Modelling Software-based Systems

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Abstract

The Event-B method is based on a modelling language used to describe state-based models and safety properties of those state-based models. The originality of Event-B lies in its ability to enable incremental and proof-based modelling of *reactive systems*. The Event-B language contains both set notations and a first-order predicate calculus; it offers the possibility of defining models of reactive systems called machines and contexts and includes the refinement relationship that allows us to follow an incremental development methodology.

This site contains resources relating to the use of the Event-B language and the Rodin platform to verify contracts for a small sequential programming language. We give the Rodin models and a description of these models in the form of a text LaTeX.

1 Documentation

- The chapter [**?**] (from [**?**].) authored by Dominique Cansell and Dominique Méry, and entitled *The Event-B Modelling Method: Concepts and Case Studies* has benne published from lectures notes given in a Summer Schooll and you can use it for getting details from Event-B see the following link.

2 Course MCFSI at Telecom Nancy

- Lectures Notes *The Modelling Language* at the following link.
- Slides of the course
  - Lecture 1 The Modelling Language Event-B.
  - Lecture 2 Proof Obligations.
  - Lecture 3 Correctness by Construction with the Modelling Language Event-B using the Refinement.
  - Lecture 4 Access Control
- Tutorials

  - Tutorial 1 Using the Event-B modelling language.

- The Event-B models are at the link for Event-B .
- Slides for the tutorial at Tutorial May 2, 2025.

References

[1] Dines Bjørner and Martin C. Henson, editors. *Logics of Specification Languages*. EATCS Textbook in Computer Science. Springer, 2007.

[2] Dominique Cansell and Dominique Méry. *The event-B Modelling Method: Concepts and Case Studies*, pages 33–140. Springer, 2007. See [**?**].