chist-era SUCCESS

M5.2 (M8): Open Source Repository

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[1]MD = management document; TR = technical report; D = deliverable; P = published paper; CD = communication/dissemination.
[2]PU = Public; PP = Restricted to other programme participants (including the Commission Services); RE = Restricted to a group specified by the consortium (including the Commission Services); CO = Confidential, only for members of the consortium (including the Commission Services).
[3]This code is constructed as described in the H2020 Project Handbook.

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REVISION HISTORY

Date	Version	Author	Modification
30.11.2018	1.0	F. Kammüller	Started the document, set up GitHub
1.12.2018	1.0	F. Kammüller	Added link in for Isabelle Infrastructure framework
2.12.2018	1.1	F. Kammüller	Added link in for SBIP framework
4.12.2018	1.1	S. Bensalem	Approval
22.3.2019	1.2	I. D. Cristescu	Added paragraph on toolchaing
27.3.2019	1.3.	F. Kammüller	Added links to ecternal demo videos

APPROVALS

Role	Name	Partner	Date
UGA	S. Bensalem	Approver	

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1 Executive Summary

We give here the details of an Open Source repository `https://github.com/success-iot` for the software, specification, and verification scripts and proofs of the Project.

2 Open Source Repository

In this section, we give short descriptions of the software provided. This document is put as a public output of the Project itself on the SUCCESS open source software account at `https://github.com/success-iot`. The document contains links to other repositories but the account may itself be used for software of the project.

- Isabelle Insider framework [1]: the entire formalisation of this framework and the application examples from the SUCCESS IoT healthcare case studies are here `https://github.com/flokam/IsabelleAT`.
- BIP-SMC : A Statistical Model Checking Engine for the BIP framework [2].

  BIP-SMC is a Statistical Model Checker, a tool for formal modeling and statistical analysis of systems exhibiting stochastic behaviors.

  Models subject to SMC analysis are described in the stochastic BIP language, a component-based formal language. They can have as underlying semantics DTMCs, CTMCs, and GSMPs. Properties to be verified can be specified in Probabilistic Bounded LTL and MTL. In addition to classical SMC algorithms (Hypothesis Testing and Probability Estimation), SBIP provides a parametric exploration (PX) in addition to a recent support for rare events analysis (IP).

  Documentation and download at

  `http://www-verimag.imag.fr/BIP-SMC-A-Statistical-Model-Checking`.

  A video demonstrating using the tool is at

  `https://drive.google.com/file/d/1TPKej6JD1D1Bt0ZnK3evQ4K8bDkCcjra/view`
- the IoT modeling for security framework consists of a formal language for modeling IoT systems and attack trees. A model is transformed into a BIP system which is then simulated and analysed using Plasma, a statistical model checker. The framework is available at `http://iot-modeling.gforge.inria.fr`.

  A video showing the use of this tool chain is available at

  `https://drive.google.com/file/d/1vgnM0G6ArYz3AIGpxUZQ5ucqaVos-WXh/view`

3 Conclusion

Open Source repository has been created for SUCCESS under a dedicated GitHub account.

Bibliography

[1] F. Kammüller. Attack trees in isabelle. In *20th International Conference on Information and Communications Security*, volume 11149 of *LNCS*. Springer, 2018.

[2] B. L. Mediouni, A. Nouri, M. Bozga, M. Dellabani, A. Legay, and S. Bensalem. *S* BIP 2.0: Statistical model checking stochastic real-time systems. In S. K. Lahiri and C. Wang, editors, *Automated Technology for Verification and Analysis - 16th International Symposium, ATVA 2018, Los Angeles, CA, USA, October 7-10, 2018, Proceedings*, volume 11138 of *Lecture Notes in Computer Science*, pages 536–542. Springer, 2018.