**LuaTEX**

This LuaTEX release sees several internal changes designed to ensure that the system is still usable with LuaTEX versions greater than 0.80, which have introduced many changes into the engine, most notably the removal or renaming of most of the primitive commands introduced by pdfTEX. Also the lists of Lua callbacks handled by the callback allocation mechanism has been updated to match the callbacks defined in LuaTEX version 0.90.

These changes have also required updates in `tools` and `amsmath` as described below.

This is the first release of LuaTEX for which the test suite reports no failures when used with LuaTEX.

**Documentation checksums**

The `doc` package has always provided two mechanisms that were mainly intended to guard against file truncation or corruption when files were commonly distributed by email through unreliable mail gateways: a Character Table of the ASCII character set could be inserted (and checked) and a "checksum" (count of the number of backslashes in the code sections) could be checked. These features are not really needed with modern distribution mechanisms and can be a distraction when reading the source code and so have been removed. The `doc` package has been updated so that if you use a `\CheckSum` command then, as before, the number is checked; however, if you omit the command then no error or warning is given.

**Updates to inputenc**

The UTF-8 support in `inputenc` has been further extended with support for non-breaking hyphens and more dashes.

**Updates in Tools**

The `varioref` package has been updated with improved documentation of multilingual support, and avoiding unnecessary warnings in some cases with `\reftextfaraway`.

The `tabularx` package's handling of `\endtabularx` in environment definitions has been fixed to again match its documentation.

The `bm` package has been updated as required by the changes to `\mathchardef` in LuaTEX.

**amsmath**

Since the launch of \LaTeX{} 2ε in 1993, the amsmath bundle has been part of the required packages in the core \LaTeX{} distribution, with bug reports handled by the \LaTeX{} bug database at [https://latex-project.org/bugs-upload.html](https://latex-project.org/bugs-upload.html).

The amsmath packages and the amscls classes have been maintained by the American Mathematical Society.

With this release a new arrangement has been agreed between the American Mathematical Society and the \LaTeX{}X3 project. The \LaTeX{}X3 project will take over maintenance of the amsmath bundle, with the American Mathematical Society retaining maintenance of amscls.

The recommended installation of these files in the \TeX{} directory structure remains unchanged as `tex/latex/amsmath` and `tex/latex/amscls` respectively.

This release of amsmath includes several updates so that amsmath does not generate errors when math is used with LuaTEX v0.87+, which has changes to \mathchardef that are incompatible with the previous version of amsmath. It also improves \dott{t} handling so that \dott{long} macros are correctly handled (for example, \dott{Rightarrow} now uses centered dots), as well as commands expanding to character tokens (for example, \times \dott{times} will use centered dots with \times defined as in the unicode-math package).

**Related updates**

In addition to the updates in the core \LaTeX{} release, some files in the CTAN "contrib" area have also been updated. Notably there have been further updates to the unicode-data files; also, the files required to build plain and \LaTeX{} formats have now been submitted to CTAN as tex-ini-files. The addition of a new luatex option for graphics-related packages (luatex-def on CTAN) has required updates to the configuration files to select a default option and these have similarly been uploaded to CTAN as graphics-cfg. (Previously these files were maintained directly in the \TeX{} Live repository, and were not available on CTAN.)