

# A Validation/Qualification Solution for *R*

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To date, *R* is not widely used in regulated environments, e.g., clinical trials for pharmaceuticals and medical devices. A common misperception exists that *R* cannot support the various regulatory requirements for validation/qualification. We present a straightforward framework for successfully complying with regulatory software validation requirements including FDA 21 CFR Part 11 and other GxP documents. Recognizing that validation/qualification applies to the software and to its installation and operation, we present a solution that facilitates qualification of an *R* installation to meet IQ/OQ/PQ standards. We cite previous *useR!* proceedings on the topic, and discuss the combination of factors enabling growth in the use of *R* in regulated environments, including guidance from the R Foundation and the availability of tools supporting validation/qualification.

## References

- FDA (2010). Code of Federal Regulations Title 21, Part 11, <http://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfcfr/cfrsearch.cfm?cfrpart=11>.
- Harrell, Frank E Jr. (2007). R for Clinical Trial Reporting: Reproducible Research, Quality and Validation. *useR! 2007 (Iowa State University)*, <http://biostat.mc.vanderbilt.edu/wiki/pub/Main/FHHandouts/dmcreport.pdf>.
- R Foundation for Statistical Computing (2008). R: Regulatory Compliance and Validation Issues, A Guidance Document for the Use of R in Regulated Clinical Trial Environments, <http://www.r-project.org/doc/R-FDA.pdf>.
- Schwartz, Marc (2007). Use of R in Clinical Trials and Industry-Sponsored Medical Research. *useR! 2007 (Iowa State University)*, <http://user2007.org/program/presentations/schwartz.pdf>.