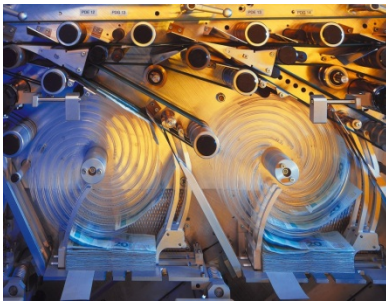




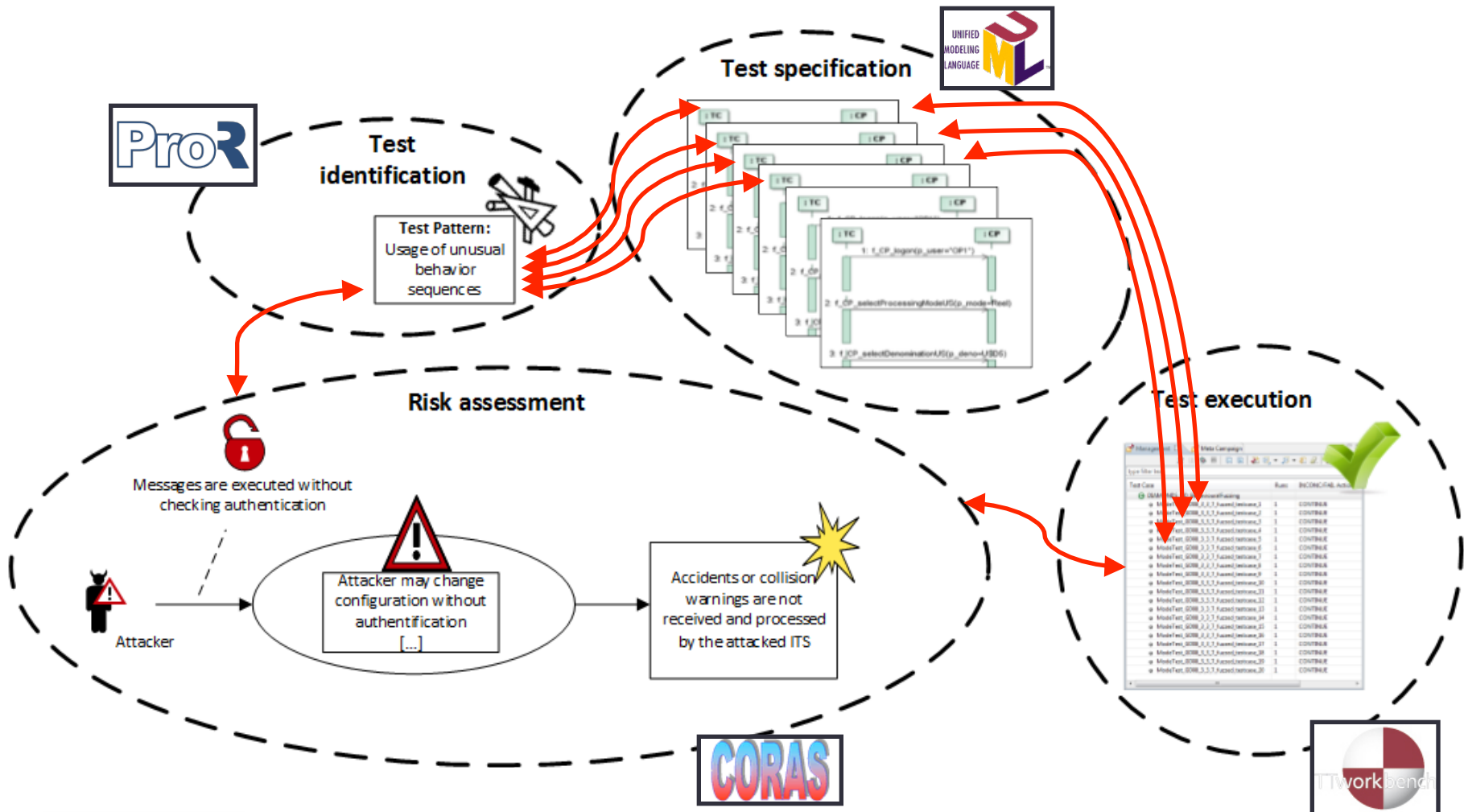
Development and Industrial Application of Multi-Domain Security Testing Technologies

Innovation Sheet Traceability Platform for Risk-Based Security Testing (RBST)



Traceability Platform for RBST

Follow traces between RBST artefacts



Traceability Platform for RBST

Description



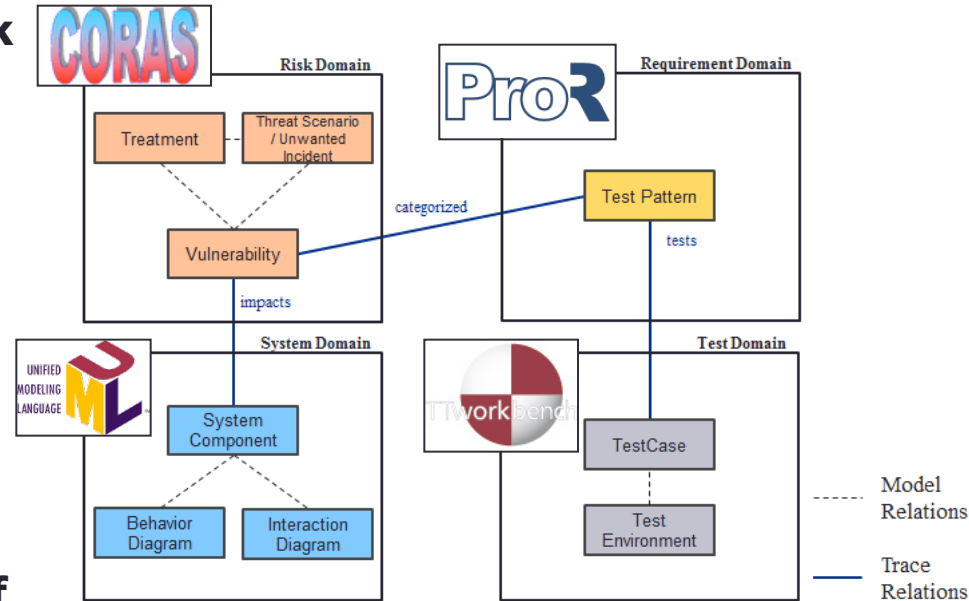
Dedicated traceability support for risk based security testing.

Enables traceability between security testing artefacts.

- Risk model elements (threats, vulnerabilities, unwanted incidents)
- UML model elements
- Security test cases, test pattern and test results
- Security requirements

Allows for interaction/combination of different security engineering and testing tools

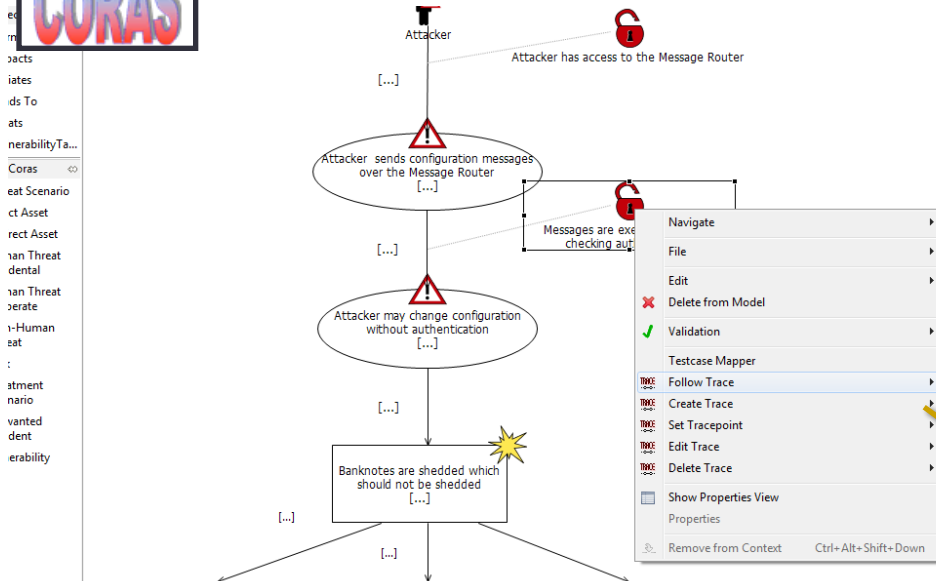
- Follow traces from security threats, vulnerabilities and their associated risks to testing artefacts
- basis to determine coverage/ completeness metrics (e.g. risks coverage)



Fully integrated in **Eclipse**
Based on **open source tool CREMA**



Traceability Platform for RBST User Interface



Trace Explorer

Tracing Explorer

ModeTest_GD08_3_3_7_fuzzed_testcase_4

ModeTest_GD08_3_3_7_fuzzed_testcase_4 (developing testcase)

Messages are executed without checking authentication

Usage of Unusual Behavior Sequences

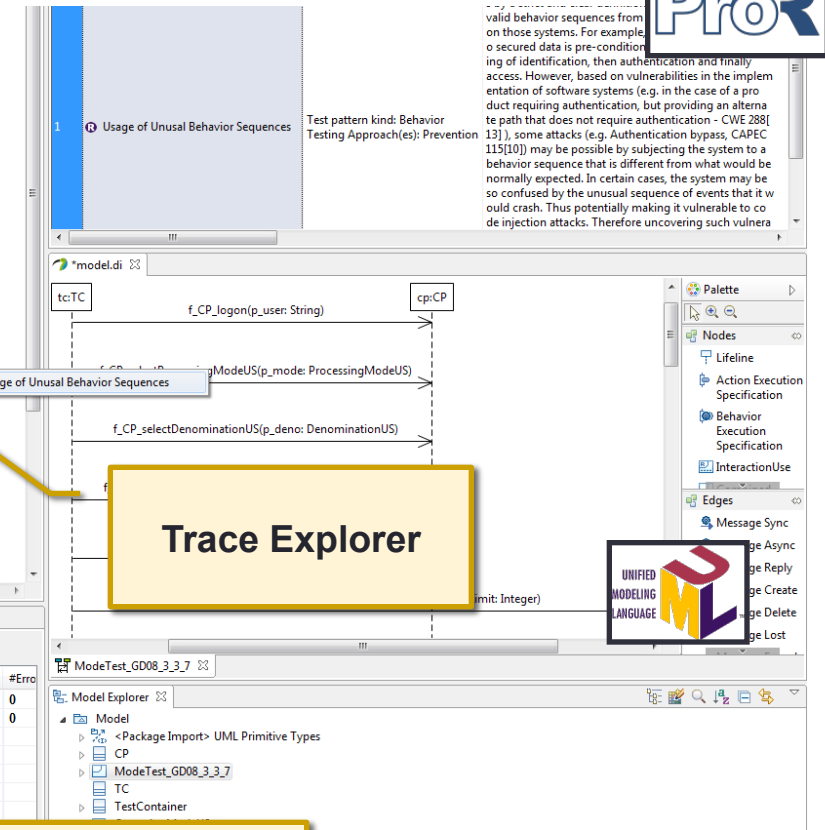
ModeTest_GD08_3_3_7

- ModeTest_GD08_3_3_7_fuzzed_testcase_4
- ModeTest_GD08_3_3_7_fuzzed_testcase_3
- ModeTest_GD08_3_3_7 (developing testcase)
- ModeTest_GD08_3_3_7_fuzzed_testcase_1
- ModeTest_GD08_3_3_7_fuzzed_testcase_1 (developing testcase)
- ModeTest_GD08_3_3_7_fuzzed_testcase_2

Weakness Explorer

Name of Vulnerability	#Testc...	#Pass	#Fail	#None	#Incon...	#Erro
Attacker has access to the ...	504	499	0	5	0	0
Messages are executed wit...	5	0	0	5	0	0

Trace Explorer



Vulnerability Coverage

Traceability Platform for RBST

State of the art



- Requirements traceability is provided either as an individual solution within one tool or within one modelling paradigm (SysML).
- Traceability is often combined with complex infrastructures that allow distributed collaboration (IBM Jazz, ModelBus, etc.).
- No of-the-shelf solution that allows for lightweight integration.
- The combination of risk analysis and security testing is still not addressed.

Traceability Platform for RBST

Advances beyond the state of the art



- Lightweight tool integration platform
- Process independent, can be adapted/tailored to be used within different processes and with different methods.
- Allows for interaction/combination of different security engineering and testing tools
- Support for risk based security testing
- Allows for retracing security threats, vulnerabilities and their associated risks from testing artefacts
- Provides basis to determine coverage metrics (e.g. risks coverage)
- Cross tool relations are possible
- Addresses traceability for risk based testing

Traceability Platform for RBST

Exploitation and application to case studies



- The traceability framework was applied in the DIAMONDS automotive case study (Dornier Consulting) and the banking case study (Giesecke & Devrient).
- Platform will be made available as an open source product.