The \texttt{ifluatex} package

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Abstract

This package looks for \texttt{Lua\TeX} regardless of its mode and provides the switch \texttt{\ifluatex}. Also it makes \texttt{\luatexversion} available if it is not present. It works with plain \TeX{} or \LaTeX{}.

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

1
1 Documentation

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

plain \TeX: \input ifluatex.sty  
\LaTeX\n{2\text{c}}: \usepackage{ifluatex}

\ifluatex
  The package provides the switch \texttt{\ifluatex}:
  \begin{quote}
    \texttt{\ifluatex}
    \textnormal{Lua\TeX{} is running}
    \texttt{\else}
    \textnormal{Without Lua\TeX{}}
    \texttt{\fi}
  \end{quote}

Since version 0.39 Lua\TeX{} only provides \texttt{\directlua} at startup time. Also the syntax of \texttt{\directlua} changed in version 0.36. Thus the user might want to check the Lua\TeX{} version. Therefore this package also makes \texttt{\luatexversion} and \texttt{\luatexrevision} available, if it is not yet done. If you want to detect the mode (DVI or PDF), then use package \texttt{ifpdf}. Lua\TeX{} has inherited \texttt{\pdfoutput} from pdf\TeX{}.

2 Implementation

\begin{enumerate}
\item (*package)
\item Reload check and package identification
\end{enumerate}

Reload check, especially if the package is not used with \LaTeX{2c}.

\begin{verbatim}
\begingroup\catcode61\catcode48\catcode32=10\relax%
\catcode13=5 % ^^M
\endlinechar=13 %
\catcode35=6 % #
\catcode39=12 % '
\catcode44=12 % ,
\catcode45=12 % -
\catcode46=12 % .
\catcode58=12 % :
\catcode64=11 % @
\catcode123=1 % {
\catcode125=2 % }
\expandafter\let\expandafter\x\csname ver@ifluatex.sty\endcsname
\ifx\x\relax % plain-TeX, first loading
\else
\def\empty{}
\ifx\empty % LaTeX, first loading, but \ProvidesPackage not yet seen
\expandafter\if\csname PackageInfo\endcsname\relax
\def\x#1#2{%
\immediate\write-1{Package \#1 Info: \#2.}%
}\else
\def\x#1#2{\PackageInfo{#1}{#2, stopped}}%
\fi
\x{ifluatex}{The package is already loaded}%
\aftergroup\endinput
\fi
\fi
\endgroup%
\end{verbatim}
Package identification:

```
\begingroup\catcode61\catcode48\catcode32=10\relax%
\catcode13=5 \catcode8=7
\endlinechar=13 \catcode35=6 \catcode39=12 \catcode40=12 \catcode41=12
\catcode42=12 \catcode44=12 \catcode45=12 \catcode46=12
\catcode47=12 \catcode58=12 \catcode64=11 \catcode123=1 \catcode125=2
\expandafter\ifx\csname ProvidesPackage\endcsname\relax
\x#1#2#3[#4]{\endgroup
\immediate\write-1{Package: #3 #4}%
\xdef#1{#4}%
}\else
\def\x#1#2#3[#4]{\endgroup
#2[#3]%
\ifx#1\@undefined
\xdef#1{#3}%
\fi
\ifx#1\relax
\xdef#1{#3}%
\fi
}%
\else
\expandafter\x\csname ver@ifluatex.sty\endcsname
\ProvidesPackage{ifluatex}[
\expandafter\edef\csname ifluatex@AtEnd\endcsname{%
\endlinechar=\the\endlinechar\relax
\catcode13=\the\catcode13\relax
\catcode32=\the\catcode32\relax
\catcode35=\the\catcode35\relax
\catcode41=\the\catcode41\relax
\catcode42=\the\catcode42\relax
\catcode44=\the\catcode44\relax
\catcode45=\the\catcode45\relax
\catcode46=\the\catcode46\relax
\catcode47=\the\catcode47\relax
\catcode58=\the\catcode58\relax
\catcode64=\the\catcode64\relax
\catcode123=\the\catcode123\relax
\catcode125=\the\catcode125\relax
}]
\x\catcode61\catcode48\catcode32=10\relax%
\catcode13=5 \catcode8=7
\endlinechar=13 \catcode35=6 \catcode39=12 \catcode40=12 \catcode41=12
\catcode42=12 \catcode44=12 \catcode45=12 \catcode46=12
\catcode47=12 \catcode58=12 \catcode64=11 \catcode123=1 \catcode125=2
\expandafter\edef\csname ifluatex@AtEnd\endcsname{%
\endlinechar=\the\endlinechar\relax
\catcode13=\the\catcode13\relax
\catcode32=\the\catcode32\relax
\catcode35=\the\catcode35\relax
\catcode41=\the\catcode41\relax
\catcode42=\the\catcode42\relax
\catcode44=\the\catcode44\relax
\catcode45=\the\catcode45\relax
\catcode46=\the\catcode46\relax
\catcode47=\the\catcode47\relax
\catcode58=\the\catcode58\relax
\catcode64=\the\catcode64\relax
\catcode123=\the\catcode123\relax
\catcode125=\the\catcode125\relax
}]
```

2.2 Catcodes

```latex
\begingroup\catcode61\catcode48\catcode32=10\relax%
\catcode13=5 \catcode8=7
\endlinechar=13 \catcode35=6 \catcode39=12 \catcode40=12 \catcode41=12
\catcode42=12 \catcode44=12 \catcode45=12 \catcode46=12
\catcode47=12 \catcode58=12 \catcode64=11 \catcode123=1 \catcode125=2
\def\x#1#2#3[#4]{\endgroup
\endlinechar=\the\endlinechar\relax
\catcode13=\the\catcode13\relax
\catcode32=\the\catcode32\relax
\catcode35=\the\catcode35\relax
\catcode41=\the\catcode41\relax
\catcode42=\the\catcode42\relax
\catcode44=\the\catcode44\relax
\catcode45=\the\catcode45\relax
\catcode46=\the\catcode46\relax
\catcode47=\the\catcode47\relax
\catcode58=\the\catcode58\relax
\catcode64=\the\catcode64\relax
\catcode123=\the\catcode123\relax
\catcode125=\the\catcode125\relax
}%
\ifx\x\relax
\x{\catcode61\catcode48\catcode32=10\relax%
\catcode13=5 \catcode8=7
\endlinechar=13 \catcode35=6 \catcode39=12 \catcode40=12 \catcode41=12
\catcode42=12 \catcode44=12 \catcode45=12 \catcode46=12
\catcode47=12 \catcode58=12 \catcode64=11 \catcode123=1 \catcode125=2
\def\x#1#2#3[#4]{\endgroup
\endlinechar=\the\endlinechar\relax
\catcode13=\the\catcode13\relax
\catcode32=\the\catcode32\relax
\catcode35=\the\catcode35\relax
\catcode41=\the\catcode41\relax
\catcode42=\the\catcode42\relax
\catcode44=\the\catcode44\relax
\catcode45=\the\catcode45\relax
\catcode46=\the\catcode46\relax
\catcode47=\the\catcode47\relax
\catcode58=\the\catcode58\relax
\catcode64=\the\catcode64\relax
\catcode123=\the\catcode123\relax
\catcode125=\the\catcode125\relax
}]
```
2.3 Macro for error messages

\ifluatex@Error
\begingroup\expandafter\expandafter\expandafter\endgroup
\expandafter\ifx\csname PackageError\endcsname\relax
\def\ifluatex@Error#1#2{%
\begingroup
\newlinechar=10 %
\def\MessageBreak{^^J}%
\edef\x{\errhelp{#2}}%
\x
\errmessage{Package ifluatex Error: #1}%
\endgroup
}%
\else
\def\ifluatex@Error{%
\PackageError{ifluatex}%
}\fi
\endgroup
\fi

2.4 Check for previously defined \ifluatex

\begingroup
\expandafter\ifx\csname ifluatex\endcsname\relax
\else
\edef\i/\expandafter\string\csname ifluatex\endcsname%\
\ifluatex@Error{\Name clash, \i/ is already defined}{%\
Incompatible versions of \i/ can cause problems,\MessageBreak\
therefore package loading is aborted.}%
}%
\fi
\endgroup
\expandafter\ifluatex@AtEnd
\ifluatex@End{
\ifluatex@AtEnd
noexpand\endinput
\ifluatex
\let\ifluatex\iffalse

2.5 \ifluatex

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

\begingroup\expandafter\expandafter\expandafter\endgroup
\expandafter\ifx\csname luatexversion\endcsname\relax
\else
\expandafter\let\csname ifluatex\expandafter\endcsname
\csname iftrue\endcsname
\fi
1.43

\expandafter\ifx\csname iftrue\endcsname

\endlinechar=10 %
\ifnum0%
\directlua{%
if tex.enableprimitives then
  tex.enableprimitives('ifluatex', {'luatexversion'})
  tex.print('1')
end
}
\ifx\ifluatexluatexversion\@undefined\else 1\fi % =11 %
\global\let\luatexversion\ifluatexluatexversion%
\else%
\fi

\begingroup
\ifx\ifluatexluatexversion\@undefined\else 1\fi % =11 %
\global\let\luatexversion\ifluatexluatexversion%
\else%
\fi
\endgroup%

\fi

\begingroup\expandafter\expandafter\expandafter\endgroup
\expandafter\ifx\csname luatexrevision\endcsname\relax
\else
\expandafter\ifx\csname luatexrevision\endcsname\relax
\let\luatexrevision\@undefined
\fi
\newlinechar=10 %
\endlinechar=
ewlinechar%
\ifcase0%
\directlua{%
if tex.enableprimitives then
  tex.enableprimitives('ifluatex', {'luatexversion'})
  tex.print('1')
end
}
\ifx\luatexrevision\relax
\else
\fi
\endlinechar=10 %
\newlinechar=\newlinechar%
\ifcase0%
\directlua{%
if tex.enableprimitives then

2.6 LuaT\TeX\ v0.39

Starting with version 0.39 LuaT\TeX\ 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 LuaT\TeX\’s Lua function tex.enableprimitives.

\begingroup\expandafter\expandafter\expandafter\endgroup
\expandafter\ifx\csname ifluatex\expandafter\endcsname\relax
\else
\expandafter\ifx\csname directlua\endcsname\relax
\else
\expandafter\let\csname ifluatex\expandafter\endcsname
\csname iftrue\endcsname
\begingroup
\newlinechar=10 %
\endlinechar=
ewlinechar%
\ifnum0%
\directlua{%
if tex.enableprimitives then
  tex.enableprimitives('ifluatex', {'luatexversion'})
  tex.print('1')
end
}
\ifx\ifluatexluatexversion\@undefined\else 1\fi % =11 %
\global\let\luatexversion\ifluatexluatexversion%
\else%
\fi
\endgroup
\fi

\begingroup
\ifx\ifluatexluatexversion\@undefined\else 1\fi % =11 %
\global\let\luatexversion\ifluatexluatexversion%
\else%
\fi
\endgroup
2.7 Protocol entry

Log comment:

3 Test

3.1 Catcode checks for loading
\expandafter\@gobble\fi
\def\loop#1\repeat{%
  \def\body{#1}%
  \iterate
%
  \def\iterate{%
    \body
    \let\next\iterate
    \else
    \let\next\relax
  \fi
  \next
}%
\let\repeat=\fi
\def\RestoreCatcodes{%
  \count@=0 %
  \loop
  \edef\RestoreCatcodes{\
    \RestoreCatcodes
    \catcode\the\count@=\the\catcode\count@ \relax
  }%
  \ifnum\count@<255 %
    \advance\count@ 1 %
  \repeat
%
  \def\RangeCatcodeInvalid#1#2{%
    \count@=#1 \relax
    \loop
    \catcode\count@=15 %
    \ifnum\count@<#2 \relax
      \advance\count@ 1 %
    \repeat
  }
%
  \def\RangeCatcodeCheck#1#2#3{%
    \count@=#1 \relax
    \loop
    \ifnum#3=\catcode\count@
      \else
        \errmessage{Character \the\count@ with wrong catcode \the\catcode\count@ instead of \number#3%}
    \fi
    \ifnum\count@<#2 \relax
      \advance\count@ 1 %
    \repeat
  }
%
  \space{ }
  \expandafter\ifx\csname LoadCommand\endcsname\relax
    \def\LoadCommand{%
      \input ifluatex.sty\relax}
  \fi
%
  \def\Test{%
    \RangeCatcodeInvalid{0}{47} %
    \RangeCatcodeInvalid{58}{64} %
    \RangeCatcodeInvalid{91}{96} %
    \RangeCatcodeInvalid{123}{255} %
    \catcode`\@=12 %
    \catcode`\=0 %
  }
\catcode`\%=14 \LoadCommand
\RangeCatcodeCheck{0}{36}{15}\%
\RangeCatcodeCheck{37}{37}{14}\%
\RangeCatcodeCheck{38}{47}{15}\%
\RangeCatcodeCheck{48}{57}{12}\%
\RangeCatcodeCheck{58}{63}{15}\%
\RangeCatcodeCheck{64}{64}{12}\%
\RangeCatcodeCheck{65}{90}{11}\%
\RangeCatcodeCheck{91}{91}{15}\%
\RangeCatcodeCheck{92}{92}{0}\%
\RangeCatcodeCheck{93}{96}{15}\%
\RangeCatcodeCheck{97}{122}{11}\%
\RangeCatcodeCheck{123}{255}{15}\%
\RestoreCatcodes
\Test\csname @@end\endcsname
\end⟨/test1⟩

4 Reload check for plain

\input ifluatex.sty\relax
\input ifluatex.sty\relax
\csname @@end\endcsname\end⟨/test-reload1⟩
\input miniltx.tex\relax
\input ifluatex.sty\relax
\input ifluatex.sty\relax
\csname @@end\endcsname\end⟨/test-reload2⟩

5 Installation

5.1 Download
Package. This package is available on CTAN:\footnote{http://ctan.org/pkg/ifluatex}

\texttt{CTAN:macros/latex/contrib/oberdiek/ifluatex.dtx} The source file.

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.

\texttt{CTAN:install/macros/latex/contrib/oberdiek.tds.zip}

\emph{TDS} refers to the standard “A Directory Structure for \TeX Files” (\texttt{CTAN:tds/tds.pdf}). Directories with \texttt{texmf} in their name are usually organized this way.

5.2 Bundle installation
Unpacking. Unpack the \texttt{oberdiek.tds.zip} in the TDS tree (also known as \texttt{texmf} tree) of your choice. Example (linux):

\begin{verbatim}
unzip oberdiek.tds.zip -d ~/texmf
\end{verbatim}
**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 \texttt{pdfatfi}. Example (Linux):

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

**5.3 Package installation**

**Unpacking.** The \texttt{.dtx} file is a self-extracting \texttt{docstrip} archive. The files are extracted by running the \texttt{.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 \texttt{texmf} tree):

- \texttt{ifluatex.sty} → \texttt{tex/generic/oberdiek/ifluatex.sty}
- \texttt{ifluatex.pdf} → \texttt{doc/latex/oberdiek/ifluatex.pdf}
- \texttt{test/ifluatex-test1.tex} → \texttt{doc/latex/oberdiek/test/ifluatex-test1.tex}
- \texttt{test/ifluatex-test2.tex} → \texttt{doc/latex/oberdiek/test/ifluatex-test2.tex}
- \texttt{test/ifluatex-test3.tex} → \texttt{doc/latex/oberdiek/test/ifluatex-test3.tex}
- \texttt{ifluatex.dtx} → \texttt{source/latex/oberdiek/ifluatex.dtx}

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

**5.4 Refresh file name databases**

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

**5.5 Some details for the interested**

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

- **plain \TeX{}:** Run \texttt{docstrip} and extract the files.
- **\texttt{\LaTeX{}}:** Generate the documentation.

If you insist on using \texttt{\LaTeX{}} for \texttt{docstrip} (really, \texttt{docstrip} does not need \texttt{\LaTeX{}}), 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 \texttt{.dtx} or the \texttt{.drv} to generate the documentation. The process can be configured by the configuration file \texttt{latexdoc.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 \texttt{pdf\LaTeX{}}:

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

The following XML file can be used as source for the \TeX{} Catalogue. The elements \texttt{caption} and \texttt{description} are imported from the original XML file from the Catalogue. The name of the XML file in the Catalogue is \texttt{ifluatex.xml}.

\begin{verbatim}
<?xml version='1.0' encoding='us-ascii'?>
<!DOCTYPE entry SYSTEM 'catalogue.dtd'>
<entry datestamp='$Date$' modifier='$Author$' id='ifluatex'>

<name>ifluatex</name>
<caption>Provides the \texttt{\ifluatex} switch.</caption>
<authorref id='auth:oberdiek'/>
<copyright owner='Heiko Oberdiek' year='2007,2009,2010'/>
<license type='lppl1.3'/>
<version number='1.4'/>
<description>
The package looks for LuaTeX regardless of its mode and provides the switch \texttt{\ifluatex}; it works with Plain \TeX{} or \LaTeX{}.
</description>
<documentation details='Package documentation' href='ctan:/macros/latex/contrib/oberdiek/ifluatex.pdf'/>
<ctan file='true' path='/macros/latex/contrib/oberdiek/ifluatex.dtx'/>
<miktex location='oberdiek'/>
texlive location='ifluatex'/>
<install path='/macros/latex/contrib/oberdiek/oberdiek.tds.zip'/>
</entry>
\end{verbatim}

7 History

[2007/12/12 v1.0]
- First public version.

[2009/04/10 v1.1]
- Test adopted for Lua\TeX{} 0.39.
- Makes \texttt{\luatexversion} available.

[2009/04/17 v1.2]
- Fixes (Manuel Pégourié-Gonnard).
- \texttt{\luatextrue} and \texttt{\luatexfalse} are no longer defined.
- Makes \texttt{\luatexrevision} available, too.

[2010/03/01 v1.3]
- Line ends fixed in case \texttt{\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

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