

# 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>T<sub>E</sub>X.

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## 1 Documentation

The package ifluatex can be used with both plain TeX and L<sup>A</sup>T<sub>E</sub>X:

plain TeX: `\input ifluatex.sty`

L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub>: `\usepackage{ifluatex}`

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

```
\ifluatex
  LuaTeX is running
\else
  Without LuaTeX
\fi
```

Since version 0.39 LuaTeX only provides `\directlua` at startup time. Also the syntax of `\directlua` changed in version 0.36. Thus the user might want to check the LuaTeX 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`. LuaTeX has inherited `\pdfoutput` from pdfTeX.

## 2 Implementation

1 `(*package)`

### 2.1 Reload check and package identification

Reload check, especially if the package is not used with L<sup>A</sup>T<sub>E</sub>X.

```
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-TeX, first loading
16  \else
17    \def\empty{}%
18    \ifx\x\empty % 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@ifluatex.sty\endcsname
67 \ProvidesPackage{ifluatex}%
68 [2010/03/01 v1.3 Provides the ifluatex switch (H0)]%

```

## 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 ifluatex@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\ifluatex@AtEnd{%
96     \ifluatex@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\ifluatex@AtEnd{\ifluatex@AtEnd\noexpand\endinput}

```

## 2.3 Macro for error messages

`\ifluatex@Error`

```

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

```

## 2.4 Check for previously defined \ifluatex

```

130 \begingroup
131   \expandafter\ifx\csname ifluatex\endcsname\relax
132   \else
133     \edef\i/{\expandafter\string\csname ifluatex\endcsname}%
134     \ifluatex@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\ifluatex@AtEnd
140 \fi%
141 \endgroup

```

## 2.5 \ifluatex

`\ifluatex`

```

142 \let\ifluatex\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\endcsname

```

```

147 \csname iftrue\endcsname
148 \fi

```

## 2.6 LuaTeX v0.39

Starting with version 0.39 LuaTeX wants to provide `\directlua` as only primitive at startup time beyond vanilla TeX'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 LuaTeX'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
178 \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](#) The source file.

[CTAN: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](#)

*TDS* refers to the standard “A Directory Structure for  $\TeX$  Files” ([CTAN: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
```

**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/
```

---

<sup>1</sup>[ftp://ftp.ctan.org/tex-archive/](http://ftp.ctan.org/tex-archive/)



### 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 ifluatex.dtx
```

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

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

**Attached source.** The PDF documentation on CTAN also includes the `.dtx` source file. It can be extracted by AcrobatReader 6 or higher. Another option is `pdftk`, e.g. unpack the file into the current directory:

```
pdftk ifluatex.pdf unpack_files output .
```

**Unpacking with L<sup>A</sup>T<sub>E</sub>X.** The `.dtx` chooses its action depending on the format:

**plain T<sub>E</sub>X:** Run `docstrip` and extract the files.

**L<sup>A</sup>T<sub>E</sub>X:** Generate the documentation.

If you insist on using L<sup>A</sup>T<sub>E</sub>X for `docstrip` (really, `docstrip` does not need L<sup>A</sup>T<sub>E</sub>X), then inform the autodetect routine about your intention:

```
latex \let\install=y\input{ifluatex.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 pdfL<sup>A</sup>T<sub>E</sub>X:

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

## 6 History

[2007/12/12 v1.0]

- First public version.

[2009/04/10 v1.1]

- Test adopted for LuaTeX 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`.

## 7 Index

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