

# L<sup>A</sup>T<sub>E</sub>X News

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## Introduction

*to write*

### News from the Tagged PDF project

#### *Expanding the `\DocumentMetadata` command*

In 2022 we introduced the `\DocumentMetadata` with a twofold purpose: to provide a dedicated place for document wide settings and metadata, and to act as a trigger command to identify documents that want to load new code. The latter allows the use of the new,

extended interfaces essential for the Tagging Project but also useful also without tagging.

Initially, using `\DocumentMetadata` with an empty argument loaded only the PDF management code and a new hyperref driver was used. Since November 2024 `\DocumentMetadata` changes the default encoding from OT1 to T1; and since June 2025 it also changes the default PDF version from 1.7 to 2.0.

Additional code in latex-lab (needed, e.g., for the tagging project) had to be loaded explicitly by using the `testphase` or the new `tagging` key in the argument of `\DocumentMetadata`. Whilst this allowed for the selective loading and testing of the new code, it also produced problems for classes and packages adapting their code for the tagging project since it was difficult to test which parts of the latex-lab code were active.

In this release we therefore extend `\DocumentMetadata` even further: it will now load directly all the code that one get also when using the `tagging=off` or the `testphase=latest` key.

The values `phase-I`, `phase-II`, `phase=III` of the `testphase` key will no longer load different code variants but only activate tagging. Extra modules not yet incorporated in the `latest` set of modules can still be loaded by using the `testphase` key.

For documents that want to load the PDF management but do not want the new tagging support code we provide a dedicated package. Such documents should replace

```

\DocumentMetadata{pdfversion=1.7,
  pdfstandard=a-3b}
by
\RequirePackage{pdfmanagement}
\SetKeys[document/metadata]{pdfversion=1.7,
  pdfstandard=a-3b}

```

#### *Requiring or testing for the Tagging support code*

Classes or packages that are written only for the new code loaded by `\DocumentMetadata` can use the new command `\NeedsDocumentMetadata` at the begin of the class or package file. It will produce a suitable error message if the tagging support code has not been loaded.

Classes and package that want to support both legacy documents and newer documents using `\DocumentMetadata` can now use `\IfDocumentMetadataTF` to test whether the new code has been loaded – eventually in combination with a test of the date of the format. To test whether

the PDF management has been loaded, the test `\IfPDFManagementActiveTF` is provided.

### *Moving paragraph tagging into sockets*

Paragraphs in  $\LaTeX$  can be nested, e.g., you can have a paragraph containing a display quote, which in turn consists of more than one (sub)paragraph, followed by some more text which all belongs to the same outer paragraph.

To model such “semantic paragraphs”  $\LaTeX$  uses a structure named `text-unit`<sup>1</sup> and use `text` (role mapped to P) only for (portions of) the actual paragraph `text`  $\LaTeX$ .

This is semantically clear and allows processors who care to identify the complete paragraphs by looking for `text-unit` tags. But we got also request for an option to disable the tagging of the “semantic paragraphs”, so with this release we moved the relevant tagging code into sockets. The “semantic paragraphs” can now be disabled by assigning the `noop` plug to these sockets:

```
\AssignTaggingSocketPlug{para/semantic/begin}
  {noop}
\AssignTaggingSocketPlug{para/semantic/end}
  {noop}
```

### *Hooks for `\includegraphics` keys*

The three keys definitions `alt`, `actualtext` and `artifact` used by `\includegraphics` contain now hooks, named `Gin/alt`, `Gin/actualtext`, and `Gin/artifact`<sup>2</sup>. The first two are hooks with two arguments and get as first argument the (with `\text_purify:n`) purified value of the key which is also used in the PDF and as second argument the raw value. The hooks are processed even if tagging is not activated. With them it is, for example, possible to store the alternative text:

```
\AddToHookWithArguments{Gin/alt}
  {\gdef\myaltttext{#2}}
\includegraphics[alt=Hello World]
  {example-image}
The alt text of the graphic was \myaltttext.
```

### *Symbolic structure names*

*to write*

### *Normalizing key names for block environments*

*to write*

### *Contexts in typesetting*

*to write if latex-lab-context makes it to the next stage before 2025/11/01*

<sup>1</sup>The name is under review and is likely to change in future.

<sup>2</sup>`Gin` refers to the family name used by keys in the `graphicx` package

### *MathML intent attributes*

Two new commands, `\MathMLintent` and `\MathMLarg` are added. They are defined in the format as no-op so they may be added to command definitions in packages. If `luamml` is enabled to generate MathML, these commands allow *intent* and *arg* attributes to be specified.

A definition such as

```
\newcommand\abs[1]{%
\MathMLintent{absolute-value($x)}
  {\lvert\MathMLarg{x}{#1}\rvert}}%
}
```

would cause `\abs{y}` to generate

```
<mrow intent="absolute-value($x)">
  <mo>|</mo><mi arg="x">y</mi><mo>|</mo>
</mrow>
```

which will allow AT to correctly read the ambiguous notation  $|y|$  as “the absolute value of  $y$ ” or some similar reading depending on the chosen language.

### *Correctly handle tagging of math in tabular cells*

Mathematical content in tabular cells was not correctly tagged when a MathML representation was automatically generated by  $\LaTeX$ . Also tabular preambles of the form `>{\$}c<{\$}` or `>{\(}c<{\(}` failed. This has been corrected. *(tagging-project issues 973 983)*

### *New or improved commands*

#### *Support separate font families for script fonts*

In  $\TeX$ 's math processing separate fonts can be selected for text, script and scriptscript sizes.  $\LaTeX$ 's NFSS traditionally uses the same font family at different sizes, handling adjustment needed for making fonts appear better in a script location through the use of optical sizes. This works great for traditional  $\TeX$  fonts, but for OpenType fonts this leads to issues. OpenType MATH assumes the font in a script location has separate features set and therefore received specific adjustments.

To support this without relying on heuristics based on the font size, a new command `\DeclareMathScriptfontMapping` has been added. It takes 3 pairs of encoding/family arguments to indicate that for the first pair when used as the math main font the second and the third should be used as the script and scriptscript font, respectively. *(github issue 1707)*

#### *Programming support for $\LaTeX$ 's font meta families*

$\LaTeX$  knows three main document font families: `\rmfamily` for the document's serified font family, `\sffamily` for its sans serif font family, and `\ttfamily` for its monospaced font family. In addition, other font families can be used by the user or in a document class or package by explicitly loading them through `\fontfamily{\name}\selectfont`.

In some cases it is helpful to know which of the three meta-families (if any) is currently used for typesetting, and this information is now made available for programmers in `\@currentmetafamily`. It returns either `rm`, `sf`, `tt`, or `??` (in case none of the meta-families is currently used).

As a small application of this, the  $\LaTeX$  kernel now also contains `\@restoremetafamily`. If the current metafamily is  $\langle name \rangle$  it executes `\langle name \rangle family`, e.g., `\sffamily`, and that then executes the hook `\langle name \rangle family` besides other re-initializations. This can be useful if that hook contains conditional code and the condition has changed and therefore requires re-initialization.

## Code improvements

### Avoid strange warnings about font substitutions

A font series value such as `sbc` contains both the weight (`sb`, i.e. “semibold”) and the width (`c`, i.e. “condensed”) of the font. If you want to reset only one of the two to “medium” and keep the other, you can use `\fontseries{m?}` or `\fontseries{?m}`: The former switches `sbc` to `c`, the latter switches `sbc` to `sb`. However, if the resulting series did not exist, you got strange warnings, e.g.:

```
LaTeX Font Warning:
Font shape 'OT1/cmss/c/n' undefined
using 'OT1/cmss/m?/n' instead on input line 7.
LaTeX Font Warning:
Font shape 'OT1/cmss/m?/n' undefined
using 'OT1/cmss/m/n' instead on input line 7.
```

This has now been corrected so that you get a single, more meaningful warning:

```
LaTeX Font Warning:
Font shape 'OT1/cmss/c/n' undefined
using 'OT1/cmss/m/n' instead on input line 7.
```

If the `m` series does not exist either, you will still get strange warnings, but this should only affect very few fonts. The source file was also tidied up a little on this occasion. (github issue 1727)

### Improved handling of infinite shrinkage errors

In the June 2024 release [4] we described the improved mark mechanism and the problems we had when working around  $\TeX$ 's “infinite shrinkage error”. By now the engines got a new primitive `\ignoreprimitiveerror` which can be used to turn this error into a warning, when, for example, you do only a trial splitting of a box. This noticeably improves the output in the `.log` file from

```
! Infinite glue shrinkage found in box being split.
<argument> Infinite shrink error above ignored !
1. ... }
```

The box you are `\vsplitting` contains some infinitely shrinkable glue, e.g., `'\vss'` or `'\vskip 0pt minus 1fil'`. Such glue doesn't belong there; but you can safely proceed, since the offensive shrinkability has been made finite.

to a simple

```
ignored error: Infinite glue shrinkage found in
box being split
```

As an important side effect, the return code from the  $\TeX$  run stays at 0 (unless there are real errors); so in workflows that want to test whether a  $\TeX$  run ended without errors, you don't get a bogus result because there is no longer an ignored error. (github issue 1750)

### Allow multiple family names in `\ProcessKeyOptions`

The ability to process key–value options was introduced into the kernel in the June 2022 release [3], with the command `\ProcessKeyOptions` carrying out the option assignment. In the original version, this takes an optional argument which can select one key family (namespace) for options. We have now extended this to take a comma list of possible families. (github issue 1756)

### Control of value expansion in keys

Normally, key–value input is treated “as is”, with no expansion of either key names or values. However, there are occasions when the expansion of selected values is useful. We have now extended the key handling for templates (`\DeclareInstance`, etc.) and for keys created using the L3 programming layer to allow selective expansion. In both cases, the syntax uses a trailing colon and a single letter specifier: these letters are those used in `\ExpandArgs` or the L3 programming layer. For example, to use the values of the  $\LaTeX 2\epsilon$  variable `\@itemdepth`, one could have settings

```
key-a:c = \@itemdepth ,
key-b:v = \@itemdepth
```

This facility will *automatically* be available in any package setup macro using the L3 programming layer, for example `siunitx`. (github issue 1801)

### Support word exclusion in case changing

Work on improving automatic case changing over previous releases has continued. We have now added the ability to ‘register’ words for exclusion from case changing, using `\DeclareLowercaseExclusions`, `\DeclareTitlecaseExclusions` and `\DeclareUppercaseExclusions`.

### Automatic insertion of `\par` tokens

Since 2022 the major  $\TeX$  engines have a parameter, `\partokencontext`, that controls whether a `\par` token is added if  $\TeX$  is in horizontal mode at the end of `\vbox` and similar contexts. This gives more control than the

classical behaviour where the internal *end paragraph* routine is invoked with no explicit token being added.

This allows the paragraph hooks to detect the end of paragraph even in contexts such as at the end of a `\vbox`, where traditionally package code has had to be modified to add an explicit `\par`. This is expected to improve compatibility of existing packages with the tagging code.

L<sup>A</sup>T<sub>E</sub>X now sets this parameter to 2 by default to enable automatic insertion of `\par`. (*github issue 1864*)

## Bug fixes

### Support active characters correctly with `\DeclareRobustCommand`

The mechanism used by `\DeclareRobustCommand` creates an internal command which has a space added to the name of the document one: so `\foo_` for a command `\foo`. That fails if applied to an active character: unlike normal commands, these have to be exactly one character long. Due to the way the implementation works, to date this would result in redefining `\_` every time `\DeclareRobustCommand` was used with an active character. This has now been corrected: robust active characters are now created using the engine `\protected` mechanism and do not use an internal auxiliary. They still work in file names and labels to give the character itself. (*github issue 345*)

### Avoid a “Corrupted NFSS tables” error

When a character with an accent is typeset, say “ä” or “é”, it might be the case that it doesn’t exist in the font but has to be constructed from the base character and a standalone accent. If that accent is also not available in the font then L<sup>A</sup>T<sub>E</sub>X attempts to find it in a different font, typically one in a different encoding, e.g., OT1. Unfortunately, when that involved font substitutions it resulted in a loop generating the mentioned error. This has now been corrected by adding necessary `\DeclareFontSubstitution` statements.

(*github issue 1709*)

## Changes to packages in the tools category

### Updating the status of some components

The tools bundle contains a range of packages with different usage profiles. Some of these were necessary in the transition from L<sup>A</sup>T<sub>E</sub>X 2.09 to L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub>, while others are very widely used in current documents (for example `array`). We have therefore marked a small number of packages in tools as *retained only for historical and stability reasons*, and where relevant pointed to more up-to-date alternatives; the list is:

- `enumerate`: use `enumitem` instead
- `rawfonts`: retained as part of L<sup>A</sup>T<sub>E</sub>X 2.09 support

- `somedefs`: retained as part of L<sup>A</sup>T<sub>E</sub>X 2.09 support
- `theorem`: use `amsthm` instead
- `verbatim`: use `fancyvrb` instead

## References

- [1] Leslie Lamport. *L<sup>A</sup>T<sub>E</sub>X: A Document Preparation System: User’s Guide and Reference Manual*. Addison-Wesley, Reading, MA, USA, 2nd edition, 1994. ISBN 0-201-52983-1. Reprinted with corrections in 1996.
- [2] L<sup>A</sup>T<sub>E</sub>X Project Team. *L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub> News 1–42*. November 2025. <https://latex-project.org/news/latex2e-news/1tnews.pdf>
- [3] L<sup>A</sup>T<sub>E</sub>X Project Team. *L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub> News 35*. June 2022. <https://latex-project.org/news/latex2e-news/1tnews35.pdf>
- [4] L<sup>A</sup>T<sub>E</sub>X Project Team. *L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub> News 39*. June 2024. <https://latex-project.org/news/latex2e-news/1tnews39.pdf>
- [5] L<sup>A</sup>T<sub>E</sub>X Project Team. *L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub> News 41*. June 2025. <https://latex-project.org/news/latex2e-news/1tnews41.pdf>