

**NAME**

luatex, dviluatex, lua<sub>h</sub>btex, lua<sub>j</sub>ithbtex, lua<sub>j</sub>ittex, texlua, texluac, texlua<sub>j</sub>it, texlua<sub>j</sub>itc – TeX extended with Lua as an embedded scripting language

**SYNOPSIS**

**luatex** [**--lua=luafile**] [*options*] [**&format**] [*file* [*more-input*] | [**\more-input**]

**DESCRIPTION**

Run the Lua<sub>TEX</sub> typesetter on *file* [.tex], usually creating *file*.pdf. If the file argument has no extension, ".tex" will be appended to it. See **tex**(1) for details of command-line parsing, with the exceptions described here.

Lua<sub>TEX</sub> began as an extended version of pdf<sub>TEX</sub> with **lua**(1) as an embedded scripting language, Unicode and OpenType/TrueType font support, the e-<sub>TEX</sub> and Omega extensions, as well as an integrated MetaPost library. It can generate either pdf or dvi output. For more information about Lua<sub>TEX</sub>, see <https://www.luatex.org>; or you can read the Lua<sub>TEX</sub> manual using the texdoc utility (**texdoc luatex**).

All Lua<sub>TEX</sub> text input and output is read natively as Unicode text, although filters make it possible to support any encoding. Caveat: just because any Unicode character can be recognized as input does not mean it can be typeset as output; you still have to load the necessary fonts.

If the program is called as **texlua** it acts as a Lua interpreter. If called as **texluac** it acts as a Lua bytecode compiler.

By default, **luatex** produces pdf output, and **dviluatex** produces dvi output; both executables behave identically otherwise, within the limits of the output format. Both variants can be configured to produce either dvi or pdf output.

In pdf mode, Lua<sub>TEX</sub> can natively handle the pdf, jpg, jbig2, and png graphics formats, but not PostScript or Encapsulated PostScript (eps) graphics; see **pdf<sub>tex</sub>**(1). As a special case, the PostScript files output by MetaPost can be handled directly via the *supp-pdf.tex* and *supp-pdf.mkii* macros.

The regular **luatex** programs embed Lua 5.3, developed by PUC-Rio; the **j**it variants such as **lua<sub>j</sub>ittex** embed LuaJIT for just-in-time compilation, developed by Mike Pall.

The **lua<sub>h</sub>btex** variant includes the HarfBuzz engine for glyph shaping. HarfBuzz must still be explicitly enabled at the <sub>TEX</sub> level.

By default, Lua<sub>TEX</sub> does not provide any primitives beyond those from <sub>TEX</sub>3. All extended primitives must be enabled at runtime using **\directlua**; see the Lua<sub>TEX</sub> manual and existing format-building files, e.g., luatex.ini.

**OPTIONS**

For the common <sub>TEX</sub> command-line options and handling, see **tex**(1).

When the Lua<sub>TEX</sub> executable starts, it looks for the **--lua** command-line option. If there is no **--lua** option, the command line is interpreted similarly to traditional pdf<sub>TEX</sub> and Aleph. But if the option is present, Lua<sub>TEX</sub> will enter an alternative mode of command-line parsing, unrelated to the standard Web2C programs. The presence of **--lua** thus makes all other options unreliable, because the Lua initialization file can disable the default file searching via Kpathsea and/or hook functions into various callbacks.

**--lua=*luafile***

The Lua initialization file. The Lua<sub>TEX</sub> executables embed a default initialization file (`luatex-core.lua`); if this option is used, *luafile* will be used instead. The Lua initialization file is responsible for setting up security restrictions, path searching behaviour, and other low-level settings, so you must be careful when using a custom file or else you will likely crash the engine. If this option is used, you must pass the same file both when dumping the format and when typesetting a document. This option is used by Con<sub>TEX</sub>t.

The following two options alter the executable behaviour:

**--luaonly**

Start Lua<sub>TEX</sub> as a Lua interpreter. In this mode, it will set Lua's *arg[0]* to the found script name, pushing preceding options in negative values and the rest of the command line in the positive values, just like the Lua interpreter. Lua<sub>TEX</sub> will exit immediately after executing the specified Lua script.

**--luaconly**

Start Lua<sub>TEX</sub> as a Lua bytecode compiler. In this mode, Lua<sub>TEX</sub> is exactly like **luac** from the standalone Lua distribution, except that it does not have the **-l** switch, and that it accepts and ignores the **--luaconly** switch.

**--safer** Disable most file-modifying and program-executing Lua functions. This option is disabled by default since it breaks most documents.

**--luadebug**

Enables the standard Lua *debug* module, which is disabled by default for security reasons. This option is implicitly enabled when unrestricted shell-escape is enabled.

**--[no-]socket**

Enables the Lua *socket* module, which allows <sub>TEX</sub> documents to make arbitrary network requests, and is disabled by default for security reasons. This option is implicitly enabled when unrestricted shell escape is enabled.

**ENVIRONMENT**

See **tex(1)** and **pdf<sub>tex</sub>(1)**.

**BUGS**

See **tex(1)**.

**SEE ALSO**

**aleph(1)**, **etex(1)**, **lua(1)**, **m<sub>post</sub>(1)**, **pdf<sub>tex</sub>(1)**, **tex(1)**.

Lua<sub>TEX</sub> home page: <https://luatex.org>

Package page on CTAN: <https://ctan.org/pkg/luatex>

Lua<sub>TEX</sub> reference manual: <https://mirror.ctan.org/systems/doc/luatex/luatex.pdf>

Web2c manual: <https://tug.org/web2c>

Kpathsea manual: <https://tug.org/kpathsea>

Numerous articles have been published in *TUGboat* about Lua<sub>TEX</sub>:

<https://tug.org/TUGboat/Contents>

**AUTHORS**

<sub>TEX</sub> was created by Donald E. Knuth. The primary authors of the Lua<sub>TEX</sub> enhancements are Taco Hoekwater, Hartmut Henkel, Hans Hagen, and Luigi Scarso, with help from Martin

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Public discussion list for Lua<sub>TEX</sub>-specific issues: <https://lists.tug.org/luatex>

Public discussion list for all things <sub>TEX</sub>: <https://lists.tug.org/texhax>