

# Use of T<sub>E</sub>X as database with AnyT<sub>E</sub>X

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## Abstract

The use of BLUE's format databases has been treated. A new issue is introduced since the emerge of BLUE's Format system this spring. Boolean tags can be added to for example address.dat entries to denote fields and their contents. Together with `\search` one can easily obtain the list of names – and via these names the full entries, i.e., the addresses – of those who have not paid their membership fee, for example.

## 1 Introduction

Why couple the buzzword database to T<sub>E</sub>X? What has T<sub>E</sub>X got to do with it? Vaguely the answer is that we like to store *collections* of the right granularity, such as addresses, references, copy parts, tools and formats outside of T<sub>E</sub>X – or one of its flavours – and only borrow what we need. You don't have to pay for what you don't use. Important is also the data integrity aspects which can be achieved via databases. We only store the information once for use in different contexts. At the heart is the process of selective loading. The benefits are that next to your stable T<sub>E</sub>X formatting system, you have also a stable T<sub>E</sub>X database tool,<sup>1</sup> which can be adjusted to your applications. And because it is written in plain it can be used with AnyT<sub>E</sub>X.

But, just embracing the database approach is not enough. It also important to hide T<sub>E</sub>Xnical details of storing and have access to material in a transparent way. Let me show you by example what can be achieved with databases as a T<sub>E</sub>Xnical tool.

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1. And as a consequence stable data files. No conversions!

## 2 Formats

I consider it very convenient, when I need a format, that I just can say `\<formatname>` without to worry where the formats are stored, especially when I have to work on several different computers.

This is trivial as such except when we wish to have variant formats stored separately.

The effect of the above command is that the database, which name you can forget about, will be searched and the requested format will be selectively loaded.

## 3 Tools

After having made the decision which tools should be made available by default – as part of the kernel – and which on request – as part of a module – we have the problem how to provide the commands such that the user does not have to worry about T<sub>E</sub>Xnical details. The tools must be transparently available. Examples are:

```
\beginbintree{<no>}
  {<contents>}...{<no>}{<contents>}{<order>}
\endbintree
\hanoi3
\beginpascal... \endpascal
\begincrosswords... \endcrosswords
\beginbridge... \endbridge
\loadntglogo\copy\ntglogobox
etc.
```

For all of the above cases the user does not know whether the environment is already available or whether it will be loaded first. IMHO, the user should not be aware of it, normally.

## 4 Pictures

I use pictures generally twice: in the article and for a transparency. Of late I also adopted the possibility to vary the visibility. For example the user can ask for a full-blown picture or for the simple variant.

The idea is that we load all the pictures we will need by name, via

```
\pictures{\<name1>}...{\<namen>}
```

The picture can be used, at best within math display, via the invocation

```
\<namex>
```

preceded by for example `\thispicture{\fulltrue}`, or with an adjustment of the default scaling.

## 5 References

With references we have to deal with the cross-referencing aspects, and that the list of references is usually typeset at the end. To meet this requirements I chose to *specify* the references at the beginning of the script, via the `references` command, in the order you wish.

```
\references{\langle name1 \rangle ... \langle namen \rangle}
```

The effect of this command is that the specified references will be loaded and set in a box to be pasted up later. In order to allow cross-referencing the names are redefined with the (implicit) sequential number in the specified list as replacement text. A reference to an entry in the list of references can be simply done via

```
\langle namex \rangle
```

The list of references can be put at the appropriate place via `\pasteupreferences`, preceded by for example `\thisreferences{...}`.

## 6 Addresses

Usually addresses are merged with letters (and a background) to format letters. First we have to activate the `\letter` format. Similarly as with references and pictures you are requested to specify the address(es) and the addressee(s), next to other issues like `\subject` and `\ourreference`, `\yourreference`.

```
\input blue.tex \letter           % Preliminary initializations
\subject{\TeX{}} for BLU}
\ourreference{22 1 95}
\yourreference{\TB}
\addresses{\knuthde}
\addressee{\knuthde}              % Initializes \addressee name
                                   % \affiliationbox
                                   % \thisscript{\notlastscript}
\beginscript                       % \beginletter is an alias
\dear
First of all ...
...
\sincerely
%backmatter such as \ps, \cc
\endscript
```

It also possible to send out a letter to a bunch of people from the database, for example to all in the database.<sup>2</sup>

```
\input blue.tex \letter
\subject{\TeX{}} for BLU}
```

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2. The letter proper is assumed to be available in `letter.tex`.

```

\yourreference{\TB}
\ourreference{1 2 95}
\lettertoall
\bye

```

Apart from the above it is also desirable to manipulate addresses for address labels.

**Example:** Search for addresses from RUSSIA in the database address.dat

In order to justify my use of the word database in relation to T<sub>E</sub>X, I provided the search macro to browse the databases lit.dat and address.dat. Below the input has been given of the search of address.dat for the pattern RUSSIA. The result is contained in the toks variable \name1st. The names are also written to the log file to give you a check for whether the right names have been selected.

```

\input blue.tex
\searchfile{address}
\search{RUSSIA}
\bye

```

For the detailed use see the chapter Formats in the ‘Publishing with T<sub>E</sub>X,’ user’s guide.

## 7 And what about fields?

As can be seen from the conventions for the database entries I did not elaborate much on the database fields. However, there are a few nice exceptions. First, I allow for the markup tag \annotation with an argument. This gives us the possibility to add annotations to the literature entries. While typesetting we can control the layout via an appropriate definition of \annotation. Most of the time I use the empty definition, and occasionally the identity, i.e., the argument as such is typeset.

Another nice extension is to allow for logicals, for example \ifregisteredblue, with the functionality of a binary field. These ‘fields’ can be inserted in an address entry if you like. For ordinary use they don’t hinder. However, with the command \search{\registeredbluetrue} all the names of entries with the field on will be selected, i.e., all the registered users of BLUE’s Format system. For NTG this can be applied to monitoring the status of the payment of the subscription fee, if the treasurer thinks of letting T<sub>E</sub>X take care of the membership database.

## 8 What more?

As usual goodies like those mentioned above have their price. To extend a database needs some attention. First, because of the conventions adopted, and second, we have to do some more, also add storage allocations and the user interface commands. The addition of references, pictures and addresses is simple, once the convention for the

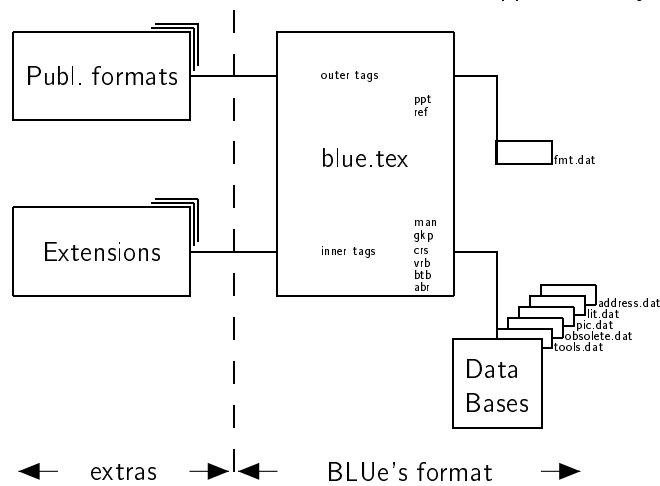
entries has been obeyed. For the details I refer to the appropriate places in PWT. It is advised to verify the database for its integrity via for example making a list of entries.<sup>3</sup>

The 'Publishing with  $\TeX$ ,' user's guide which comes with BLUE's Format system has been made available on the CTAN in directory `/pub/archive/info/pwt/<filename>`

Trivial details which are entailed by the personal format idea have been omitted as a consequence. Remember BLUE's Format system is a personalized format. It knows about you!

### 8.1 $\TeX$ nical details

The deeper aspects – like selective loading – have been treated in 'BLUE's format databases.' All the user aspects have been addressed in the earlier mentioned PWT guide. The picture which summarizes the model has been appended for your convenience.



### 8.2 Future work?

Perhaps, I should supply a selection macro which allows multiple queries.

3. The commands are `\contentstoolsorfmt`, or `\contentsdatabase{<database>}`, with for database address, lit, or pic.