PragmaDev Studio V6.1 introduces advanced state space reduction capabilities for faster and more efficient model exploration.

Paris - France - June 9th, 2026 - PragmaDev today announced the release of PragmaDev Studio V6.1, featuring significant enhancements to model exploration and state space reduction. These new capabilities further strengthen PragmaDev Studio's position as a leading tool for model checking and formal verification, enabling engineers to analyze complex systems more efficiently than ever before.

The primary objective of model checking is to explore all possible execution scenarios within a model. This exhaustive analysis not only helps identify deadlocks, detect unreachable branches, and verify critical system properties, but also significantly improves model coverage by ensuring that all states, transitions, and execution paths are systematically examined. By revealing portions of the model that are never exercised and validating expected behaviors under a wide range of conditions, model checking contributes to safer, more reliable, and more secure system designs.

Building on a long-standing collaboration with the ENSTA Bretagne research laboratory, PragmaDev previously integrated the Observer Based Prover (OBP) model checker into PragmaDev Studio V6. OBP offers a unique approach to formal verification by avoiding the need for a dedicated modeling language. Instead, it relies on an external execution engine to perform model exploration.

Within PragmaDev Studio, OBP interacts directly with PragmaDev SDL execution engine to execute model transitions. As a result, OBP remains completely independent of the model structure itself. The same principle applies to property verification: complex properties are decomposed into atomic properties, which are evaluated by the execution engine during exploration.

Communicating systems naturally generate a vast number of execution scenarios due to their concurrent state machine architecture. The resulting state space can grow rapidly, making exhaustive exploration increasingly challenging.

To address this challenge, PragmaDev Studio V6.1 introduces new and enhanced state space reduction techniques that significantly improve exploration efficiency while preserving verification effectiveness. These capabilities include:

- **Reducing the range of possible values for complex parameters carried by incoming messages.**
- **Limiting the number of incoming messages considered for each message type.**
- **Automatically identifying internal variables that can be excluded from the global model state without affecting verification results.**

By narrowing the explored state space, these enhancements enable engineers to verify larger and more complex systems, accelerate analysis, and focus on the most relevant execution scenarios.

With these innovations, PragmaDev Studio V6.1 delivers its most powerful model exploration capabilities to date, helping development teams achieve higher levels of confidence in the correctness, safety, and security of their system designs.

About PragmaDev

PragmaDev is a privately held company based in Paris France that provides two sets of tools: PragmaDev Process to describe, verify and optimize business processes, and PragmaDev Studio to specify and design communicating systems: PragmaDev customers include Airbus, Nokia, Renault, the French Army, Wipro, ST-Microelectronics, Korean Telecom, the European Space Agency, Toshiba, and LG Electronics.

Contact

Emmanuel Gaudin
PragmaDev
Tel: +33 1 42 74 15 38
http://www.pragmadev.com