

LuaTeX for the L^AT_EX user: An introduction

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Abstract

LuaTeX, the T_EX extension that incorporates the Lua scripting language and Ω extensions, has been available for three years already and was added to T_EX Live in 2008. Yet, the L^AT_EX packages that have been developed for it are rather little known and, because the main developers of LuaTeX are deeply involved in ConT_EXt, there seems to be a gap between LuaTeX and L^AT_EX users. This note is a beginning at overcoming this difference.

1 Introduction

LuaTeX is the extension of T_EX that incorporates Lua, as well as the capabilities of Ω. It has also been programmed with hooks to interact with the internals of T_EX's algorithms (*callbacks* in Lua parlance), that can now be rewritten using Lua code. However, most of the power of LuaTeX resides at a very low level and is available to the user only with the help of macros, that have been written for ConT_EXt over the past several years, and only recently begun for L^AT_EX. I will give a brief descriptions of some of these L^AT_EX packages.

All the packages mentioned here are available in T_EX Live 2009.

2 `\ifluatex`

The package `ifluatex` provides the conditional command `\ifluatex` to test whether we're running LuaTeX or some other T_EX engine.

3 Input encodings

LuaTeX reads source files in Unicode UTF-8 encoding, and it is highly recommended to use that encoding in order to take full advantage of the capabilities of LuaTeX. However, for people who want or need to use 8-bit encodings like Latin 1 or KOI-8, the `luainputenc` package emulates the behaviour of the standard `inputenc` in LuaTeX. It recognizes all the encodings that the latter package knows about and can therefore be used for legacy documents, with some limitations.

4 Fonts

One of the most elaborate packages for use with LuaL^AT_EX is `luaotfload`.

In this section, I will use the free Linux Libertine fonts (<http://linuxlibertine.sourceforge.net/>) as an example; these fonts have many features that demonstrate OpenType capabilities. I will assume that the font files are available to T_EX and that the four faces (roman, italic, bold and bold italic) are respectively called `LinLib-Re.otf`, `LinLib-It.otf`, `LinLib-Bd.otf`, and `LinLib-BI.otf`.

`luaotfload` implements a X_YT_EX-like syntax for `\font`, hence a commands such as

```
\font\librm="LinLib-Re"
```

will load the font, and subsequently issuing the `\librm` control sequence will switch to it. This example:

```
\font\librmliga
      ="LinLib-Re:script=latn:+liga"
```

will load the same font while activating the `liga` feature of the Latin script.

Other useful OpenType feature names include

- `smcp`, for small capitals;
- `onum`, for old-style numerals;
- `subs`, for subscript;
- `sup`, for superscript.

Here is a complete NFSS declaration of the Linux Libertine family for L^AT_EX:

```
\DeclareFontFamily{T1}{libertine}{}
\DeclareFontShape{T1}{libertine}{m}{n}
  {<-> "LinLib-Re:+liga"}{}
\DeclareFontShape{T1}{libertine}{m}{sc}
  {<-> "LinLib-Re:+liga:+smcp"}{}
\DeclareFontShape{T1}{libertine}{m}{it}
  {<-> "LinLib-It:+liga"}{}
\DeclareFontShape{T1}{libertine}{bx}{n}
  {<-> "LinLib-Bd:+liga"}{}
\DeclareFontShape{T1}{libertine}{bx}{it}
  {<-> "LinLib-BI:+liga"}{}

```

Then, after defining `\libertine` as follows:

```
\newcommand\libertine
  {\fontfamily{libertine}\selectfont}
```

we can use `\libertine` to switch to the Libertine family.

More examples of using L^AT_EX with LuaTeX are gathered on <http://code.google.com/p/mingyue>.

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