

# The ifluatex package

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## 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<sup>A</sup>TeX.

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

# 1 Documentation

The package `ifluatex` can be used with both plain  $\text{\TeX}$  and  $\text{\LaTeX}$ :

**plain  $\text{\TeX}$ :** `\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 $\text{\TeX}$  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 $\text{\TeX}$  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 $\text{\TeX}$  has inherited `\pdfoutput` from `pdf $\text{\TeX}$` .

## 2 Implementation

```
1 (*package\
```

### 2.1 Reload check and package identification

Reload check, especially if the package is not used with  $\text{\LaTeX}$ .

```
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 %  $\text{\LaTeX}$ , 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<sup>A</sup>T<sub>E</sub>X 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<sub>E</sub>X v0.39

Starting with version 0.39 LuaT<sub>E</sub>X wants to provide `\directlua` as only primitive at startup time beyond vanilla T<sub>E</sub>X'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<sub>E</sub>X'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 CTAN<sup>1</sup>:

[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<sub>E</sub>X 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
```

---

<sup>1</sup><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  $\text{\TeX}$ :

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

### 5.5 Some details for the interested

**Unpacking with  $\text{\LaTeX}$ .** The `.dtx` chooses its action depending on the format:

**plain  $\text{\TeX}$ :** Run `docstrip` and extract the files.

**$\text{\LaTeX}$ :** Generate the documentation.

If you insist on using  $\text{\LaTeX}$  for `docstrip` (really, `docstrip` does not need  $\text{\LaTeX}$ ), 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 $\text{\LaTeX}$` :

```
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<sub>E</sub>X 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<sub>E</sub>X 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.

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