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Shipping Environmental Software as R Packages

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Abstract: This talk shares recent experience of packaging an existing open-source simulation engine for use in the R environment. R has become popular in many sectors, including environmental analysis, and the number of packages providing add-on functionality continues to grow rapidly. R packages conform to a well-defined structure and so have common attributes with respect to reuse and interoperability. These features made R a good fit for the four goals of our project: (1) The software should be straightforward to obtain and operate on several computing platforms especially Windows, Mac and Linux. (2) To drive re-use, the software should have documentation covering all user visible functions and including some examples. (3) The software should be obtainable and useable in several commercial cloud computing environments. (4) Finally, it should be possible to achieve some degree of parallelization of simulations. The process of packaging a simulation engine for R revealed several lessons for the practice of environmental software development. One key lesson is that environmental software shares many attributes with scientific software from other domains. Environmental scientists can thus benefit from tools and processes adopted from other areas. We share this and other lessons and assess the merits and limitations of shipping environmental software for R.

Keywords: R, open-source, environmental-simulations