty**:
CTAN:macros/latex/contrib/oberdiek/kvoptions.pdf
**kvsetkeys.sty**:
CTAN:macros/latex/contrib/oberdiek/kvsetkeys.pdf
**letltxmacro.sty**:
CTAN:macros/latex/contrib/oberdiek/letltxmacro.pdf
**ltxcmds.sty** (loaded by package `pdfetexcmds'):
CTAN:macros/latex/contrib/oberdiek/ltxcmds.pdf
**memhfixc.sty** (loaded if class `memoir' is loaded):
CTAN:macros/latex/contrib/memoir/memhfixc.sty
**nameref.sty**:
CTAN:macros/latex/contrib/hyperref/nameref.dtx
**pdfescape.sty** (loaded by package `stringenc'):
CTAN:macros/latex/contrib/oberdiek/pdfescape.pdf
**pdfetexcmds.sty**
CTAN:macros/latex/contrib/oberdiek/pdfetexcmds.pdf
**refcount.sty** (loaded by package `nameref')
CTAN:macros/latex/contrib/oberdiek/refcount.pdf
**rerunfilecheck.sty**:
CTAN:macros/latex/contrib/oberdiek/rerunfilecheck.pdf
**stringenc.sty**:
CTAN:macros/latex/contrib/oberdiek/stringenc.pdf
**tex4ht.sty** (loaded by option `tex4ht'):
CTAN:support/Tex4ht/
**uniquecounter.sty** (loaded by package `rerunfilecheck'):
CTAN:macros/latex/contrib/oberdiek/uniquecounter.pdf
**url.sty**
CTAN:macros/latex/contrib/other/misc/url.sty
5 New Features

Option \texttt{pdflinkmargin}

Option `pdflinkmargin` is an experimental option for specifying a link margin, if the driver supports this. Default is 1 pt for supporting drivers.

\texttt{pdfTeX}:
* The link area also depends on the surrounding box.
* Settings have local effect.
* When a page is shipped out, \texttt{pdfTeX} uses the current setting of the link margin for all links on the page.

\texttt{pdfmark}:
* Settings have global effect.

Other drivers: Unsupported.

Field option \texttt{calculatesortkey}

Fields with calculated values are calculated in document order by default. If calculated field values depend on other calculated fields that appear later in the document, then the correct calculation order can be specified with option `calculatesortkey`. Its value is used as key to lexicographically sort the calculated fields.

The sort key do not need to be unique. Fields that share the same key are sorted in document order.

Currently the field option `calculatesortkey` is only supported by the driver for \texttt{pdfTeX}.

Option \texttt{localanchorname}

When an anchor is set (e.g. via \texttt{\refstepcounter}), then the anchor name is globally set to the current anchor name.

For example:
\begin{verbatim}
\section{Foobar}
\begin{equation}\end{equation}
\label{sec:foobar}
\end{verbatim}
With the default global setting (\texttt{localanchorname=false}) a reference to `sec:foobar' jumps to the equation before.
With option `\texttt{localanchorname}' the anchor of the equation is forgotten after the environment and the reference `sec:foobar' jumps to the section title.

Option `\texttt{localanchorname}' is an experimental option, there might be situations, where the anchor name is not available as expected.
Option ‘customdriver’

The value of option `customdriver' is the name of an external driver file without extension `.def'. The file must have \ProvidesFile with a version date and number that match the date and number of `hyperref', otherwise a warning is given.

Because the interface, what needs to be defined in the driver, is not well defined and quite messy, the option is mainly intended to ease developing, testing, debugging the driver part.

Option ‘psdextra’

LaTeX’s NFSS is used to assist the conversion of arbitrary TeX strings to PDF strings (bookmarks, PDF information entries). Many math command names (\geq, \notin, ...) are not in control of NFSS, therefore they are defined with prefix ‘text’ (\textgeq, \textnotin, ...). They can be mapped to short names during the processing to PDF strings. The disadvantage is that they are many hundreds macros that need to be redefined for each PDF string conversion. Therefore this can be enabled or disabled as option ‘psdextra’. On default the option is turned off (set to ‘false’). Turning the option on means that the short names are available. Then \geq can directly be used instead of \textgeq.

\XeTeXLinkBox

When XeTeX generates a link annotation, it does not look at the boxes (as the other drivers), but only at the character glyphs. If there are no glyphs (images, rules, ...), then it does not generate a link annotation. Macro \XeTeXLinkBox puts its argument in a box and adds spaces at the lower left and upper right corners. An additional margin can be specified by setting it to the dimen register \XeTeXLinkMargin. The default is 2pt.

Example:
% xelatex
\documentclass{article}
\usepackage{hyperref}
\setlength{\XeTeXLinkMargin}{1pt}
\begin{document}
\section{Hello World}
\newpage
\label{sec:hello}
\hyperref[sec:hello]{\XeTeXLinkBox{\rule{10mm}{10mm}}}
\end{document}

\IfHyperBooleanExists and \IfHyperBoolean

\IfHyperBooleanExists{OPTION}{YES}{NO}
If a hyperref OPTION is a boolean, that means it takes values ‘true’ or ‘false’, then \IfHyperBooleanExists calls YES, otherwise NO.
\IfHyperBoolean{OPTION}{YES}{NO}

Macro \IfHyperBoolean calls YES, if OPTION exists as boolean and is enabled. Otherwise NO is executed.

Both macros are expandable. Additionally option `stoppedearly' is available. It is enabled if \MaybeStopEarly or \MaybeStopNow end hyperref prematurely.

\unichar

If a Unicode character is not supported by puenc.def, it can be given by using \unichar. It’s name and syntax is inherited from package ’ucs’. However it is defined independently for use in hyperref’s \pdfstringdef (that converts arbitrary TeX code to PDF strings or tries to do this).

Macro \unichar takes a TeX number as argument, examples for U+263A (WHITE SMILING FACE):
\unichar{263A}\% hexadecimal notation
\unichar{9786}\% decimal notation
`` must not be a babel shorthand character or otherwise active. Otherwise prefix it with \string:
\unichar{\string263A}\% converts `”’ to `”’ with catcode 12 (other)
Users of (n)german packages or babel options may use \dq instead:
\unichar{\dq 263A}\% \dq is double quote with catcode 12 (other)

\ifpdfstringunicode

Some features of the PDF specification needs PDF strings. Examples are bookmarks or the entries in the information dictionary. The PDF specification allows two encodings `PDFDocEncoding' (8-bit encoding) and `Unicode' (UTF-16). The user can help using \texorpdfstring to replace complicate TeX constructs by a representation for the PDF string. However \texorpdfstring does not distinguish the two encodings. This gap closes \ifpdfstringunicode. It is only allowed in the second argument of \texorpdfstring and takes two arguments, the first allows the full range of Unicode. The second is limited to the characters available in PDFDocEncoding.

As example we take a macro definition for the Vietnamese name of Han The Thanh. Correctly written it needs some accented characters, one character even with a double accent. Class `tugboat.cls' defines a macro for the typesetted name:
\def\Thanh{%
H\`a\-
Th\`e\llap{\raise 0.5ex\hbox{\{}\}}\%
-\Th\`a\nh%
}

It’s not entirely correct, the second accent over the `e' is not an acute, but a hook. However standard LaTeX does not provide such an accent.

Now we can extend the definition to support hyperref. The first and the last word are already supported automatically. Characters with two or more accents are a difficult business in LaTeX, because the NFSS2 macros of the LaTeX kernel do not support
more than one accent. Therefore also puenc.def misses support for
them. But we can provide it using \unichar. The character
in question is:
% U+1EC3 LATIN SMALL LETTER E WITH CIRCUMFLEX AND HOOK ABOVE
Thus we can put this together:
\def\Thanh{%
H\`an-%\n%&\nxorpdfstring{%Th\e\\lap{\raise 0.5ex\\hbox{\{}}}%}{Th\unichar{1EC3}}%\n%&\n~Th\`anh%
}%
%H\`an Th\unichar{1EC3} Th\`anh%
%
%H\`an Th\unichar{1EC3} Th\`anh%
%
%Han The Thanh%
%
}"

Customizing index style file with \nohyperpage
Since version 2008/08/14 v6.78f.

For hyperlink support in the index, hyperref inserts \hyperpage
into the index macros. After processing with Makeindex, \hyperpage
analyzes its argument to detect page ranges and page comma lists.
However, only the standard settings are supported directly:
\begingroup
\setkeys{HyperPage}{html}{}
\endgroup
\textbf{delim} \_\_r "-"
\textbf{delim} \_\_n ", "

(See manual page/documentation of Makeindex that explains
the keys that can be used in style files for Makeindex.)
Customized versions of
\textbf{delim} \_\_r, \textbf{delim} \_\_n, \textbf{suffix} \_\_2p, \textbf{suffix} \_\_3p, \textbf{suffix} \_\_mp
needs markup that \hyperpage can detect and knows that
this stuff does not belong to a page number. Makro
\nohyperpage serves as this markup. Put the customized
code for these keys inside \nohyperpage, e.g.:
\textbf{suffix} \_\_2p "\nohyperpage{f.}"
\textbf{suffix} \_\_3p "\nohyperpage{ff.}"

(Depending on the typesetting tradition some space \\"\, or "-" should be put before the first f inside \nohyperpage.)

Experimental option ‘ocgcolorlinks’
The idea are colored links, when viewed, but printed without colors.
This new experimental option ‘ocgcolorlinks’ uses Optional Content
Groups, a feature introduced in PDF 1.5.
**NEW FEATURES**

* The option must be given for package loading:
  \usepackage[ocgcolorlinks]{hyperref}
* Main disadvantage: Links cannot be broken across lines.
  PDF reference 1.7: 4.10.2 "Making Graphical Content Optional":
  Graphics state operations, such as setting the color, ..., are still applied.
  Therefore the link text is put in a box and set twice, with and without color.
* The feature can be switched of by \hypersetup{ocgcolorlinks=false}
  inside the document.
* Supported drivers: pdftex, dvipdfm
* The PDF version should be at least 1.5. It is automatically set for pdftex. Users of dvipdfmx set the version on the command line: dvipdfmx -V 5

**Option ‘pdfa’**

The new option `pdfa` tries to avoid violations of PDF/A in code generated by hyperref. However, the result is usually not in PDF/A, because many features aren’t controlled by hyperref (XMP metadata, fonts, colors, driver dependent low level stuff, ...).

Currently, option `pdfa` sets and disables the following items:
* Enabled annotation flags: Print, NoZoom, NoRotate [PDF/A 6.5.3].
* Disabled annotation flags: Hidden, Invisible, NoView [PDF/A 6.5.3].
* Disabled: Launch action (\href{run:...}) [PDF/A 6.6.1].
* Restricted: Named actions (\Acrobatmenu: NextPage, PrevPage, FirstPage, LastPage) [PDF/A 6.6.1].
* Many things are disabled in PDF formulars:
  * JavaScript actions [PDF/A 6.6.1]
  * Trigger events (additional actions) [PDF/A 6.6.2]
  * Push button (because of JavaScript)
  * Interactive Forms: Flag NeedAppearances is the default `false'
    (Because of this, hyperref’s implementation of Forms looks ugly). [PDF/A 6.9]

The default value of the new option `pdfa` is `false`. It influences the loading of the package and cannot be changed after hyperref is loaded (\usepackage{hyperref}).

To Do:
* XMP support
* ...
  But perhaps Adobe Acrobat is now happy and can now convert the PDF file to PDF/A.

**Option ‘linktoc’ added**

The new option `linktoc` allows more control which part of an entry in the table of contents is made into a link:
* `linktoc=none` (no links)
* `linktoc=section` (default behaviour, same as `linktocpage=false`)
* `linktoc=page` (same as `linktocpage=true`)
* `linktoc=all` (both the section and page part are links)
Option ‘pdfnewwindow’ changed

Before 6.77b:
* pdfnewwindow=true --> /NewWindow true
* pdfnewwindow=false --> (absent)
* unused pdfnewwindow --> (absent)
Since 6.77b:
* pdfnewwindow=true --> /NewWindow true
* pdfnewwindow=false --> /NewWindow false
* pdfnewwindow={} --> (absent)
* unused pdfnewwindow --> (absent)

Rationale: There is a difference between setting to ‘false’ and an absent entry. In the former case the new document replaces the old one, in the latter case the PDF viewer application should respect the user preference.

Flag options for PDF forms

PDF form field macros (\TextField, \CheckBox, ...) support boolean flag options. The option name is the lowercase version of the names in the PDF specification (1.7):
Options (convert to lowercase) except flags in square brackets:

* Table 8.16 Annotation flags (page 608):
  1 Invisible
  2 Hidden (PDF 1.2)
  3 Print (PDF 1.2)
  4 NoZoom (PDF 1.3)
  5 NoRotate (PDF 1.3)
  6 NoView (PDF 1.3)
  [7 ReadOnly (PDF 1.3)] ignored for widget annotations, see table 8.70
  8 Locked (PDF 1.4)
  9 ToggleNoView (PDF 1.5)
  10 LockedContents (PDF 1.7)

* Table 8.70 Field flags common to all field types (page 676):
  1 ReadOnly
  2 Required
  3 NoExport

* Table 8.75 Field flags specific to button fields (page 686):
  15 NoToggleToOff (Radio buttons only)
  16 Radio (set: radio buttons, clear: check box, pushbutton: clear)
  17 Pushbutton
  26 RadiosInUniso (PDF 1.5)

* Table 8.77 Field flags specific to text fields (page 691):
  13 Multiline
  14 Password
  21 FileSelect (PDF 1.4)
  23 DoNotSpellCheck (PDF 1.4)
  24 DoNotScroll (PDF 1.4)
  25 Comb (PDF 1.5)
  26 RichText (PDF 1.5)

* Table 8.79 Field flags specific to choice fields (page 693):
  18 Combo (set: combo box, clear: list box)
  19 Edit (only useful if Combo is set)
20 (Sort) for authoring tools, not PDF viewers
22 MultiSelect (PDF 1.4)
23 DoNotSpellCheck (PDF 1.4) (only useful if Combo and Edit are set)
27 CommitOnSelChange (PDF 1.5)

* Table 8.86 Flags for submit-form actions (page 704):
  1 Include/Exclude unsupported, use `noexport' (table 8.76) instead
  2 IncludeNoValueFields
  3 ExportFormat handled by option `export'
  4 GetMethod
  5 SubmitCoordinates
  6 XFDF (PDF 1.4) handled by option `export'
  7 IncludeAppendSaves (PDF 1.4)
  8 IncludeAnnotations (PDF 1.4)
  9 SubmitPDF (PDF 1.4) handled by option `export'
 10 CanonicalFormat (PDF 1.4)
 11 ExclNonUserAnnots (PDF 1.4)
 12 ExclFKey (PDF 1.4)
 14 EmbedForm (PDF 1.5)

New option `export' sets the export format of a submit action. Valid values are (upper- or lowercase):
* PDF
* HTML
* XFDF
* PDF (not supported by Acrobat Reader)

Option `pdfversion'

This is an experimental option. It notifies `hyperref' about the intended PDF version. Currently this is used in code for PDF forms (implementation notes 116 and 122 of PDF spec 1.7).

Values: 1.2, 1.3, 1.4, 1.5, 1.6, 1.7. Values below 1.2 are not supported, because most drivers expect higher PDF versions.

The option must be used early, not after `\usepackage{hyperref}'.

In theory this option should also set the PDF version, but this is not generally supported.

* pdfTeX below 1.10a: unsupported.
    pdfTeX >= 1.10a and < 1.30: \pdfoptionpdfminorversion
    pdfTeX >= 1.30: pdfminorversion
* dvipdfm: configuration file, example:
    TeX Live 2007, texmf/dvipdfm/config/config, entry `V 2'.
* dvipdfmx: configuration file, example:
    TeX Live 2007, texmf/dvipdfm/dvipdfmx.cfg, entry `V 4'.
* Ghostscript: option -dCompatibilityLevel (this is set in `ps2pdf12', `ps2pdf13', `ps2pdf14').

The current PDF version is used as default if this version can be detected (only pdfTeX >= 1.10a). Otherwise the lowest version 1.2 is assumed. Thus `hyperref' tries to avoid PDF code that breaks this version, but is free to use ignorable higher PDF features.
Field option ‘name’

Many form objects uses the label argument for several purposes:
* Layouted label.
* As name in HTML structures.
Code that is suitable for layouting with TeX can break in the structures of the output format.
If option `name` is given, then its value is used as name in the different output structures. Thus the value should consist of letters only.

Option ‘pdfencoding’

The PDF format allows two encodings for bookmarks and entries in the information dictionary: PDFDocEncoding and Unicode as UTF-16BE. Option "pdfencoding" selects between these encodings:
* "pdfdoc" uses PDFDocEncoding. It uses just one byte per character, but the supported characters are limited (244 in PDF-1.7).
* "unicode" sets Unicode. It is encoded as UTF-16BE. Two bytes are used for most characters, surrogates need four bytes.
* "auto" PDFDocEncoding if the string does not contain characters outside the encoding and Unicode otherwise.

Color options/package hycolor

See documentation of package `hycolor`.

Option pdfusetitle

If option pdfusetitle is set then hyperref tries to derive the values for pdftitle and pdfauthor from \title and \author. An optional argument for \title and \author is supported (class amsart).

Starred form of \autoref

\autoref* generates a reference without link as \ref* or \pageref*.

Link border style

Links can be underlined instead of the default rectangle or options "colorlinks", "frenchlinks". This is done by option pdfborderstyle={/S/U/W 1}

Some remarks:

* AR7/Linux seems to have a bug, that don't use the default value "1" for the width, but zero, thus that the underline is not visible without "/W 1". The same applies for dashed boxes, eg.:
  pdfborderstyle={/S/D/D[3 2]/W 1}

* The syntax is described in the PDF specification, look for "border style", eg. Table 8.13 "Entries in a border style dictionary"
* The border style is removed by
  \texttt{pdfborderstyle={}}
  This is automatically done if option colorlinks is enabled.

* Be aware that not all PDF viewers support this feature, not even Acrobat Reader itself:

  Some support:
  * AR7/Linux: "underline" and "dashed", but the border width
    must be given.
  * xpdf 3.00: "underline" and "dashed"

  Unsupported:
  * AR5/Linux
  * ghostscript 8.50

**Option "bookmarksdepth"**

The depth of the bookmarks can be controlled by the new option "bookmarksdepth". The option acts globally and distinguishes three cases:

* "bookmarksdepth" without value
  Then hyperref uses the current value of counter "tocdepth".
  This is the compatible behaviour and the default.

* "bookmarksdepth=<number>", the value is number (also negative):
  The depth for the bookmarks are set to this number.

* "bookmarksdepth=<name>"
  The <name> is a document division name (part, chapter, ...).
  It must not start with a digit or minus to avoid mixing up with the number case. Internally hyperref uses the value of macro "\toclevel@<name>".

Examples:

\begin{verbatim}
\hypersetup{bookmarksdepth=paragraph}
\hypersetup{bookmarksdepth=4} % same as before
\hypersetup{bookmarksdepth} % counter "tocdepth" is used
\end{verbatim}

**Option "pdfescapeform"**

There are many places where arbitrary strings end up as PS or PDF strings. The PS/PDF strings in parentheses form require the protection of some characters, e.g. unmatched left or right parentheses need escaping or the escape character itself (backslash).

Since 2006/02/12 v6.75a the PS/PDF driver should do this automatically. However I assume a problem with compatibility, especially regarding the form part where larger amounts of JavaScript code can be present.

It would be a pain to remove all the escaping, because an additional escaping layer can falsify the code.

Therefore a new option pdfescapeform was introduced:

\begin{verbatim}
* pdfescapeform=false
  Escaping for the formulars are disabled, this is
\end{verbatim}
the compatibility behaviour, therefore this is the default.

* pdfescapeform=true

Then the PS/PDF drivers do all the necessary escaping.
This is the logical choice and the recommended setting.
For example, the user writes JavaScript as JavaScript
and do not care about escaping characters for PS/PDF
output.

Default driver setting

(hyperref >= 6.72s)

If no driver is given, hyperref tries its best to guess the
most suitable driver. Thus it loads “hpdftex”, if pdfTeX is
detected running in PDF mode. Or it loads the corresponding
VTex driver for VTeX’s working modes.

Unhappily many driver programs run after the TeX compiler,
so hyperref does not have a chance (dvips, dvipdfm, ...).
In this case driver “hypertex” is loaded that supports the
HyperTeX features that are recognized by xdvi for example.
This behaviour, however, can easily be changed in the configuration
file “hyperref.cfg”:
\providecommand*{\Hy@defaultdriver}{hdvips}
for dvips, or
\providecommand*{\Hy@defaultdriver}{hypertex}
for the default behaviour of hyperref.

See also the new option ‘driverfallback’.

Backref entries

Alternative interface for formatting of backref entries, example:

\documentclass[12pt, UKenglish]{article}
\usepackage{babel}
\usepackage[pagebackref]{hyperref}
\% Some language options are detected by package backref.
\% This affects the following macros:
\% \backrefpagesname
\% \backrefsectionsname
\% \backrefsepsp
\% \backreffwosep
\% \backreflastsepsp
\\renewcommand*{\backref}{[1]
\% default interface
\% #1: backref list
\%
\% We want to use the alternative interface,
\% therefore the definition is empty here.
}\}
\renewcommand*{\backrefalt}{[4]
\% alternative interface
\% #1: number of distinct back references
\% #2: backref list with distinct entries
5 NEW FEATURES

% #3: number of back references including duplicates
% #4: backref list including duplicates
\par
#3 citation(s) on #1 page(s): #2, \par
\ifnum#1=1 %
  \ifnum#3=1 %
    1 citation on page %
  \else
    #3 citations on page %
  \fi
\else
  #3 citations on #1 pages %
\fi
#2, \par
\ifnum#3=1 %
  1 citation located at page %
\else
  #3 citations located at pages %
\fi
#4. \par
}

% The list of distinct entries can be further refined:
\renewcommand*{\backrefentrycount}[2]{%
% #1: the original backref entry
% #2: the count of citations of this entry,
% in case of duplicates greater than one
#1%
\ifnum#2>1 %
  ~(#2)%
\fi
}
\begin{document}
\section{Hello}
\citet{ref1, ref2, ref3, ref4}
\section{World}
\citet{ref1, ref3}
\newpage
\section{Next section}
\citet{ref1}
\newpage
\section{Last section}
\citet{ref1, ref2}
\newpage
\pdfbookmark[1]{Bibliography}{bib}
\begin{thebibliography}{99}
\bibitem{ref1} Dummy entry one.
\bibitem{ref2} Dummy entry two.
\end{thebibliography}
\bibitem{ref2} Dummy entry two.
6 Package Compatibility

Currently only package loading orders are available:

Note: hyperref loads package "nameref" at \begin{document}. Sometimes this is too late, thus this package must be loaded earlier.

\textbf{algorithm}

\usepackage{float}
\usepackage{hyperref}
\usepackage[chapter]{algorithm}% eg.

\textbf{amsmath}

The environments equation and eqnarray are not supported too well. For example, there might be spacing problems (eqnarray isn’t recommended anyway, see CTAN:info/l2tabu/, the situation for equation is unclear, because nobody is interested in investigating). Consider using the environments that package amsmath provide, e.g. gather for equation. The environment equation can even redefined to use gather:
\usepackage{amsmath}
\let\equation\gather
\let\endequation\endgather

amsrefs

Package loading order:

\usepackage{hyperref}
\usepackage{amsrefs}

arydshln, longtable

Package longtable must be put before hyperref and arydshln, hyperref after arydshln generates an error, thus the resulting package order is then:

\usepackage{longtable}
\usepackage{hyperref}
\usepackage{arydshln}

babel/magyar.ldf

The old version 2005/03/30 v1.4j will not work.
You need at least version 1.5, maintained by P\'eter Szab\'o,
see CTAN:language/hungarian/babel/.

babel/spanish.ldf

Babel’s spanish.ldf redefines \`\.' to support \`\...\'.
In bookmarks (\pdfstringdef) only \`\.' is supported.
If \`\...\' is needed,
\texttt{\texorpdfstring{\...\}{\dots}}
can be used instead.

bibentry

Workaround:

\makeatletter
\let\saved@bibitem\@bibitem
\makeatother

\usepackage{bibentry}
\usepackage{hyperref}

\begin{document}
\begingroup
\makeatletter
\let\@bibitem\saved@bibitem
\nobibliography{database}
\endgroup
bigfoot

Hyperref does not support package `bigfoot'. And package
`bigfoot' does not support hyperref's footnotes and disables
them (hyperfootnotes=false).

chappg

Package `chappg' uses \@addtoreset that is redefined by `hyperref'.
The package order is therefore:

```
\usepackage{hyperref}
\usepackage{chappg}
```

cite

This is from Mike Shell:
> cite.sty cannot currently be used with hyperref.
> However, I can do a workaround via:
> > \makeatletter
> > \def\NAT@parse{\typeout{This is a fake Natbib command to fool Hyperref.}}
> > \makeatother
> > \usepackage[ hypertex ]{hyperref}
> > so that hyperref will not redefine any of the biblabel stuff - so cite.sty
> > will work as normal - although the citations will not be hyperlinked, of
> > course (But this may not be an issue for many people).

count1to

Package `count1to' adds several \@addtoreset commands that confuse
`hyperref'. Therefore \theH<...> has to be fixed:

```
\usepackage{count1to}
\AtBeginDocument{% *after* \usepackage{count1to}
  \renewcommand*{\theHsection}{\theHchapter.\arabic{section}}%
  \renewcommand*{\theHsubsection}{\theHsection.\arabic{subsection}}%
  \renewcommand*{\theHsubsubsection}{\theHsubsection.\arabic{subsubsection}}%
  \renewcommand*{\theHparagraph}{\theHsubsubsection.\arabic{paragraph}}%
  \renewcommand*{\theHsubparagraph}{\theHparagraph.\arabic{subparagraph}}%
}
```

dblaccent

pd1enc.def or puenc.def should be loaded before:
```
\usepackage{hyperref}
\usepackage{dblaccent}
```
or see entry for "vietnam".

easyeqn

Not compatible, breaks.
ellipses

This package redefines \textellipsis, thus it has to be loaded after package hyperref (pd1enc.def/puenc.def should be loaded before):
\usepackage{hyperref}
\usepackage{ellipsis}

float

\usepackage{float}
\usepackage{hyperref}

* Several \caption commands are not supported inside one float object.
* Anchor are set at top of the float object, if its style is controlled by float.sty.

endnotes

Unsupported.

foiltex

Update to version 2008/01/28 v2.1.4b:
Since version 6.77a hyperref does not hack into \begindvi, it uses package `atbegshi' instead, that hooks into \shipout. Thus the patch of `foils.cls' regarding hyperref is now obsolete and causes an undefined error message about \hyperfixhead. This is fixed in FoilTeX 2.1.4b.

footnote

This package is not supported, you have to disable hyperref's footnote support by using option "hyperfootnotes=false".

geometry

Driver `dvipdfm' and program `dvipdfm' might generate a warning:
Sorry. Too late to change page size
Then prefer the program `dvipdfmx' or use one of the following workarounds to move the \special of geometry to an earlier location:
\documentclass[dvipdfm]{article}% or other classes
\usepackage{atbegshi}
\AtBeginDocument{%
  \let\OrgAtBeginDvi\AtBeginDvi
  \let\AtBeginDvi\AtBeginShipoutFirst
} \usepackage[%
  paperwidth=170mm,
  paperheight=240mm
]{geometry}
\AtBeginDocument{%
  \let\AtBeginDvi\OrgAtBeginDvi
} \usepackage{hyperref}
or
\documentclass[dvipdfm]{article} % or other classes
\usepackage{atbegshi}
\let\AtBeginDvi\AtBeginShipoutFirst
\usepackage[
  paperwidth=170mm,
  paperheight=240mm
]{geometry}
\usepackage{hyperref}

IEEEtran.cls
version >= V1.6b (because of \@makecaption, see ChangeLog)

index
version >= 1995/09/28 v4.1 (because of \addcontentsline redefinition)

lastpage
Compatible.

linguex
\usepackage{hyperref}
\usepackage{linguex}

ltabptch
\usepackage{longtable}
\usepackage{ltabptch}
\usepackage{hyperref}

mathenv
Unsupported.
Both `mathenv' and `hyperref' messes around with environment `eqnarray'. You can load `mathenv' after `hyperref' to avoid an error message. But \label will not work inside environment `eqnarray' properly, for example.

minitoc-hyper
This package is obsolete, use the upToDate original package minitoc instead.

multind
\usepackage{multind}
\usepackage{hyperref}
natbib
\usepackage{natbib}
\usepackage{hyperref}

documents
* Example for introducing links for the page numbers:
  \renewcommand*{\pagedeclaration}[1]{\unskip, \hyperpage{#1}}

* For equations the following might work:
  \renewcommand*{\eqdeclaration}[1]{%$
    \hyperlink{equation.\,#1}{{(Equation~\#1)}}%$
  }
  But the mapping from the equation number to the anchor name
  is not available in general.

dropcap
\usepackage{parskip}
\usepackage{hyperref}[2012/08/20]

Both packages want to redefine \@starttoc.

prettyref
%%% example for prettyref
\documentclass{article}
\usepackage{prettyref}
\usepackage[pdftex]{hyperref}

%\newrefformat{FIG}{Figure~\ref{#1}}% without hyperref
\newrefformat{FIG}{\hyperref{#1}{Figure~\ref*{#1}}}

\begin{document}
  This is a reference to \prettyref{FIG:ONE}.
  \newpage
  \begin{figure}
    \caption{This is my figure}
    \label{FIG:ONE}
  \end{figure}
\end{document}
%%% example for prettyref

ntheorem
ntheorem-hyper.sty is an old patched version of ntheorem.sty.
Newer versions of ntheorem know the option hyperref:
\usepackage{hyperref}
\usepackage[hyperref]{ntheorem}
But there are still unsolved problems (options thref, ...).

setspace
\usepackage{setspace}
\usepackage{hyperref}
6 PACKAGE COMPATIBILITY

sidecap

Before 2002/05/24 v1.5h:
\usepackage{nameref}
\usepackage{hyperref}
\usepackage{sidecap}

subfigure

1995/03/06 v2.0:
\usepackage{subfigure}
\usepackage{hyperref}
% hypertexnames is set to false.
\v2.1:
\usepackage{nameref}
\usepackage{subfigure}
\usepackage{hyperref}
or
\usepackage{hyperref}
\usepackage{subfigure}
\v2.1.2:
  please update
\v2.1.3:
\usepackage{hyperref}
\usepackage{subfigure}
or vice versa?

titleref

\usepackage{nameref}
\usepackage{titleref}% without usetoc
\usepackage{hyperref}

tabularx

Linked footnotes are not supported inside environment `tabularx',
because they uses the optional argument of \footnotetext, see
section `Limitations'. Before version 2011/09/28 6.82i
hyperref had disabled footnotes entirely by `hyperfootnotes=false'.

titlesec

"nameref" supports titlesec, but hyperref does not
(unsolved is the anchor setting, missing with unnumbered
section, perhaps problems with page breaks with numbered ones).

ucs/utf8x.def

The first time a multibyte UTF8 sequence is called, it
does some calculations and stores the result in a macro
for speeding up the next calls of that UTF8 sequence.
However this makes the first call non-expandable and
will break if used in information entries or bookmarks.
Package "ucs" offers \PrerenderUnicode or \PreloadUnicodePage
to solve this:
\usepackage{ucs}
\usepackage[utf8]{inputenc}
\usepackage{hyperref}% or with option unicode
\PrerenderUnicode{\c{6}}% or \PrerenderUnicodePage{1}
\hypersetup{pdftitle={Umlaut example: c6}}
The notation with two carets avoids trouble with 8-bit bytes for the README file, you can use the characters directly.

varioref

There are too many problems with varioref. Nobody has time to sort them out. Therefore this package is now unsupported.

Perhaps you are lucky and some of the features of varioref works with the following loading order:
\usepackage{nameref}
\usepackage{varioref}
\usepackage{hyperref}

Also some babel versions can be problematic. For example, 2005/05/21 v3.8g contains a patch for varioref that breaks the hyperref support for varioref.

Also unsupported:
* \Ref, \Vref do not uppercase the first letter.
* \vpageref{...}
  On the same page a previous space is not suppressed.

verse

Version 2005/08/22 v2.22 contains support for hyperref.

For older versions see example from de.comp.text.tex (2005/08/11, slightly modified):

\documentclass{article}

% package order does not matter
\usepackage{verse}
\usepackage{hyperref}
\makeatletter
% make unique poemline anchors
\newcounter{verse@env}
\setcounter{verse@env}{0}
\let\org@verse\verse
\def\verse{%
\stepcounter{verse@env}%
\org@verse}
\def\theHpoemline{\arabic{verse@env}.\theverse}
\let\theHpoemline\arabic\	heverse
% add anchor for before \addcontentsline in \@vsptitle
\let\org@vsptitle\@vsptitle
\def\@vsptitle{%
\phantomsection
\org@vsptitle
An one-liner.

Another one-liner.

việt nam

XeTeX

Default for the encoding of bookmarks is `pdfencoding=auto'. That means the strings are always treated as unicode strings. Only if the string restricts to the printable ASCII set, it is written as ASCII string. The reason is that the \special does not support PDFDocEncoding.

XeTeX uses the program xdvipdfmx for PDF output generation. This program behaves a little different from dvipdfm, because of the supported Unicode characters. Strings for bookmarks or information entries can be output directly. The big chars (char code > 255) are written in UTF-8 and xdvipdfmx tries to convert them to UTF-16BE. However hyperref already provides PDF strings encoded in UTF-16BE, thus the result is a warning "Failed to convert input string to UTF16..."

The best way would be, if xdvipdfm could detect the byte order marker (\376\377) and skips the conversion if that marker is present.

For the time being I added the following to hyperref, when option `pdfencoding=auto' is set (default for XeTeX):
The string is converted back to big characters thus that the string is written as UTF-8. But I am very unhappy with this solution. Main disadvantage:

Two versions of \pdfstringdef are needed:
a) The string is converted back to big characters for the "tainted keys" of xdvipdfmx (spc_pdfm.c: default_taintkeys).
The subset hyperref uses is /Title, /Author, /Subject, /Keywords, /Creator, /Producer, /T. Any changes of this
set in xdvipdfmx cannot be detected by hyperref.
b) Without conversion for the other strings, providing UTF16be
directly. Examples: Prefix of page labels, some elements
of formulars.
Thus each application that uses \pdfstringdef now must
check, if it defines a string for some of the tainted keys.
If yes, then the call of \pdfstringdef should be preceded
by "\csname HyPsd@XeTeXBigCharstrue\endcsname".
Example: package bookmark.

7 Limitations

Wrapped/broken link support

Only few drivers support automatically wrapped/broken links,
e.g. pdftex, dvipdfm, hypertex. Other drivers lack this
feature, e.g. dvips, dvipsone.

Workarounds:
* For long section or caption titles in the table of contents
  or list of figures/tables option "linktocpage" can be used.
  Then the page number will be a link, and the overlong section
title is not forced into an one line link with overvull \ hbox
  warning.
* "\url"s are caught by package "breakurl".
* The option "breaklinks" is intended for internal use. But it
can be used to force link wrapping, e.g. when printing a
document. However, when such a document is converted to PDF
and viewed with a PDF viewer, the active link area will be
misplaced.
  Another limitation: some penalties are "optimized" by TeX,
  thus there are missing break points, especially within
  \url. (See thread "hyperref.sty, breaklinks and url.sty 3.2"
in comp.text.tex 2005-09).

Links across pages

In general they have problems:
* Some driver doesn’t support them at all (see above).
* The driver allows it, but the link result might include
  the footer and/or header, or an error message can
  occur sometimes.

Footnotes

LaTeX allows the separation of the footnote mark and the
footnote text (\footnotemark, \footnotetext). This interface
might be enough for visual typesetting. But the relation between
\footnotemark to \footnotetext is not as strong as \ref to \label.
Therefore it is not clear in general which \footnotemark references
which \footnotetext. But that is necessary to implement hyperlinking.
Thus the implementation of hyperref does not support the optional
argument of \footnotemark and \footnotetext.
8 Hints

Spaces in option values

Unhappily LaTeX strips spaces from options if they are given in \documentclass or \usepackage (or \RequirePackage), e.g.:
\usepackage[pdfborder=0 0 1]{hyperref}
Package hyperref now gets
pdfborder=001
and the result is an invalid PDF file.
As workaround braces can be used:
\usepackage[pdfborder=\{0 0 1\}]{hyperref}
Some options can also be given in \hypersetup:
\hypersetup{pdfborder=0 0 1}
In \hypersetup the options are directly processed as key value options (see package keyval) without space stripping in the value part.

Alternatively, LaTeX's option handling system can be adapted to key value options by one of the packages "kvoptions-patch" (from project "kvoptions") or "xkvltxp" (from project "xsetkeys").

Index with makeindex

* Package hyperref adds \hyperpage commands by the encap mechanism (see documentation of Makeindex), if option hyperindex is set (default).
\hyperpage uses the page anchors that are set by hyperref at each page (default). However in the default case page numbers are used in anchor names in arabic form. If the page numbers in other formats are used (book class with \frontmatter, \roman{numbering}, ...), then the page anchors are not unique. Therefore option "plainpages=false" is recommended.
* The encap mechanism of Makeindex allows to use one command only (see documentation of Makeindex).
If the user sets such a command, hyperref suppresses its \hyperpage command. With logical markup this situation can easily be solved:
\usepackage{makeidx}
\makeindex
\usepackage[hyperindex]{hyperref}
\newcommand*{\main}{\textbf{\hyperpage{#1}}}...
\index{Some example|main}
* Scientific Word/Scientific WorkPlace users can use package robustindex with hyperindex=false.
* Other encap characters can be set by option "encap".
Example for use of "?":
\usepackage[encap=?]{hyperref}
* An other possibility is the insertion of \hyperpage by a style file for makeindex. For this case, hyperref's insertion will be disabled by "hyperindex=false".
\hyperpage will be defined regardless of setting of hyperindex.
Warning "bookmark level for unknown <foobar> defaults to 0"

Getting rid of it:
\makeatletter
\providecommand*{\toclevel@<foobar>}{0}
\makeatother

Link anchors in figures

The caption command increments the counter and here is the place where hyperref set the corresponding anchor. Unhappily the caption is set below the figure, so the figure is not visible if a link jumps to a figure.

In this cases, try package "hypcap.sty" that implements a method to circumvent the problem.

Additional unicode characters in bookmarks and pdf information entries:

\documentclass[pdftex]{article}
\usepackage[unicode]{hyperref}

% Support for additional unicode characters:
%
% Example: \.{a} and \d{a}
%
% 1. Get a list with unicode data, eg:
% http://www.unicode.org/Public/UNIDATA/UnicodeData.txt
%
% 2. Identify the characters (\.{a}, \d{a}):%
% 0227;LATIN SMALL LETTER A WITH DOT ABOVE;...
% 1EA1;LATIN SMALL LETTER A WITH DOT BELOW;...
%
% 3. Calculate the octal code:
% The first characters of the line in the file are
% hex values, convert each byte and prepend them
% with a backslash. (This will go into the PDF file.)
%
% 0227 -> \002\047
% 1EA1 -> \036\241
%
% 4. Transform into a form understood by hyperref:
% Hyperref must know where the first byte starts,
% this is marked by "9" (8 and 9 cannot occur in
% octal numbers):
% 8 HINTS
% \002\047 -> \9002\047
% \036\241 -> \9036\241
%
% Optional: "8" is used for abbreviations:
% \900 = \80, \901 = \81, \902 = \82, ...
%
% \9002\047 -> \82\047
%
% 5. Declare the character with LaTeX:
%
\DeclareTextCompositeCommand{.}{PU}{a}{\82\047}
\DeclareTextCompositeCommand{\d}{PU}{a}{\9036\241}

\begin{document}
\section{\={a}, \d{a}, \'{a}, \.{a}}
\end{document}

Footnotes

The footnote support is rather limited. It is beyond the scope to use \footnotemark and \footnotetext out of order or reusing \footnotemark. Here you can either disable hyperref's footnote support by "hyperfootnotes=false" or fiddle with internal macros, nasty examples:

\documentclass{article}
\usepackage{hyperref}
\begin{document}
Hello\footnote{The first footnote}
World\addtocounter{footnote}{-1}\addtocounter{Hfootnote}{-1}\footnotemark.
\end{document}

or

\documentclass{article}
\usepackage{hyperref}
\begin{document}
\makeatletter
A\footnotemark
\let\saved@Href@A=\Hy@footnote@currentHref % remember link name
B\footnotemark
\let\saved@Href@B=\Hy@footnote@currentHref
Subordinate counters

Some counters do not have unique values and require the value of other counters to be unique. For example, sections or figures might be numbered within chapters or \newtheorem is used with an optional counter argument. Internally LaTeX uses \@addtoreset to reset a counter in dependency to another counter. Package hyperref hooks into \@addtoreset to catch this situation. Also \numberwithin of package amsmath is caught by hyperref.

However, if the definition of subordinate counters take place before hyperref is loaded, the old meaning of \@addtoreset is called without hyperref’s additions. Then the companion counter macro \theH<counter> can be redefined accordingly. Or move the definition of subordinate counters after hyperref is loaded.

Example for \newtheorem, problematic case:
\newtheorem{corA}{CorollaryA}[section]
\usepackage{hyperref}
Solution a)
\usepackage{hyperref}
\newtheorem{corA}{CorollaryA}[section]
Solution b)
\newcommand*{\theHcorA}{\theHsection.\number\value{corA}}

9 Authors/Maintainers

* Sebastian Rahtz (died 2016)
* Heiko Oberdiek
10 Bug Reports

A bug report should contain:
* Comprehensive problem description. This includes error or warning messages.
* \errorcontextlines=\maxdimen can be added in the TeX code to get more informations in TeX error messages.
* Minimal test file that shows the problem, but does not contain any unnecessary packages and code.
* Used drivers/programs.
* Version information about used packages and programs.
  * If you are using LaTeX, then add \"\listfiles\". Then a list of version informations is printed at the end of the LaTeX run.
* Please no other files than the minimal test file. The other files .log, .dvi, .ps, .pdf are seldom necessary, so send them only on request.

Bug address

A bug tracker is available at github:
https://github.com/ho-tex/oberdiek/issues
Alternatively bug reports can be send to the support group public email list:
<ho-tex [at] tug [dot] org>

Vietnamese part

Responsible for the Vietnamese translations of the \autoref names and puvnenc.def are:
Han The Thanh <hanthethanh [at] gmail [dot] com>
Reinhard Kotucha <reinhard [dot] kotucha at web [dot] de>

Arabic part

Responsible for the additions to PU encoding for Arabi is

11 Known Problems

* (half-done) hyper images (link from thumbnail in text)
* Relative links are not sorted out or documented well.
  For PDF generation:
  * With baseurl: all links are considered relative to this URL.
  * Without baseurl: a relative link without "file:"
    can be achieved by:
    \begingroup
    \hypersetup{linkfileprefix={}}%
    \href{../foo/bar.html}{bar.html}
    \endgroup
* ...
12  TODO

* modules
* bookmark organisation
* documentation
* PDF threads
* more for PDF forms
  * per object setting
  * vary gap between text and box
* PostScript driver: the current implementation doesn’t rely support nested links. The start positions should be remembered in a stack, but there are complications with page breaks.
* ...

13  Versions in TeX distributions

TeX Live

* TL 2016: 2016/05/05 v6.83n (at time of first release)
* TL 2011: 2011/04/17 v6.82g (at time of first release)
* TL 2010: 2010/06/18 v6.81g (at time of first release)
* TL 2009: 2009/10/09 v6.79a (at time of first release)
* TL 2008: 2008/08/14 v6.78f (at time of first release)
* TL 2007: 2007/02/07 v6.75r
* TL 2005: 2003/11/30 v6.74m
* TL 2004: 2003/11/30 v6.74m
* TL 2003: 2003/09/15 v6.74i
* TL 7 (2002): 2002/05/27 v6.72r
* TL 6b (2001): 2001/05/26 v6.71g
* TL 5d (2000): 2000/07/02 v6.70m
* TL 5c (2000): 2000/05/08 v6.70f