

veriT

An open, trustable and efficient SMT-solver

<http://www.verit-solver.org>

Authors. The veriT solver is jointly developed by University of Nancy, INRIA (Nancy, France) and Federal University of Rio Grande do Norte (Natal, Brazil). The main developers are

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System description. The veriT solver is an SMT (Satisfiability Modulo Theories) solver developed within the Decert project. veriT provides an open, trustable and reasonably efficient decision procedure for the logic of unquantified formulas over uninterpreted symbols, difference logic over integer and real numbers, and the combination thereof. This corresponds to the logics identified as QF_IDL, QF_RDL, QF_UF and QF_UFIDL in the SMT-LIB benchmarks [3, 1]. veriT also includes quantifier reasoning capabilities through the integration of a first-order prover and quantifier instantiation heuristics. The veriT solver has proof-production capabilities; it outputs proofs that may be used or checked by external tools. This last feature is most important in the context of the Decert project, where deduction tools have to cooperate and provide certificates for their proofs.

Highlights in 2009. Year 2009 has seen the first public release of the veriT solver. The tool is available as open source under the BSD license, and is downloadable from the web site <http://www.verit-solver.org>. It entered the international competition of SMT solvers SMT-COMP 2009, a joint event with the SMT workshop 2009 and the Conference on Automated Deduction (CADE). It performed decently against the other participating SMT solvers. A description paper of the solver has been presented at the CADE conference on automated deduction [2]. The arithmetic reasoning capabilities of the tool are currently being greatly extended, with the implementation of a tuned simplex-based decision procedure.

References

- [1] C. Barrett, L. de Moura, and A. Stump. SMT-COMP: Satisfiability Modulo Theories Competition. In K. Etessami and S. Rajamani, editors, *17th International Conference on Computer Aided Verification*, pages 20–23. Springer, 2005.

- [2] T. Bouton, D. C. B. de Oliveira, D. Déharbe, and P. Fontaine. veriT: an open, trustable and efficient SMT-solver. In R. Schmidt, editor, *Proc. Conference on Automated Deduction (CADE)*, volume 5663 of *Lecture Notes in Computer Science*, pages 151–156, Montreal, Canada, 2009. Springer. Accepted.
- [3] S. Ranise and C. Tinelli. The SMT-LIB standard : Version 1.2, Aug. 2006.