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

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: extented 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.

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*See "History" for details.

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This package collection is considered stable: no backward-incompatible change should happen in the future, except the removal of the deprecated commands (currently only \setcatcoderange). It works with the Plain and LaTeX formats adapted for LuaTeX as provided by TeX Live and MiKTeX. Currently the oldest version supported is 0.40.6 with formats from TeX Live 2009 and greater.

1.1 History

The first package for managing LuaTeX'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 controling access to LuaTeX'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}[2013/05/04 v0.6 Module utilities for LuaTeX]
```

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-loader.sty
74   \input luatexbase-regs.sty
75   \input luatexbase-attr.sty
76   \input luatexbase-cctb.sty
77   \input luatexbase-mcb.sty
78   \input luatexbase-modutils.sty
79 \else
80   \RequirePackage{luatexbase-compat}
81   \RequirePackage{luatexbase-loader}
82   \RequirePackage{luatexbase-regs}
83   \RequirePackage{luatexbase-attr}
84   \RequirePackage{luatexbase-cctb}
85   \RequirePackage{luatexbase-mcb}
86   \RequirePackage{luatexbase-modutils}
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
```