

WASMGuard - Security framework for WASM-based Smart Contracts

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As smart contracts become increasingly integral to blockchain solutions, their ability to automate decisions and optimize processes is gaining significant importance. However, the inherent complexity of smart contracts introduces vulnerabilities that can be exploited by malicious actors.

We present WASMGuard, a security framework applicable to any WebAssembly (WASM)-based blockchain solution, designed to enhance the security of smart contracts. At the core of this framework is a static analyzer capable of identifying vulnerabilities in smart contracts written and compiled in WASM. By automating the verification process from the compilation phase, the tool mitigates the risk of human error, which is often prevalent during the manual development and testing phases. To validate the framework, we applied it to MultiversX blockchain solution as a case study. WASMGuard aims to reduce security risks and improve the reliability of smart contracts across WASM-based blockchain ecosystems.

Authors: Ms IALANGI, Bianca-Elena (Universitatea Națională de Știință și Tehnologie POLITEHNICA București); CARABAS, Costin (University POLITEHNICA of Bucharest); Mr ȚURCANU, Dinu (Technical University of Moldova, Faculty of Computers, Informatics and Microelectronics); TAPUS, Tapus (Computer Science, Politehnica University of Bucharest, Romania. Soran Technical College, Erbil Polytechnic University, Iraq)

Presenter: Ms IALANGI, Bianca-Elena (Universitatea Națională de Știință și Tehnologie POLITEHNICA București)

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