

Section name references in L^AT_EX*

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Documentation overview for hyperref

The documentation for package `hyperref` consists of several files:

Manual The **USER MANUAL** (also available as HTML).

README The **README** file (also available as text file). Here information is collected that is not yet in the manual: new features, package compatibility, limitations, known problems, ...

ChangeLog This file records the version history (also available as text file).

Options This file provides a short option summary.

Bookmark talk, slides Slides for the talk “PDF information and navigation elements with hyperref, pdfTeX and thumbpdf” at EuroTeX 1999.

Bookmark talk, paper The paper version of the talk.

Source code documentation:

hyperref.dtx This is the source code documentation for hyperref (this file).

backref.dtx “Back referencing from bibliographical citations”

nameref.dtx “Section name references in L^AT_EX”

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1 Introduction

Cross-referencing to include the *name* of the section, rather than just the number or page. This works by redefining some of the inside L^AT_EX macros, so it is vulnerable to future changes.

2 History

Sebastian Rahtz, for Lou Burnard, March 15th 1994;
 SPQR CERN July 1994;
 Last mod. Sept. 3th MG;
 Sept. 19th SPQR;
 April 11th 1995 SPQR (added section formatting hook);
 April 14th 1995 SPQR (compatibility with hyperref);
 June 22 1995 SPQR (removed typeout from Sectionformat);
 September 22 1997 added variorref hacks by Corey Minyard;
 September 28th changes by David Carlisle.
 More recent changes are recorded in ChangeLog.

3 Implementation

```
1 <*package>
2 \RequirePackage{refcount}[2006/02/12]
```

We redefine `\label` so that it also writes the name of the current section to the `.aux` file; if the name ends in a dot, we zap it. To allow for the `hyperref` package, also write fourth and fifth fields (empty by default; used for cross-ref name, and file).

```
3 \def\strip@period#1.\relax#2\@@{\#1}
```

3.1 \label stuff

Here is tested, whether package `showkeys` is loaded. But if option `final` is used, the macros of `showkeys` are not defined, so we have to check an additional test.

```
4 \newif\ifNR@showkeys
5 \NR@showkeysfalse
6 \ifpackageloaded{showkeys}{%
7   \begingroup
8     \ifundefined{SK@label}{%
9       }{%
10      \global\NR@showkeystrue
11    }%
12  \endgroup
13 }{%
14 \def\label#1{%
15   \@bsphack
16   \begingroup
17     \onelevel@sanitize@\currentlabelname
18     \edef@\currentlabelname{%
19       \expandafter\strip@period@\currentlabelname\relax.\relax\@%
20     }%
}
```

```

21   \protected@write\@auxout{}{%
22     \string\newlabel{\#1}{%
23       {@currentlabel}%
24       {\thepage}%
25       {@currentlabelname}%
26       {@currentHref}{}}%
27     }%
28   }%
29   \endgroup
30   \esphack
31 }%
32 \ifNR@showkeys
33   \def\label#1{%
34     \bsphack
35     \SK@\SK@\label{\#1}%
36     \begingroup
37       @onelvel@sanitize@currentlabelname
38       \edef@currentlabelname{%
39         \expandafter\strip@period@currentlabelname\relax.\relax\@@@%
40       }%
41     \protected@write\@auxout{}{%
42       \string\newlabel{\#1}{%
43         {@currentlabel}%
44         {\thepage}%
45         {@currentlabelname}%
46         {@currentHref}{}}%
47       }%
48     }%
49   \endgroup
50   \esphack
51 }%
52 \fi
53 \let\ltx@label\label

```

Needed for the *subeqnarray* package.

```

54 \ifundefined{$label}{%
55   \def{$label#1}{%
56     \bsphack
57     \if@filesw
58       {%
59         @onelvel@sanitize@currentlabelname
60         \edef@currentlabelname{%
61           \expandafter\strip@period@currentlabelname\relax.\relax\@@@%
62         }%
63         \let\thepage\relax
64         \def\protect{\noexpand\noexpand\noexpand}%
65         \edef@tempa{%
66           \write\@auxout{%
67             \string\newlabel{\#1}{%
68               @thesubequation}%
69               {\thepage}%
70               {@currentlabelname}%
71               {@currentHref}{}}%
72           }%
73         }%
74       }%
75     \expandafter

```

```

76      }%
77      \atempa
78      \if@nobreak\ifvmode\nobreak\fi\fi
79      \fi
80      \esphack
81  }%
82 }

```

Overload an AMS L^AT_EX command, which uses `\newlabel`. Sigh!

```

83 \def\@writetocindents{%
84   \begingroup
85   \for\@tempa:=-1,0,1,2,3\do{%
86     \immediate\write\auxout{%
87       \string\newlabel{tocindent\@tempa}{%
88         \csname r@tocindent\@tempa\endcsname{}{}{}{}}%
89     }%
90   }%
91 }%
92 \endgroup
93 }

```

3.2 Changes of section macros

Add to the underlying section heading macros so that they note the section name for use by label.

If a section heading or the like has a `\label` in it, we need to extract it, or subsequent processing breaks. This is done by the label-writing routine.

First the numbered sections. While we are about it, put in a useful section formatting macro.

```

94 \let\NR@sect\@sect
95 \newcounter{section@level}
96 \def\@sect#1#2#3#4#5#6[#7]{#8}{%
97   \setcounter{section@level}{#2}%
98   \def\@currentlabelname{#7}%
99   \NR@sect{#1}{#2}{#3}{#4}{#5}{#6}[{#7}]{\Sectionformat{#8}{#2}}%
100 }

```

and now the unnumbered ones

```

101 \let\NR@ssect\@ssect
102 \def\@ssect#1#2#3#4#5{%
103   \def\@currentlabelname{#5}%
104   \NR@ssect{#1}{#2}{#3}{#4}{\Sectionformat{#5}{#1}}%
105 }

```

Parts and chapters are treated differently. sigh.

```

106 \let\NR@part\@part
107 \def\@part[#1]{#2}{%
108   \def\@currentlabelname{#1}%
109   \NR@part[{#1}]{#2}%
110 }
111 \let\NR@chapter\@chapter
112 \def\@chapter[#1]{#2}{%
113   \def\@currentlabelname{#1}%
114   \NR@chapter[{#1}]{#2}%
115 }
116 \let\NR@schapter\@schapter
117 \def\@schapter#1{%
118   \def\@currentlabelname{#1}%

```

```

119  \NR@schapter{#1}%
120 }

    Captions

121 \let\NR@@caption\@caption
122 \long\def\@caption#1[#2]{%
123   \def\@currentlabelname{#2}%
124   \NR@@caption{#1}[{#2}]%
125 }

126 \AtBeginDocument{%
127   \@ifpackageloaded{longtable}{%
128     \let\NRorg@LT@c@option\LT@c@option
129     \def\LT@c@option#1[#2]#3{%
130       \NRorg@LT@c@option{#1}[{#2}]{#3}%
131       \def\@tempa{#2}%
132       \ifx\@tempa\@empty
133       \else
134         \def\@currentlabelname{#2}%
135       \fi
136     }%
137   }{}%
138 }

```

Compatibility for package titlesec.

```

139 \AtBeginDocument{%
140   \@ifpackageloaded{titlesec}{%
141     \let\NRorg@ttl@sect@i\ttl@sect@i
142     \def\ttl@sect@i#1#2[#3]#4{%
143       \def\@currentlabelname{#4}%
144       \NRorg@ttl@sect@i{#1}{#2}[{#3}]{#4}%
145     }%
146   }{}%
147 }

```

3.2.1 Class beamer

```

148 \@ifclassloaded{beamer}{%
149   \def\NR@PatchBeamer#1{%
150     \expandafter\let\csname NRorg@beamer@#1\expandafter\endcsname
151     \csname beamer@#1\endcsname
152     \begingroup
153       \edef\x{\endgroup
154         \long\def\expandafter\noexpand\csname beamer@#1\endcsname
155         [####1]{% hash-ok
156           \def\noexpand\@currentlabelname{####1}%
157           \expandafter\noexpand\csname NRorg@beamer@#1\endcsname
158           [{####1}]%
159         }%
160       }%
161       \x
162     }%
163   \NR@PatchBeamer{section}%
164   \NR@PatchBeamer{subsection}%
165   \NR@PatchBeamer{subsubsection}%
166 }{}%

```

3.3 Referencing stuff

We default the label and hypertext reference to be empty.

```
167 \def\@currentlabelname{}  
168 \def\@currentHref{}
```

Since the second part of the preserved reference now has five parts (number, page, name, hypertext reference and file), we need extra utility macros:

```
169 \long\def\@firstoffive#1#2#3#4#5{#1}  
170 \long\def\@secondoffive#1#2#3#4#5{#2}  
171 \long\def\@thirdoffive#1#2#3#4#5{#3}  
172 \long\def\@fourthoffive#1#2#3#4#5{#4}  
173 \long\def\@fifthoffive#1#2#3#4#5{#5}
```

We have to redefine `\ref` and `\pageref` to know about extra reference elements. Make them robust, and compatible with Babel. The Babel switch is mimicked if not already defined. Some support for package `showkeys` is implemented. If option `notref` of that package is set, `\SK@ref` has the meaning of `\empty`.

```
174 \providecommand*\@safe@activestrue{}%  
175 \providecommand*\@safe@activesfalse{}%  
176 \def\NR@setref#1{  
177   \begingroup  
178     \@safe@activestrue  
179     \expandafter  
180   \endgroup  
181   \expandafter\NR@@setref\csname r#1\endcsname  
182 }  
183 \def\NR@@setref#1{  
184   \ifx\@undefined#1%  
185     \let#1\relax  
186   \fi  
187   \@setref#1%  
188 }  
189 \def\T@ref#1{  
190   \NR@setref{#1}\@firstoffive{#1}%  
191 }%  
192 \def\T@pageref#1{  
193   \NR@setref{#1}\@secondoffive{#1}%  
194 }%  
195 \ifNR@showkeys  
196   \ifx\SK@ref\empty  
197   \else  
198     \def\T@ref#1{  
199       \@safe@activestrue  
200       \SK@\SK@@ref{#1}%  
201       \@safe@activesfalse  
202       \NR@setref{#1}\@firstoffive{#1}%  
203     }%  
204     \def\T@pageref#1{  
205       \@safe@activestrue  
206       \SK@\SK@@ref{#1}%  
207       \@safe@activesfalse  
208       \NR@setref{#1}\@secondoffive{#1}%  
209     }%  
210   \fi  
211 }
```

Package `hyperref` uses its own definitions of `\ref` and `\pageref` because it extends the syntax by the star form. `\DeclareRobustCommand` is used by `hyperref`.

Package `nameref` can be loaded before, after `hyperref` or after `hyperref`'s definitions in `\AtBeginDocument`.

```
212 \@ifpackageloaded{hyperref}{%
213 }{%
214   \DeclareRobustCommand{\ref}{\T@ref}%
215   \DeclareRobustCommand{\pageref}{\T@pageref}%
216 }
```

3.4 Usage and frontend

Access the (third) name part with `\nameref`:

```
217 \def\T@nameref#1{%
218   \begingroup
219   \let\label\gobble
220   \NR@setref{\#1}\@thirddoffive{\#1}%
221   \endgroup
222 }%
223 \ifNR@showkeys
224   \ifx\SK@ref\empty
225   \else
226     \def\T@nameref#1{%
227       \csname\activestrue\endcsname
228       \SK@\SK@ref{\#1}%
229       \csname\activesfalse\endcsname
230       \begingroup
231       \let\label\gobble
232       \NR@setref{\#1}\@thirddoffive{\#1}%
233       \endgroup
234     }%
235   \fi
236 \fi
237 \def\nameref{\protect\T@nameref}
```

An extended form which gives title and page number.

```
238 \def\Nameref#1{'\nameref{\#1}' on page~\pageref{\#1}}
```

The default for `\Sectionformat`

```
239 \providecommand\Sectionformat[2]{\#1}
```

3.5 Package ifthen support

Package `ifthen`'s `\isodd` does not work with `\pageref` because of the extra link and the star form. Therefore we need an expandable variant.

Unfortunately there is no hook in `\ifthenelse` in order to provide expandable versions without link of `\ref` and `\pageref`. As possible target I could only find `\begingroup`:

```
240 \@ifpackageloaded{ifthen}{%
241   \let\NROrg@ifthenelse\ifthenelse
242   \def\ifthenelse{%
243     \let\begingroup\NR@TE@begingroup
244     \NROrg@ifthenelse
245   }%
246   \let\NROrg@begingroup\begingroup
247   \def\NR@TE@begingroup{%
248     \let\begingroup\NROrg@begingroup
249     \begingroup
250     \def\ref##1{\getrefbykeydefault{\#1}{}{??}}%
```

```

251     \def\pageref##1{\getrefbykeydefault{##1}{page}{0}}%
252   }%
253 }{}%
```

3.6 Compatibility with varioref

[This section was derived by Corey Minyard minyard@acm.org from the varioref package]

```

254 \AtBeginDocument{%
255   \ifx\csname @@vpageref\endcsname\relax
256   \else
257     \def\@@vpageref#1[#2]#3{%
258       \begingroup
259         \csname @safe@activestru\endcsname
260         \edef\x{#3}%
261         \onelevel@sanitize\x
262         \toks@{%
263           \NR@@vpageref{#1}[{#2}]%
264         }%
265         \edef\x{\endgroup
266           \the\toks@{\x}%
267         }%
268         \x
269     }%
270     \def\NR@@vpageref#1[#2]#3{%
271       \leavevmode\unskip
272       \global\advance\c@vrcnt\@ne
273       \@ifundefined{r@\the\c@vrcnt @vr}%
274         {\@namedef{r@\the\c@vrcnt @vr}{{?}{?}{?}{?}{?}}{}}%
275       \edef@\tempa{%
276         \expandafter\expandafter\expandafter
277         \secondoffive\csname r@\the\c@vrcnt @vr\endcsname
278       }%
279       \@ifundefined{r@\the\c@vrcnt @xvr}%
280         {\@namedef{r@\the\c@vrcnt @xvr}{{?}{?}{?}{?}{?}}{}}%
281       \edef@\tempb{%
282         \expandafter\expandafter\expandafter
283         \secondoffive\csname r@\the\c@vrcnt @xvr\endcsname
284       }%
285     }%
286     \let@\currentlabel\empty
287     \expandafter\label\expandafter{\the\c@vrcnt @xvr}%
288   }%
289   \ifx@\tempa@\tempb
290   \else
291     \vref@err{%
292       \noexpand\vref at page boundary %
293       \tempb-\tempa\space (may loop)%
294     }%
295   \fi
296   \ifundefined{r@#3}{\@namedef{r@#3}{{?}{?}{?}{?}{?}}{}}%
297   \edef\thevpagerefnum{%
298     \expandafter\expandafter\expandafter
299     \secondoffive\csname r@#3\endcsname
300   }%
301   \ifx\vref@space\undefined
302     \space
```

```

303     \else
304         \vref@space
305     \fi
306     \ifx\@tempa\thevpagerefnum
307         #1%
308     \else
309         #2%
310     \is@pos@number\thevpagerefnum{%
311         \is@pos@number\@tempa{%
312             \tempcnta\@tempa
313             \advance\tempcnta\@ne
314         }{%
315             \tempcnta\maxdimen
316         }%
317         \ifnum \thevpagerefnum =\tempcnta
318             \ifodd\tempcnta
319                 \if@twoside
320                     \reftextfaceafter
321                 \else
322                     \reftextafter
323                 \fi
324             \else
325                 \reftextafter
326             \fi
327         \else
328             \advance\tempcnta- 2 %
329             \ifnum \thevpagerefnum =\tempcnta
330                 \ifodd\tempcnta
331                     \reftextbefore
332                 \else
333                     \if@twoside
334                         \reftextfacebefore
335                     \else
336                         \reftextbefore
337                     \fi
338                 \fi
339             \else
340                 \reftextfaraway{#3}%
341             \fi
342         \fi
343     }{%
344         \reftextfaraway{#3}%
345     }%
346     \fi
347     {%
348         \let\@currentlabel\empty
349         \expandafter\label\expandafter{\the\c@vrcnt @vr}%
350     }%
351     }%
352     \DeclareRobustCommand\vnameref[1]{%
353         \unskip\name{#1}%
354         \vpageref[\unskip]{#1}%
355     }%
356     \fi
357 }

358 \Qifundefined{@Refstar}{%
359     \def\T@Ref#1{%

```

```

360      \NR@setref{\#1}\NR@MakeUppercaseFirstOfFive{\#1}%
361  }%
362  \def\NR@MakeUppercaseFirstOfFive#1#2#3#4#5{%
363      \MakeUppercase#1%
364  }%
365 }{ }%
366 \AtBeginDocument{%
367   \@ifpackageloaded{variorref}{%
368     \@ifundefined{@Refstar}{%
369       \DeclareRobustCommand*{\Ref}[1]{%
370         \T@Ref{\#1}%
371       }%
372     }{ }%
373   }{ }%
374 }%

```

3.7 Support for listings

```

375 \AtBeginDocument{%
376   \@ifpackageloaded{listings}{%
377     \let\NROrg@lst@MakeCaption\lst@MakeCaption
378     \def\lst@MakeCaption{%
379       \ifx\lst@label\empty
380       \else
381         \let\@currentlabelname\lst@caption
382       \fi
383     \NROrg@lst@MakeCaption
384   }%
385 }{ }%
386 }%
387 </package>

```

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

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