

# Changes in R

In version 3.1.2

by the R Core Team

## CHANGES IN R 3.1.2

### NEW FEATURES

- `embedFonts()` now defaults to `format = "ps2write"` for `‘.ps’` and `‘.eps’` files. This is available in Ghostscript 9.x (since 2010) whereas the previous default, `format = "pswrite"`, was removed in Ghostscript 9.10.
- For consistency with `[dpqr]norm()`, `[dp]lnorm(sdlog = 0)` model a point mass at `exp(mu log)` rather than return `NaN` (for an error).
- `capabilities()` now reports if ICU is compiled in for use for collation (it is only actually used if a suitable locale is set for collation, and never for a C locale).
- (OS X only.) Package `tktk` checks when loaded if it is linked against the CRAN X11-based Tcl/Tk and if so that the Tcl/Tk component and the X11 libraries are installed. This allows more informative error messages to be given advising the installation of the missing component or of XQuartz.

The X11() device and X11-based versions of the data editor and viewer (invoked by `edit()` and `View()` for data frames and matrices from command-line R) check that the X11 libraries are installed and if not advises installing XQuartz.

- `icuSetCollate()` allows `locale = "default"`, and `locale = "none"` to use OS services rather than ICU for collation.  
Environment variable `R_ICU_LOCALE` can be used to set the default ICU locale, in case the one derived from the OS locale is inappropriate (this is currently necessary on Windows).
- New function `icuGetCollate()` to report on the ICU collation locale in use (if any).
- `utils::URLEncode()` was updated to use unreserved and reserved characters from RFC 3986, <http://tools.ietf.org/html/rfc3986>, instead of RFC 1738.
- `unique(warnings())` and `c(warnings())` are now supported.
- The Bioconductor `‘version’` used by `setRepositories()` now defaults to 3.0. (It can be set at runtime *via* environment variable `R_BIOC_VERSION`.)

### INSTALLATION and INCLUDED SOFTWARE

- The configure script reports on the more important capabilities/options which will not be compiled in.  
More types of external BLAS are recognized by name in that report.
- When building R as a shared library, the `‘-L${R_HOME}/lib${R_ARCH}’` flag is placed earlier in the link commands used during installation and when packages are installed: this helps ensure that the current build has priority if an R shared library has already been installed by e.g. `install-libR` in a library mentioned in `LD_FLAGS` (and not in `‘your system’s library directory’` as documented). (Wish of PR#15790.)
- LaTeX package `upquote` is no longer required for R’s use of `inconsolata`.
- (Windows only) If both 32 and 64 bit versions of R are installed, the `‘bin/R.exe’` and `‘bin/Rscript.exe’` executables now run 64 bit R. (To run 32 bit R, overwrite these files with copies of `‘bin/i386/Rfe.exe’`.)

## UTILITIES

- Running R CMD check with `_R_CHECK_DEPENDS_ONLY_` true now makes the ‘VignetteBuilder’ packages available even if they are listed in ‘Suggests’, since they are needed to recognise and process non-Sweave vignettes.
- R CMD check now reports empty `importFrom` declarations in a ‘NAMESPACE’ file, as these are common errors (writing `importFrom(Pkg)` where `import(Pkg)` was intended).
- R CMD check now by default checks code usage directly on the package namespace without loading and attaching the package and its suggests and enhances. For good practice with packages in the ‘Suggests’ field, see §1.1.3.1 of ‘Writing R Extensions’. For use of lazy-data objects in the package’s own code, see `?data`.

## BUG FIXES

- `dmultinom()` did not handle non-finite probabilities correctly.
- `prettyNum(x, zero.print=*)` now also works when `x` contains NAs.
- A longstanding bug exhibited by `nLminb()` on Windows was traced to a compiler bug in gcc 4.6.3; a workaround has been put in place. (PR#15244 and PR#15914).
- Rendering of `\command` in HTML versions of help pages has been improved: this is particularly evident on the help page for `INSTALL`.
- `as.hexmode(x)` and `as.octmode(x)` now behave correctly for some numeric `x`, e.g., `c(NA, 1)` or `c(1, pi)`.
- `drop1()` failed if the scope argument had no variables to drop. (PR#15935)
- `edit()` (and hence `fix()`) failed if an object had a non-character attribute named “source” (an attribute that had been used in R prior to version 2.14.0).
- `callGeneric()` could fail if the generic had `...` as a formal argument. (PR#15937).
- Forking in package **parallel** called C entry point `exit` in the child. This was unsafe (`_exit` should have been called), and could flush `stdin` of the main R process (seen most often on Solaris).  
As good practice, `stdout` is now flushed before forking a child.
- R objects such as `list(`a\b` = 1)` now print correctly.
- `getAnywhere("C_pbinom")` now returns correctly a single object (rather than unlisting it).
- The `confint()` method for `nls()` fits failed if these has specified parameter limits despite using an algorithm other than “port”. (PR#15960)
- Subclassing an S4 class failed if the class required arguments to the generator, through its `initialize()` method.
- `removeSource()` did not properly handle expressions containing arguments that were supplied as missing, e.g. `x[i, ]`. (PR#15957)
- `as.environment(list())` now works, and `as.list()` of such an environment is now the same as `list()`.
- Several `tcltk` functions failed when run in unusual environments. (PR#15970)
- `options(list())` now works (trivially). (PR#15979)

- `merge(<dendrogram>, . . .)` now works correctly for two ‘independent’ dendrograms (PR#15648), and still compatibly via `adjust = "auto"` e.g. for two branches of an existing dendrogram.
- The `plot` method for `"hclust"` objects gets an optional argument `check`; When that is `true` (the default) it checks more carefully for valid input.
- (Windows only) If a user chose to install 64 bit R but not 32 bit R, the ‘bin/R’ and ‘bin/Rscript’ executables failed to run. (PR#15981)
- Various possible buffer overruns have been prevented, and missed memory protection added. (PR#15990)
- `Rscript` no longer passes `--args` to R when there are no extra (“user”) arguments.
- objects like `getClass("refClass")@prototype` now `print()` and `str()` without error.
- `identical()` now also looks at the S4 bit.
- `hist(x, breaks)` is more robust in adding a small fuzz to few breaks when some are very large. (PR#15988)
- `sub()` and `gsub()` did not handle regular expressions like `"\s{2,}"` properly if the text contained NA or non-ascii elements in a UTF-8 locale. Part of this was due to a bug in the TRE library. (PR#16009)
- `RShowDoc("NEWS")` now displays the PDF version.
- Matrices and arrays with last dimension zero did not print at all or incompletely. (PR#16012)
- `plot.histogram()` and hence `hist()` now respect the `xaxs`, `yaxs` and `lab` graphics parameters. (PR#16021)
- `bw.SJ(x)` and other `bw.*()` no longer segfault when `x` contains non-finite values. (PR#16024)
- R CMD `Rd2pdf` unintentionally ignored its ‘`--os`’ option.
- The internal method of `download.file()` was not reporting file sizes and progress correctly on files larger than 2GB (inherited from `libxml2`). This is corrected for 64-bit builds (32-bit platforms may not support such files, but where possible will be supported in future versions of R).
- Work around a bug in OS X Yosemite where key environment variables may be duplicated causing issues in subprocesses. The duplicates are now removed on R startup (via `Rprofile`). (PR#16042)
- Adjust X11 auto-launch detection in `DISPLAY` on OS X to recognize latest XQuartz.