A roadmap for the Rodin toolset[*]
Version 1.0: 12 June 2008

Jean-Raymond Abrial[1], Michael Butler[2], Stefan Hallerstede[2], and Laurent Voisin[3]

[1] ETH Zurich, Switzerland, `jabrial@inf.ethz.ch`
[2] University of Southampton, United Kingdom, {`mjb,sth`}`@ecs.soton.ac.uk`
[3] Systerel, France, `laurent.voisin@systerel.fr`

Event-B is a formal method for system-level modelling and analysis. Key features of Event-B are the use of set theory as a modelling notation, the use of refinement to represent systems at different abstraction levels and the use of mathematical proof to verify consistency between refinement levels.

The Rodin Platform[4] is an Eclipse-based toolset for Event-B that provides effective support for refinement and mathematical proof. Keep aspects of the are support for abstract modelling in Event-B; support for refinement proof; extensibility; open source. To support modelliing and refinement proofs Rodin contains a modelling database surrounded by various plug-ins: a static checker, a proof obligation generator, automated and interactive provers. The extensibility of the platform has allowed for the integration of various plug-ins such as a model-checker (ProB), animators, a UML-B transformer and a LaTeX generator. The database approach provides great flexibility, allowing the tool to be extended and adapted easily. It also facilitates incremental development and analysis of models. The platform is open source, contributes to the Eclipse framework and uses the Eclipse extension mechanisms to enable the integration of plug-ins.

In its present form, Rodin provides a powerful and effective toolset for Event-B development and it has been validated by means of numerous medium-sized case studies. Naturally further improvements and extensions are required in order to improve the productivity of users further and in order to scale the application of the toolset to large industrial-scale developments. A roadmap has been produced which outlines the planned extensions to the Rodin toolset over the coming years. The roadmap[4] covers the following issues: model construction; composition and decomposition; team-based development; extending proof obligations and mathematical language; proof and model checking; animation; requirements handling and traceability; document management; automated model generation.

---

[4] Available from www.event-b.org