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RMarkdown and Git for Collaborative Actuarial Analysis

Collaboration between actuaries presents certain hurdles, including reproducibility of shared results, updating documentation, and file sharing and versioning. This session will discuss two open-source tools that help overcome these hurdles: RMarkdown and git.

RMarkdown provides two great benefits to an actuary

1. Literate programming – The documentation of the analysis becomes integrated with the analysis itself
2. Reproducibility – The analysis may be reproduced by someone other than the original author

When actuaries use spreadsheets (e.g., Excel), the documentation is usually in a different environment (e.g., Word or PowerPoint). The actuary must constantly update several documents to ensure consistency between exhibits and the narrative which supports them. Text which clarifies the intent and operation of complex calculations is often difficult to find or absent. This creates operating risk to the actuary and the Principal, as well as lost opportunity to both in meeting the emerging requirements of auditors, management, and regulatory regimes such as Solvency II.

Git, invented by Linus Torvalds to handle development of his more famous software, Linux, has become the most widely used version control system for software development. Graphical user interfaces (GUIs) have made git more accessible to less technical folks, and its Windows implementation is almost "magical."

The session will walk through examples in the context of a reserve analysis.