

The `luatexbase` package

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Abstract

This package provides resource management for the LuaTeX macro programmer. It is divided in sub-packages which can be used independantly if desired.

Contents

1	Documentation	1
1.1	History	2
2	Implementation	2
2.1	Preliminaries	2
2.2	<code>luatex.sty</code> compatibility	3
2.3	Packages loading	4
3	Test file	4

1 Documentation

The `luatexbase` package consists of the following sub-packages:

`luatexbase-compat`: compatibility helpers for `\directlua`, primitive names and version information from Lua.

`luatexbase-loader`: extension of LuaTeX's Lua module loader (since version 0.60.0, this is more of a compatibility layer for older versions than a real extension).

`luatexbase-regs`: extended allocation scheme for registers and the like, *à la* `etex`.

`luatexbase-cctb`: catcode table allocation.

`luatexbase-attr`: attribute and `whatsit` node allocation.

`luatexbase-mcb`: callbacks extensions allowing to register many functions in a single callback, and declare new callbacks for packages.

`luatexbase-modutils`: Lua module declaration, including version checks.

*See "History" for details.

This package collection is considered stable: no backward-incompatible change should happen in the future, except the removal of the deprecated commands (currently only `\setcatcodorange`). It works with the Plain and L^AT_EX formats adapted for LuaT_EX as provided by T_EX Live and MiK_TE_X. Currently the oldest version supported is 0.40.6 with formats from T_EX Live 2009 and greater.

1.1 History

The first package for managing LuaT_EX's new resources was the `luatex` package by Heiko Oberdiek. Later, Élie Roux wrote `luatextra` which reprised many features of `luatex` with little extensions to some of them and added independant low-level features (currently found in the `modutils` and `mcb` subpackages), as well as user-level things. Later, `luatexbase` was created by Manuel Pégourié-Gonnard by isolating the general low-level features of `luatextra`, and later expanding on them.

For some time there was two conflicting packages controlling access to LuaT_EX's resources: `luatex` and `luatexbase`, neither of which was a subset of the other, and with small differences in their overlapping parts (mainly macro names).

Then `luatexbase` was expanded by absorbing the features of `luatex` that were previously missing (essentially the advanced scheme for catcode table management). It currently provides the `luatex` package as a wrapper around the relevant subpackages, so that the two are no longer in conflict.

For a detailed history of changes in `luatexbase` since its split from `luatextra`, see the `Changes` file in the distribution. For even more details, see the git history.

2 Implementation

1 (*texpackage)

2.1 Preliminaries

Catcode defenses and reload protection.

```

2 \begingroup\catcode61\catcode48\catcode32=10\relax% = and space
3 \catcode123 1 % {
4 \catcode125 2 % }
5 \catcode 35 6 % #
6 \toks0\expandafter{\expandafter\endlinechar\the\endlinechar}%
7 \edef\x{\endlinechar13}%
8 \def\y#1 #2 {%
9 \toks0\expandafter{\the\toks0 \catcode#1 \the\catcode#1}%
10 \edef\x{x \catcode#1 #2}}%
11 \y 13 5 % carriage return
12 \y 61 12 % =
13 \y 32 10 % space
14 \y 123 1 % {
15 \y 125 2 % }
16 \y 35 6 % #
17 \y 64 11 % @ (letter)
18 \y 10 12 % new line ^^J
19 \y 39 12 % '
20 \y 40 12 % (
21 \y 41 12 % )
22 \y 45 12 % -

```

```

23 \y 46 12 % .
24 \y 47 12 % /
25 \y 58 12 % :
26 \y 91 12 % [
27 \y 93 12 % ]
28 \y 94 7 % ^
29 \y 96 12 % ‘
30 \toks0\expandafter{\the\toks0 \relax\noexpand\endinput}%
31 \edef\y#1{\noexpand\expandafter\endgroup%
32 \noexpand\ifx#1\relax \edef#1{\the\toks0}\x\relax%
33 \noexpand\else \noexpand\expandafter\noexpand\endinput%
34 \noexpand\fi}%
35 \expandafter\y\csname luatexbase@sty@endinput\endcsname%

Package declaration.

36 \begingroup
37 \expandafter\ifx\csname ProvidesPackage\endcsname\relax
38 \def\x#1[#2]{\immediate\write16{Package: #1 #2}}
39 \else
40 \let\x\ProvidesPackage
41 \fi
42 \expandafter\endgroup
43 \x{luatexbase}[2013/05/11 v0.6 Resource management for the LuaTeX macro programmer]

Make sure LuaTeX is used.

44 \begingroup\expandafter\expandafter\expandafter\endgroup
45 \expandafter\ifx\csname RequirePackage\endcsname\relax
46 \input ifluatex.sty
47 \else
48 \RequirePackage{ifluatex}
49 \fi
50 \ifluatex\else
51 \begingroup
52 \expandafter\ifx\csname PackageError\endcsname\relax
53 \def\x#1#2#3{\begingroup \newlinechar10
54 \errhelp{#3}\errmessage{Package #1 error: #2}\endgroup}
55 \else
56 \let\x\PackageError
57 \fi
58 \expandafter\endgroup
59 \x{luatexbase}{LuaTeX is required for this package. Aborting.}{%
60 This package can only be used with the LuaTeX engine^^J%
61 (command ‘lualatex’ or ‘luatex’).^J%
62 Package loading has been stopped to prevent additional errors.}
63 \expandafter\luatexbase@sty@endinput%
64 \fi

```

2.2 luatex.sty compatibility

Currently, `luatex.sty` has to be loaded before `luatexbase`, otherwise it raises an error, as the same names are used between `luatexbase` and `luatex`.

This is a quite strange situation, but we hope to clarify it.

```

65 \expandafter\ifx\csname RequirePackage\endcsname\relax

```

```
66 \input luatex.sty
67 \else
68 \RequirePackage{luatex}
69 \fi
```

2.3 Packages loading

```
70 \begingroup\expandafter\expandafter\expandafter\endgroup
71 \expandafter\ifx\csname RequirePackage\endcsname\relax
72 \input luatexbase-compat.sty
73 \input luatexbase-modutils.sty
74 \input luatexbase-loader.sty
75 \input luatexbase-regs.sty
76 \input luatexbase-attr.sty
77 \input luatexbase-cctb.sty
78 \input luatexbase-mcb.sty
79 \else
80 \RequirePackage{luatexbase-compat}
81 \RequirePackage{luatexbase-modutils}
82 \RequirePackage{luatexbase-loader}
83 \RequirePackage{luatexbase-regs}
84 \RequirePackage{luatexbase-attr}
85 \RequirePackage{luatexbase-cctb}
86 \RequirePackage{luatexbase-mcb}
87 \fi
```

This is the end, my friend... the end.

```
88 \luatexbase@sty@endinput%
89 </texpackage>
```

3 Test file

Very minimal, just check that the package correctly loads.

```
90 <testplain>\input luatexbase.sty
91 <testlatex>\RequirePackage{luatexbase}
92 <testplain>\bye
93 <testlatex>\stop
```