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 \special commands; there are backends for the \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 TeX4ht, 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:
  CTAN:macros/latex/contrib/hyperref/

Also a ZIP file is provided that contains the files, already sorted in a TDS tree:
  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
  http://www.tex.ac.uk/cgi-bin/texfaq2html?label=archives

The main repository of hyperref is located at the server of the international 'TeX User Group' (TUG):
  http://www.tug.org/applications/hyperref/

The CTAN stuff will be mirrored automatically from the ftp server, so
  ftp://ftp.tug.org/pub/tex/hyperref/
corresponds to
  CTAN:macros/latex/contrib/hyperref/

Sources

The subversion source repository for hyperref is hosted at Puszcza:
  https://puszcza.gnu.org.ua/svn/?group=hyperref
It offers anonymous access. For daily use I recommend using a release. If new features are added or bugs are fixed, then the new version is usually released fast. Please avoid distributing intermediate states between releases.

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 teTeX:
     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 'pdftexcmds'):
        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/
* 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 'pdftexcmds'):
        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
* pdftexcmds.sty
        CTAN:macros/latex/contrib/oberdiek/pdftexcmds.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
* vtexhtml.sty (loaded if VTeX is used in HTML mode)
* xcolor-patch.sty (loaded by package 'hycolor')
        CTAN:macros/latex/contrib/oberdiek/hycolor.pdf

5 New Features

\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{\string"263A}% 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\'an~%
    Th\^e\llap{\raise 0.5ex\hbox{\'{}}}%
    ~Th\'anh%
  }
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 defintion 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~%
    \texorpdfstring{Th\^e\llap{\raise 0.5ex\hbox{\'{}}}}%
    {\ifpdfstringunicode{Th\unichar{"1EC3}}{Th\^e}}%
    ~Th\'anh%
  }
For PDFDocEncoding (PD1) the variant above has dropped the
second accent. Alternatively we could provide a representation
without accents instead of wrong accents:
  \def\Thanh{%
    \texorpdfstring{%

```
    H\'an~%
    Th\^e\llap{\raise 0.5ex\hbox{\'{}}}}%
    ~Th\'anh%
  }{%
    \ifpdfstringunicode{%
      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:
  delim_r "--"
  delim_n ", "
(See manual page/documentation of Makeindex that explains
the keys that can be used in style files for Makeindex.)
Customized versions of
  delim_r, delim_n, suffix_2p, suffix_3p, 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.:
  suffix_2p "\\nohyperpage{f.}"
  suffix_3p "\\nohyperpage{ff.}"
(Depending on the typesetting tradition some space "\\," or "~"
should be put before the first f inside \nohyperpage.)

Expert feature \HyperDestNameFilter

Since version 2008/07/16 v6.78c.

Each anchor name and inner link name is put through
filter \HyperDestNameFilter. The default behaviour is
to let the name unchanged:
  \def\HyperDestNameFilter#1{#1}
It can be redefined to prepend or append something,
to avoid name collisions if several files are
merged together.

For example, two documents with hyperref can be generated
using different prefixes for destination names. Then it is
easier to merge them with 'dviconcat' or other merge utilities.

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.

* 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 dependend 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}).

ToDo:
* 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):
  http://www.adobe.com/devnet/pdf/pdf_reference.html
  http://www.adobe.com/devnet/acrobat/pdfs/pdf_reference.pdf
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 8.70) 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):
* FDF
* 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"

(specification for version 1.6)

* The border style is removed by
    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:
  \hypersetup{bookmarksdepth=paragraph}
  \hypersetup{bookmarksdepth=4} % same as before
  \hypersetup{bookmarksdepth} % counter "tocdepth" is used

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:
* pdfescapeform=false
  Escaping for the formulars are disabled, this is

the compatibility behaviour, therefor 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.

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
%   \backrefsep
%   \backreftwosep
%   \backreflastsep

\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
  % #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}
   \cite{ref1, ref2, ref3, ref4}
 \section{World}
   \cite{ref1, ref3}
 \newpage

 \section{Next section}
   \cite{ref1}
 \newpage

 \section{Last section}
   \cite{ref1, ref2}
 \newpage

 \pdfbookmark[1]{Bibliography}{bib}
 \begin{thebibliography}{99}
   \bibitem{ref1} Dummy entry one.

   \bibitem{ref2} Dummy entry two.

   \bibitem{ref3} Dummy entry three.
```

```
    \bibitem{ref4} Dummy entry four.

  \end{thebibliography}

\end{document}
```

\phantomsection

Set an anchor at this location. It is often used in conjunction
with \addcontentsline for sectionlike things (index, bibliography,
preface). \addcontentsline refers to the latest previous location
where an anchor is set.

```
  \cleardoublepage
  \phantomsection
  \addcontentsline{toc}{chapter}{\indexname}
  \printindex
```

Now the entry in the table of contents (and bookmarks) for the
index points to the start of the index page, not to a location
before this page.

\hypercalcbp

See manual.

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.

algorithm

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

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}
\usepacakge{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,
  \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
```

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).
```

dblaccnt

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

easyeqn

Not compatible, breaks.

ellipsis

```
This packages 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}
```

nomencl

```
* 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.
```

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}
```

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}
```

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[utf8x]{inputenc}
  \usepackage{hyperref}% or with option unicode
  \PrerenderUnicode{^^c3^^b6}% or \PrerenderUnicodePage{1}
  \hypersetup{pdftitle={Umlaut example: ^^c3^^b6}}
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 exmample,
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}.\thepoemline}

% add anchor for before \addcontentsline in \@vsptitle
\let\org@vsptitle\@vsptitle
\def\@vsptitle{%
  \phantomsection
  \org@vsptitle
}
\makeatother

\begin{document}

\poemtitle{Poem 1}
\begin{verse}
An one-liner.
\end{verse}

\newpage

\poemtitle{Poem 2}
\begin{verse}
Another one-liner.
\end{verse}

\end{document}
```

vietnam

```
% pd1enc.def should be loaded before package dblaccnt:
\usepackage[PD1,OT1]{fontenc}
\usepackage{vietnam}
\usepackage{hyperref}
```

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 tained 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).

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, \romannumbering, ...),
  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}[1]{\textbf{\hyperpage{#1}}}
    ...
    \index{Some example|main}
* Scientic 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.

%%% cut %%% hyperindex.ist %%% cut %%%
delim_0 ", \\hyperpage{"
delim_1 ", \\hyperpage{"
delim_2 ", \\hyperpage{"
delim_n "}, \\hyperpage{"
delim_t "}"
encap_prefix "}\\"

```
encap_infix "{\\hyperpage{"
encap_suffix "}"
%%% cut %%% hyperindex.ist %%% cut %%%
```

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):
%
%    \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
b%
  \addtocounter{footnote}{-1}%
  \addtocounter{Hfootnote}{-1}% generate the same anchor
  \footnotemark
C%
  \footnotemark
```

```
\let\saved@Href@C\Hy@footnote@currentHref

 \addtocounter{footnote}{-2}%
 \let\Hy@footnote@currentHref\saved@Href@A
\footnotetext{AAAA}%
 \addtocounter{footnote}{1}%
 \let\Hy@footnote@currentHref\saved@Href@B
\footnotetext{BBBBB}%
 \addtocounter{footnote}{1}%
 \let\Hy@footnote@currentHref\saved@Href@C
\footnotetext{CCCC}%

\end{document}
```

9 Authors/Maintainers

* Sebastian Rahtz
* 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 Puszcza:
  https://puszcza.gnu.org.ua/bugs/?group=hyperref
Alternatively bug reports can be send to the maintainer:
  Heiko Oberdiek <heiko [dot] oberdiek [at] googlemail [dot] com>

Vietnamese part

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

Arabic part

Responsible for the additions to PU encoding for Arabi is
  Youssef Jabri <yjabri@ensa.univ-oujda.ac.ma>

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 relly 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 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
* TL 4 (1999): 1999/04/13 v6.56
* TL 3 (1998): 1998/03/25 v6.19