

# TUG Business

## T<sub>E</sub>X Development Fund 2003–05 Report

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The T<sub>E</sub>X Development Fund was created by the T<sub>E</sub>X Users Group in 2003, under the aegis of the TUG Technical Council, to foster growth of T<sub>E</sub>X-related technical projects. The first set of grants was awarded in March 2003, with more grants awarded on a rolling basis after that. This report covers all projects, both completed and pending, as of April 2005. “Completed” refers to the work for the grant; they are generally ongoing development efforts, rather than projects which are done once-and-for-all.

We are especially appreciative of the ongoing support from individuals. Since its inception, more than 200 donations have been received, allowing us to make several more grants than would otherwise have been possible. Thank you, everyone!

For application information, the complete list of donors, and more, please see the development fund web site.

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<http://tug.org/tc/devfund/>

## Completed projects

### 1 Latin Modern extensions

Applicants: Boguslaw Jackowski, Janusz Nowacki, Poland,

<http://www.ctan.org/tex-archive/fonts/lm>.  
 Amount: US\$2000; acceptance date: 19 May 2004.

Continuing enhancement of the Latin Modern family of fonts.

This was completed by 20 April 2004, with the Latin Modern 0.98.3 release. The related article “Latin Modern: Enhancing Computer Modern with accents, accents, accents”, was presented at TUG 2003 and published in *TUGboat* 24(1).

### 2 pdfT<sub>E</sub>X extensions

Applicant: Hàn Thế Thành, Vietnam,

<http://www.pdfTeX.org>.  
 Amount: US\$1500; acceptance date: 26 March 2004.

1. New primitives to provide more control over the quality of typesetting complex documents (feedback as well as manipulating the result of breaking paragraphs into lines).

2. A primitive to ease the use of font expansion with pdftex, so one can use font expansion having expanded TFM’s (which are complicated to generate for an average user).

This was completed by 14 October 2004, and the pdftex 1.20a release includes this work. The related article “Micro-typographic extensions of pdfT<sub>E</sub>X in practice” was presented at Practical T<sub>E</sub>X 2004 and published in *TUGboat* 25(1).

### 3 Source release of i-Installer v2

Applicant: Gerben Wierda, The Netherlands,

<http://sourceforge.net/projects/ii2>.

Amount: US\$1500; acceptance date: 3 November 2003.

Make source release of new version of i-Installer, the engine used for installing and configuring the applicant’s gwT<sub>E</sub>X distribution for Mac OS X.

This was completed on 28 February 2004, and the new version is available online. Article forthcoming.

## Projects underway

### 4 T<sub>E</sub>Xmuse

Applicant: Federico Garcia, USA.

Amount: US\$1000; acceptance date: 11 April 2005.

Design of algorithms and code implementation for the first stage of the T<sub>E</sub>Xmuse project for musical typesetting.

The ‘first stage’ consists of code that is able to typeset the basic musical text of Bach’s 15 inventions. These pieces are for piano and only two voices: two staves and one voice per staff. Being from the Baroque, they feature interpretative notation (slurs, articulations, etc.) only in a very limited way. All of this makes these pieces a good first stage in the development of T<sub>E</sub>Xmuse.

### 5 Baskerville

Applicant: Hrant Papazian, USA,

<http://themicrofoundry.com>.

Amount: US\$3000; acceptance date: 19 October 2004.

Design and implementation of a Baskerville typeface revival to high standards of typographic quality, historical sensitivity, and usability.

The typeface family will include two weights (regular and bold), each with a true italic. The fonts will cover the character ranges Basic Latin, Latin-1 Supplement, and Latin Extended-A, as defined by Unicode.

## 6 Using Omega to generate XML and MathML from TeX documents

Applicant: John Plaice, Australia.

Amount: US\$2000; date: April 2003.

Since 1998, the Omega Project has been capable of generating MathML and XML directly from the typesetting engine. In this project, we propose to further develop the XML- and MathML-generation capabilities of the Omega Project.

The Omega approach to generating markup languages from TeX input consists of two parts:

- modifying the mathematics part of the typesetting engine so that MathML can be automatically generated;
- adding new macro primitives so that XML opening and closing tags can be produced by the programmer.

In this project, we propose to comprehensively cover the high-level L<sup>A</sup>T<sub>E</sub>X and  $\mathcal{A}\mathcal{M}\mathcal{S}$ -L<sup>A</sup>T<sub>E</sub>X macros and define a matching DTD/schema, and ensure that Omega can correctly translate a correct L<sup>A</sup>T<sub>E</sub>X document with mathematics into XML and MathML. High-level macros will be written, new macro primitives will be defined, and modifications will be made to the typesetting engine.

Although this work is not complete, the related article “X<sup>L</sup>L<sup>A</sup>T<sub>E</sub>X, a DTD/schema which is very close to L<sup>A</sup>T<sub>E</sub>X” was presented at EuroTeX 2003 and published in *TUGboat* 24(3).

## 7 Combining the extensions of TeX into one system

Applicant: John Plaice, Australia.

Amount: US\$2000; date: April 2003.

There are currently three large extensions to TeX:

- Omega has focused on extensions supporting multilingual typesetting;
- $\varepsilon$ -TeX has focused on extensions to the macro language and its tracing;
- pdfTeX has focused on producing PDF rather than DVI.

$\varepsilon$ -TeX and pdfTeX have already been combined into pdf- $\varepsilon$ -TeX, and more recently Giuseppe Bilotta has created e-Omega (now named Aleph).

In this project, we propose to combine the key elements of  $\varepsilon$ -TeX and pdfTeX with Omega. In addition to combining several Pascal Web change files and integrating the associated C/C++ code, an important objective will be to harness the power of Omega’s Translation Processes and context manipulation code to generate high-quality PDF files.

Although this work is not complete, the related article “Moving Omega to a C++-based platform” was presented at TUG 2004 and published by Springer-Verlag in the conference proceedings, *TeX, XML, and Digital Typography*.

## 8 CTAN release of critical edition support for L<sup>A</sup>T<sub>E</sub>X

Applicant: David Kastrup, Germany.

Amount: US\$1500; date: April 2003.

The project described here is very large. Only a small part is funded through this grant: making it possible for the main work to be included on CTAN and integrated into the main L<sup>A</sup>T<sub>E</sub>X sources. For background information, the full description is at <http://tug.org/tc/devfund/grants.html>.

Although this work is not complete, the related article “The bigfoot bundle for critical editions” was presented at TUG 2004 and published in the conference preprints distributed to TUG members.

### Accommodation of the footnote apparatus

Critical editions usually contain multiple footnote apparatus. A typical set for an edition of a commentary would be

1. Footnotes of the original commentator to the basic text, numbered sequentially.
2. Footnotes pointing out variations of various editions or manuscripts of the original publication. Those would typically be indicated with letters starting from “a” on each side.
3. Footnotes containing comments of the current editor.

Of course, this is just a simple example: much more contrived apparatus can be seen, too. In the first stage of the project, a separate footnote style will be designed that overrides only small parts of the standard L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub> output routine, probably building upon the nctools package.

**Other issues** While L<sup>A</sup>T<sub>E</sub>X provides for margin notes and paragraphs, the mechanism is not versatile enough to cater for either margin notes in footnotes or multiple levels of margin notes.

The possibilities for editions of course are limitless, nevertheless there are basic building blocks from which a page layout may be built up. The current L<sup>A</sup>T<sub>E</sub>X output routine does not accommodate such formats, nor would it be useful to accommodate it in the base class. However, there are a lot of elements that can be systematically tackled and given interfaces, so that the average document designer could merely aggregate boxes, insertions and their processing in a reasonably easy way.