Packaging *R* for Ubuntu: Recent Changes and Future Opportunities

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Ubuntu is a GNU/Linux distribution based on Debian Linux that has become popular on desktops, servers, and in cloud-based environments. In addition to being free and open source, one of the important features of Ubuntu is the packaging system. The packaging system allows users and administrators to easily install and update software packages while automatically handling the software dependencies that may be needed in order for the software to run.

CRAN currently has binary packages of the latest versions of *R* as well as the recommended *R* packages in both 32-bit (i386) and 64-bit (amd64) versions for a number of Ubuntu releases, including the latest two long term service (LTS) releases. Due to changes in hardware availability, the building process for these packages has changed. In this presentation, I will detail how the build process has moved from personal servers to Launchpad, a suite of tools provided by Ubuntu. Launchpad includes the ability to build binary packages for a variety of different architectures and Ubuntu releases. These builds are then synced to CRAN, allowing them to be mirrored on various servers across the world.

However, even with the strong packaging system of Ubuntu, only a small number of the 2,000 plus *R* packages are available via CRAN or the main Ubuntu repositories. Installing additional packages can be done within *R*, but this sometimes requires tracking down the required libraries in Ubuntu. In addition, once these packages are installed they are not automatically updated during Ubuntu system updates, which may cause users to miss bug fixes or feature updates. In order to make more packages available to *R* users via Ubuntu, I will also discuss the possibility of using Launchpad as the back-end of an automated package building system for Ubuntu. Using components of cran2deb, developed by Charles Blundell and Dirk Eddelbuettel, it should be possible to create the source packages on a single server and allow Launchpad do to the heavy lifting of building the packages for multiple architectures. Initially, the number of packages available will be limited to some of the more popular packages (e.g. **ggplot2**) and those packages used in popular *R* references. While this type of resource will be helpful for users new to *R* and Ubuntu, an additional goal is to provide the packages needed to easily deploy *R* in cloud-based Ubuntu environments.

References

cran2deb website: *http://debian.cran.r-project.org/*

Launchpad website: *https://launchpad.net/*