Compiling with LaTeX

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Existing compilers

Four main compilers:

1. latex,
2. pdflatex,
3. lualatex,
4. xelatex.

A very short history

First steps:

1. TEX (Donald Knuth), the original work;
2. LATEX (Leslie Lamport), a layer above TEX which facilitates and standardises the use of TEX (packages, classes, and so on).

Both generates DVI files.
With the evolution of IT, DVI files were slowly replaced by PDF files, which embed several properties such as hyperlinks and metadata: birth of *pdftex* and *pdflatex* (Hàn Thế Thành), which generate PDF files.
Next step was the management of other languages with different characters and support of modern fonts: XeTeX. On the other hand, an attempt to extend the existing TEX has been made with the Lua programming language: LuaTeX. Of course, both exist with LATEX: XeLaTeX and LuaLaTeX.

Differences?

Table: Comparison between LaTeX compilers

Compiler	Output	Images
latex	dvi	.eps
pdflatex	pdf	.png, .jpg, .pdf
lualatex	pdf	.png, .jpg, .pdf
xelatex	pdf	.png, .jpg, .pdf