

The ifluatex package

Heiko Oberdiek*
<heiko.oberdiek at gmail.com>

2016/05/16 v1.4

Abstract

This package looks for LuaTeX regardless of its mode and provides the switch `\ifluatex`. Also it makes `\luatexversion` available if it is not present. It works with plain TeX or L^ATeX.

Contents

1	Documentation	2
2	Implementation	2
2.1	Reload check and package identification	2
2.2	Catcodes	3
2.3	Macro for error messages	4
2.4	Check for previously defined <code>\ifluatex</code>	4
2.5	<code>\ifluatex</code>	4
2.6	LuaTeX v0.39	5
2.7	Protocol entry	6
3	Test	6
3.1	Catcode checks for loading	6
4	Reload check for plain	8
5	Installation	8
5.1	Download	8
5.2	Bundle installation	8
5.3	Package installation	9
5.4	Refresh file name databases	9
5.5	Some details for the interested	9
6	Catalogue	10
7	History	10
	[2007/12/12 v1.0]	10
	[2009/04/10 v1.1]	10
	[2009/04/17 v1.2]	10
	[2010/03/01 v1.3]	10
	[2016/05/16 v1.4]	10
8	Index	11

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

1 Documentation

The package `ifluatex` can be used with both plain \TeX and \LaTeX :

plain \TeX : `\input ifluatex.sty`

$\text{\LaTeX 2}_{\epsilon}$: `\usepackage{ifluatex}`

`\ifluatex` The package provides the switch `\ifluatex`:

```
\ifluatex
  Lua $\text{\TeX}$  is running
\else
  Without Lua $\text{\TeX}$ 
\fi
```

Since version 0.39 Lua \TeX only provides `\directlua` at startup time. Also the syntax of `\directlua` changed in version 0.36. Thus the user might want to check the Lua \TeX version. Therefore this package also makes `\luatexversion` and `\luatexrevision` available, if it is not yet done.

If you want to detect the mode (DVI or PDF), then use package `ifpdf`. Lua \TeX has inherited `\pdfoutput` from `pdf \TeX` .

2 Implementation

```
1 (*package\
```

2.1 Reload check and package identification

Reload check, especially if the package is not used with \LaTeX .

```
2 \begingroup\catcode61\catcode48\catcode32=10\relax%
3 \catcode13=5 % ^^M
4 \endlinechar=13 %
5 \catcode35=6 % #
6 \catcode39=12 % '
7 \catcode44=12 % ,
8 \catcode45=12 % -
9 \catcode46=12 % .
10 \catcode58=12 % :
11 \catcode64=11 % @
12 \catcode123=1 % {
13 \catcode125=2 % }
14 \expandafter\let\expandafter\x\csname ver@ifluatex.sty\endcsname
15 \ifx\x\relax % plain- $\text{\TeX}$ , first loading
16 \else
17 \def\empty{}%
18 \ifx\x\empty % La $\text{\TeX}$ , first loading,
19 % variable is initialized, but \ProvidesPackage not yet seen
20 \else
21 \expandafter\ifx\csname PackageInfo\endcsname\relax
22 \def\x#1#2{%
23 \immediate\write-1{Package #1 Info: #2.}%
24 }%
25 \else
26 \def\x#1#2{\PackageInfo{#1}{#2, stopped}}%
27 \fi
28 \x@ifluatex}{The package is already loaded}%
29 \aftergroup\endinput
30 \fi
31 \fi
32 \endgroup%
```

Package identification:

```

33 \begingroup\catcode61\catcode48\catcode32=10\relax%
34 \catcode13=5 % ^^M
35 \endlinechar=13 %
36 \catcode35=6 % #
37 \catcode39=12 % '
38 \catcode40=12 % (
39 \catcode41=12 % )
40 \catcode44=12 % ,
41 \catcode45=12 % -
42 \catcode46=12 % .
43 \catcode47=12 % /
44 \catcode58=12 % :
45 \catcode64=11 % @
46 \catcode91=12 % [
47 \catcode93=12 % ]
48 \catcode123=1 % {
49 \catcode125=2 % }
50 \expandafter\ifx\csname ProvidesPackage\endcsname\relax
51 \def\x#1#2#3[#4]{\endgroup
52 \immediate\write-1{Package: #3 #4}%
53 \xdef#1{#4}%
54 }%
55 \else
56 \def\x#1#2[#3]{\endgroup
57 #2[{#3}]%
58 \ifx#1\@undefined
59 \xdef#1{#3}%
60 \fi
61 \ifx#1\relax
62 \xdef#1{#3}%
63 \fi
64 }%
65 \fi
66 \expandafter\x\csname ver@ifuatex.sty\endcsname
67 \ProvidesPackage{ifuatex}%
68 [2016/05/16 v1.4 Provides the ifuatex switch (HO)]%

```

2.2 Catcodes

```

69 \begingroup\catcode61\catcode48\catcode32=10\relax%
70 \catcode13=5 % ^^M
71 \endlinechar=13 %
72 \catcode123=1 % {
73 \catcode125=2 % }
74 \catcode64=11 % @
75 \def\x{\endgroup
76 \expandafter\edef\csname ifuatex@AtEnd\endcsname{%
77 \endlinechar=\the\endlinechar\relax
78 \catcode13=\the\catcode13\relax
79 \catcode32=\the\catcode32\relax
80 \catcode35=\the\catcode35\relax
81 \catcode61=\the\catcode61\relax
82 \catcode64=\the\catcode64\relax
83 \catcode123=\the\catcode123\relax
84 \catcode125=\the\catcode125\relax
85 }%
86 }%
87 \x\catcode61\catcode48\catcode32=10\relax%
88 \catcode13=5 % ^^M
89 \endlinechar=13 %
90 \catcode35=6 % #

```

```

91 \catcode64=11 % @
92 \catcode123=1 % {
93 \catcode125=2 % }
94 \def\TMP@EnsureCode#1#2{%
95   \edef\ifuatex@AtEnd{%
96     \ifuatex@AtEnd
97     \catcode#1=\the\catcode#1\relax
98   }%
99   \catcode#1=#2\relax
100 }
101 \TMP@EnsureCode{10}{12}% ^^J
102 \TMP@EnsureCode{39}{12}% '
103 \TMP@EnsureCode{40}{12}% (
104 \TMP@EnsureCode{41}{12}% )
105 \TMP@EnsureCode{44}{12}% ,
106 \TMP@EnsureCode{45}{12}% -
107 \TMP@EnsureCode{46}{12}% .
108 \TMP@EnsureCode{47}{12}% /
109 \TMP@EnsureCode{58}{12}% :
110 \TMP@EnsureCode{60}{12}% <
111 \TMP@EnsureCode{94}{7}% ^
112 \TMP@EnsureCode{96}{12}% `
113 \edef\ifuatex@AtEnd{\ifuatex@AtEnd\noexpand\endinput}

```

2.3 Macro for error messages

\ifuatex@Error

```

114 \begingroup\expandafter\expandafter\expandafter\endgroup
115 \expandafter\ifx\csname PackageError\endcsname\relax
116   \def\ifuatex@Error#1#2{%
117     \begingroup
118     \newlinechar=10 %
119     \def\MessageBreak{^^J}%
120     \edef\x{\errhelp{#2}}%
121     \x
122     \errmessage{Package ifuatex Error: #1}%
123   \endgroup
124 }%
125 \else
126   \def\ifuatex@Error{%
127     \PackageError{ifuatex}%
128   }%
129 \fi

```

2.4 Check for previously defined \ifuatex

```

130 \begingroup
131 \expandafter\ifx\csname ifuatex\endcsname\relax
132 \else
133   \edef\i/{\expandafter\string\csname ifuatex\endcsname}%
134   \ifuatex@Error{Name clash, \i/ is already defined}{%
135     Incompatible versions of \i/ can cause problems,\MessageBreak
136     therefore package loading is aborted.%
137   }%
138 \endgroup
139 \expandafter\ifuatex@AtEnd
140 \fi%
141 \endgroup

```

2.5 \ifuatex

\ifuatex

```

142 \let\ifuatex\iffalse

```

Test `\luatexversion`. Is it defined and different from `\relax`? Someone could have used L^AT_EX internal `\@ifundefined`, or something else involving. Notice, `\csname` is executed inside a group for the test to cancel the side effect of `\csname`.

```

143 \begingroup\expandafter\expandafter\expandafter\endgroup
144 \expandafter\ifx\csname luatexversion\endcsname\relax
145 \else
146   \expandafter\let\csname ifluatex\expandafter\endcsname
147     \csname iftrue\endcsname
148 \fi

```

2.6 LuaT_EX v0.39

Starting with version 0.39 LuaT_EX wants to provide `\directlua` as only primitive at startup time beyond vanilla T_EX's primitives. Then `\directlua` exists, but `\luatexversion` cannot be found. Unhappily also the syntax of `\directlua` changed in v0.36, thus the user would want to check `\luatexversion`. Therefore we make `\luatexversion` available using LuaT_EX's Lua function `tex.enableprimitives`.

```

149 \ifluatex
150 \else
151   \begingroup\expandafter\expandafter\expandafter\endgroup
152   \expandafter\ifx\csname directlua\endcsname\relax
153   \else
154     \expandafter\let\csname ifluatex\expandafter\endcsname
155       \csname iftrue\endcsname
156   \begingroup
157     \newlinechar=10 %
158     \endlinechar=\newlinechar%
159     \ifnum0%
160       \directlua{%
161         if tex.enableprimitives then
162           tex.enableprimitives('ifluatex', {'luatexversion'})
163           tex.print('1')
164         end
165       }%
166       \ifx\ifluatexluatexversion\@undefined\else 1\fi %
167       =11 %
168       \global\let\luatexversion\ifluatexluatexversion%
169     \else%
170       \ifluatex@Error{%
171         Missing \string\luatexversion%
172       }{%
173         Update LuaTeX.%
174       }%
175     \fi%
176   \endgroup%
177 \fi

179 \ifluatex
180 \begingroup\expandafter\expandafter\expandafter\endgroup
181 \expandafter\ifx\csname luatexrevision\endcsname\relax
182 \ifnum\luatexversion<36 %
183 \else
184 \begingroup
185   \ifx\luatexrevision\relax
186     \let\luatexrevision\@undefined
187   \fi
188   \newlinechar=10 %
189   \endlinechar=\newlinechar%
190   \ifcase0%
191     \directlua{%
192       if tex.enableprimitives then

```

```

193         tex.enableprimitives('ifluatex', {'luatexrevision'})
194     else
195         tex.print('1')
196     end
197 }%
198 \ifx\ifluatexluatexrevision\@undefined 1\fi%
199 \relax%
200 \global\let\luatexrevision\ifluatexluatexrevision%
201 \fi%
202 \endgroup%
203 \fi
204 \begingroup\expandafter\expandafter\expandafter\endgroup
205 \expandafter\ifx\csname luatexrevision\endcsname\relax
206 \ifluatex@Error{%
207     Missing \string\luatexrevision%
208 }{%
209     Update LuaTeX.%
210 }%
211 \fi
212 \fi
213 \fi

```

2.7 Protocol entry

Log comment:

```

214 \begingroup
215 \expandafter\ifx\csname PackageInfo\endcsname\relax
216 \def\x#1#2{%
217     \immediate\write-1{Package #1 Info: #2.}%
218 }%
219 \else
220 \let\x\PackageInfo
221 \expandafter\let\csname on@line\endcsname\empty
222 \fi
223 \x{ifluatex}{LuaTeX \ifluatex\else not \fi detected}%
224 \endgroup
225 \ifluatex@AtEnd%
226 </package>

```

3 Test

3.1 Catcode checks for loading

```

227 <*test1>
228 \catcode`\{=1 %
229 \catcode`\}=2 %
230 \catcode`\#=6 %
231 \catcode`\@=11 %
232 \expandafter\ifx\csname count@\endcsname\relax
233 \countdef\count@=255 %
234 \fi
235 \expandafter\ifx\csname @gobble\endcsname\relax
236 \long\def\@gobble#1{%
237 \fi
238 \expandafter\ifx\csname @firstofone\endcsname\relax
239 \long\def\@firstofone#1{#1}%
240 \fi
241 \expandafter\ifx\csname loop\endcsname\relax
242 \expandafter\@firstofone
243 \else

```

```

244 \expandafter\@gobble
245 \fi
246 {%
247 \def\loop#1\repeat{%
248 \def\body{#1}%
249 \iterate
250 }%
251 \def\iterate{%
252 \body
253 \let\next\iterate
254 \else
255 \let\next\relax
256 \fi
257 \next
258 }%
259 \let\repeat=\fi
260 }%
261 \def\RestoreCatcodes{}
262 \count@=0 %
263 \loop
264 \edef\RestoreCatcodes{%
265 \RestoreCatcodes
266 \catcode\the\count@=\the\catcode\count@\relax
267 }%
268 \ifnum\count@<255 %
269 \advance\count@ 1 %
270 \repeat
271
272 \def\RangeCatcodeInvalid#1#2{%
273 \count@=#1\relax
274 \loop
275 \catcode\count@=15 %
276 \ifnum\count@<#2\relax
277 \advance\count@ 1 %
278 \repeat
279 }
280 \def\RangeCatcodeCheck#1#2#3{%
281 \count@=#1\relax
282 \loop
283 \ifnum#3=\catcode\count@
284 \else
285 \errmessage{%
286 Character \the\count@\space
287 with wrong catcode \the\catcode\count@\space
288 instead of \number#3%
289 }%
290 \fi
291 \ifnum\count@<#2\relax
292 \advance\count@ 1 %
293 \repeat
294 }
295 \def\space{ }
296 \expandafter\ifx\csname LoadCommand\endcsname\relax
297 \def\LoadCommand{\input ifluatex.sty\relax}%
298 \fi
299 \def\Test{%
300 \RangeCatcodeInvalid{0}{47}%
301 \RangeCatcodeInvalid{58}{64}%
302 \RangeCatcodeInvalid{91}{96}%
303 \RangeCatcodeInvalid{123}{255}%
304 \catcode`\@=12 %
305 \catcode`\=0 %

```

```

306 \catcode`\%=14 %
307 \LoadCommand
308 \RangeCatcodeCheck{0}{36}{15}%
309 \RangeCatcodeCheck{37}{37}{14}%
310 \RangeCatcodeCheck{38}{47}{15}%
311 \RangeCatcodeCheck{48}{57}{12}%
312 \RangeCatcodeCheck{58}{63}{15}%
313 \RangeCatcodeCheck{64}{64}{12}%
314 \RangeCatcodeCheck{65}{90}{11}%
315 \RangeCatcodeCheck{91}{91}{15}%
316 \RangeCatcodeCheck{92}{92}{0}%
317 \RangeCatcodeCheck{93}{96}{15}%
318 \RangeCatcodeCheck{97}{122}{11}%
319 \RangeCatcodeCheck{123}{255}{15}%
320 \RestoreCatcodes
321 }
322 \Test
323 \csname @@end\endcsname
324 \end
325 </test1>

```

4 Reload check for plain

```

326 <*test-reload1>
327 \input ifluatex.sty\relax
328 \input ifluatex.sty\relax
329 \csname @@end\endcsname\end
330 </test-reload1>

331 <*test-reload2>
332 \input miniltx.tex\relax
333 \input ifluatex.sty\relax
334 \input ifluatex.sty\relax
335 \csname @@end\endcsname\end
336 </test-reload2>

```

5 Installation

5.1 Download

Package. This package is available on CTAN¹:

[CTAN:macros/latex/contrib/oberdiek/ifluatex.dtx](http://ctan.org/macros/latex/contrib/oberdiek/ifluatex.dtx) The source file.

[CTAN:macros/latex/contrib/oberdiek/ifluatex.pdf](http://ctan.org/macros/latex/contrib/oberdiek/ifluatex.pdf) Documentation.

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

[CTAN:install/macros/latex/contrib/oberdiek.tds.zip](http://ctan.org/install/macros/latex/contrib/oberdiek.tds.zip)

TDS refers to the standard “A Directory Structure for T_EX Files” ([CTAN:tds/tds.pdf](http://ctan.org/tds/tds.pdf)). Directories with `texmf` in their name are usually organized this way.

5.2 Bundle installation

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

```
unzip oberdiek.tds.zip -d ~/texmf
```

¹<http://ctan.org/pkg/ifluatex>

Script installation. Check the directory `TDS:scripts/oberdiek/` for scripts that need further installation steps. Package `attachfile2` comes with the Perl script `pdfatfi.pl` that should be installed in such a way that it can be called as `pdfatfi`. Example (linux):

```
chmod +x scripts/oberdiek/pdfatfi.pl
cp scripts/oberdiek/pdfatfi.pl /usr/local/bin/
```

5.3 Package installation

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

```
tex ifuatex.dtx
```

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

```
ifuatex.sty      → tex/generic/oberdiek/ifuatex.sty
ifuatex.pdf      → doc/latex/oberdiek/ifuatex.pdf
test/ifuatex-test1.tex → doc/latex/oberdiek/test/ifuatex-test1.tex
test/ifuatex-test2.tex → doc/latex/oberdiek/test/ifuatex-test2.tex
test/ifuatex-test3.tex → doc/latex/oberdiek/test/ifuatex-test3.tex
ifuatex.dtx      → source/latex/oberdiek/ifuatex.dtx
```

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

5.4 Refresh file name databases

If your \TeX distribution (`te \TeX` , `mik \TeX` , ...) relies on file name databases, you must refresh these. For example, `te \TeX` users run `texhash` or `mktextlsr`.

5.5 Some details for the interested

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

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

\LaTeX : Generate the documentation.

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

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

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

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

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

An example follows how to generate the documentation with `pdf \LaTeX` :

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

6 Catalogue

The following XML file can be used as source for the [T_EX Catalogue](#). The elements `caption` and `description` are imported from the original XML file from the Catalogue. The name of the XML file in the Catalogue is `ifluatex.xml`.

```
337 (*catalogue)
338 <?xml version='1.0' encoding='us-ascii'?>
339 <!DOCTYPE entry SYSTEM 'catalogue.dtd'>
340 <entry datestamp='$Date$' modifier='$Author$' id='ifluatex'>
341   <name>ifluatex</name>
342   <caption>Provides the \ifluatex switch.</caption>
343   <authorref id='auth:oberdiek'>
344     <copyright owner='Heiko Oberdiek' year='2007,2009,2010'>/>
345     <license type='lppl1.3'>/>
346     <version number='1.4'>/>
347     <description>
348       The package looks for LuaTeX regardless of its mode and provides
349       the switch <tt>\ifluatex</tt>; it works with Plain TeX or LaTeX.
350     <p/>
351     The package is part of the <xref refid='oberdiek'>oberdiek</xref>
352     bundle.
353   </description>
354   <documentation details='Package documentation'
355     href='ctan:/macros/latex/contrib/oberdiek/ifluatex.pdf'>/>
356   <ctan file='true' path='/macros/latex/contrib/oberdiek/ifluatex.dtx'>/>
357   <miktex location='oberdiek'>/>
358   <texlive location='ifluatex'>/>
359   <install path='/macros/latex/contrib/oberdiek/oberdiek.tds.zip'>/>
360 </entry>
361 </catalogue>
```

7 History

[2007/12/12 v1.0]

- First public version.

[2009/04/10 v1.1]

- Test adopted for LuaT_EX 0.39.
- Makes `\luatexversion` available.

[2009/04/17 v1.2]

- Fixes (Manuel Pégourié-Gonnard).
- `\luatextrue` and `\luatexfalse` are no longer defined.
- Makes `\luatexrevision` available, too.

[2010/03/01 v1.3]

- Line ends fixed in case `\endlinechar = \newlinechar`.

[2016/05/16 v1.4]

- Documentation updates.

8 Index

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

Symbols	
\#	230
\%	306
\@	231, 304
\@firstofone	239, 242
\@gobble	236, 244
\@undefined	58, 166, 186, 198
\\	305
\{	228
\}	229
\ifluatex@Error	114, 134, 170, 206
\ifluatexluatexrevision	198, 200
\ifluatexluatexversion	166, 168
\ifnum	159, 182, 268, 276, 283, 291
\ifx	15, 18, 21, 50, 58, 61, 115, 131, 144, 152, 166, 181, 185, 198, 205, 215, 232, 235, 238, 241, 296
\immediate	23, 52, 217
\input	297, 327, 328, 332, 333, 334
\iterate	249, 251, 253
A	
\advance	269, 277, 292
\aftergroup	29
B	
\body	248, 252
C	
\catcode	2, 3, 5, 6, 7, 8, 9, 10, 11, 12, 13, 33, 34, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 69, 70, 72, 73, 74, 78, 79, 80, 81, 82, 83, 84, 87, 88, 90, 91, 92, 93, 97, 99, 228, 229, 230, 231, 266, 275, 283, 287, 304, 305, 306
\count@	233, 262, 266, 268, 269, 273, 275, 276, 277, 281, 283, 286, 287, 291, 292
\countdef	233
\csname	14, 21, 50, 66, 76, 115, 131, 133, 144, 146, 147, 152, 154, 155, 181, 205, 215, 221, 232, 235, 238, 241, 296, 323, 329, 335
D	
\directlua	160, 191
E	
\empty	17, 18, 221
\end	324, 329, 335
\endcsname	14, 21, 50, 66, 76, 115, 131, 133, 144, 146, 147, 152, 154, 155, 181, 205, 215, 221, 232, 235, 238, 241, 296, 323, 329, 335
\endinput	29, 113
\endlinechar	4, 35, 71, 77, 89, 158, 189
\errhelp	120
\errmessage	122, 285
I	
\i	133, 134, 135
\ifcase	190
\iffalse	142
\ifluatex	2, 142, 149, 179, 223, 342, 349
\ifluatex@AtEnd	95, 96, 113, 139, 225
L	
\LoadCommand	297, 307
\loop	247, 263, 274, 282
\luatexrevision	185, 186, 200, 207
\luatexversion	168, 171, 182
M	
\MessageBreak	119, 135
N	
\newlinechar	118, 157, 158, 188, 189
\next	253, 255, 257
\number	288
P	
\PackageError	127
\PackageInfo	26, 220
\ProvidesPackage	19, 67
R	
\RangeCatcodeCheck	280, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319
\RangeCatcodeInvalid	272, 300, 301, 302, 303
\repeat	247, 259, 270, 278, 293
\RestoreCatcodes	261, 264, 265, 320
S	
\space	286, 287, 295
T	
\Test	299, 322
\the	77, 78, 79, 80, 81, 82, 83, 84, 97, 266, 286, 287
\TMP@EnsureCode	94, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112
W	
\write	23, 52, 217
X	
\x	14, 15, 18, 22, 26, 28, 51, 56, 66, 75, 87, 120, 121, 216, 220, 223