**Lua\TeX**

This \LaTeX{} release sees several internal changes designed to ensure that the system is still usable with Lua\TeX{} 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 pdf\TeX{}. Also the lists of Lua callbacks handled by the callback allocation mechanism has been updated to match the callbacks defined in Lua\TeX{} version 0.90.

These changes have also required updates in tools and \texttt{amsmath} as described below.

This is the first release of \LaTeX{} for which the test suite reports no failures when used with Lua\TeX{}.

**Documentation checksums**

The \texttt{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 \texttt{doc} package has been updated so that if you use a \texttt{\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 \texttt{inputenc} has been further extended with support for non-breaking hyphens and more dashes.

**Updates in Tools**

The \texttt{varioref} package has been updated with improved documentation of multilingual support, and avoiding unnecessary warnings in some cases with \texttt{\ref{textfaraway}}.

The \texttt{tabularx} package’s handling of \texttt{\end{tabularx}} in environment definitions has been fixed to again match its documentation.

The \texttt{bm} package has been updated as required by the changes to \texttt{\mathchardef} in Lua\TeX{}.

**amsmath**

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

The \texttt{amsmath} packages and the \texttt{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{}3 project. The \LaTeX{}3 project will take over maintenance of the \texttt{amsmath} bundle, with the American Mathematical Society retaining maintenance of \texttt{amscls}.

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

This release of \texttt{amsmath} includes several updates so that \texttt{amsmath} does not generate errors when math is used with Lua\TeX{} v0.87+, which has changes to \texttt{\mathchardef} that are incompatible with the previous version of \texttt{amsmath}. It also improves \texttt{\flushin} handling so that \texttt{\long} macros are correctly handled (for example, \texttt{\flushin \Rightarrow} now uses centered dots), as well as commands expanding to character tokens (for example, \texttt{\times \dots \times} will use centered dots with \texttt{\times} defined as in the \texttt{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 \texttt{unicode-data} files; also, the files required to build plain and \LaTeX{} formats have now been submitted to CTAN as \texttt{tex-ini-files}. The addition of a new \texttt{luatex} option for \texttt{graphics-related packages} (\texttt{luatex-def} on CTAN) has required updates to the configuration files to select a default option and these similarly have been uploaded to CTAN as \texttt{graphics-cfg}. (Previously these files were maintained directly in the \TeX{} Live repository, and were not available on CTAN.)