

VIATRA mission

The VIATRA framework (VISual Automated model TRANSformations) provides a general-purpose support for the specification, design, execution and validation of model transformations within and between various modeling languages used as part of a model-driven software and systems design.

Application scenarios

Tool integration transformations in VIATRA provide model-based bridges between off-the-shelf CASE tools and domain-specific languages. VIATRA offers extensible model import/export facilities integrating tools from different application domains:

- General purpose and domain-specific languages UML 2.0 (e.g. IBM Rational Software Architect), EMF,
- Safety-critical embedded systems: SCADE, Matlab Simulink,
- Service-oriented applications: BPEL, BPMN,

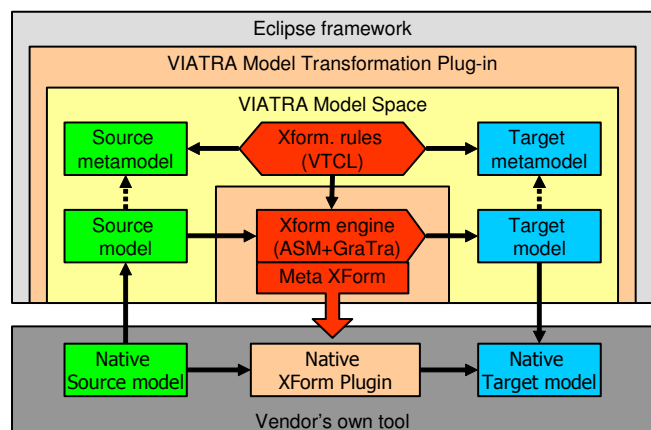
Model analysis transformations in VIATRA enable justifiable model-driven development using invisible formal methods

- High-level system models are automatically transformed into formal analysis tools
 - correctness and completeness analysis by static checks
 - consistency analysis by model checking (e.g. deadlocks and safety violations)
 - fault modeling (design for exceptional and critical situations)
 - dependability analysis (reliability, availability, etc.)
 - design optimization (workflows, job allocation and scheduling)
- Analysis results are back-annotated to reveal quality bottlenecks in the system model
- Technicalities of underlying mathematical analysis are hidden from engineers

The VIATRA Approach

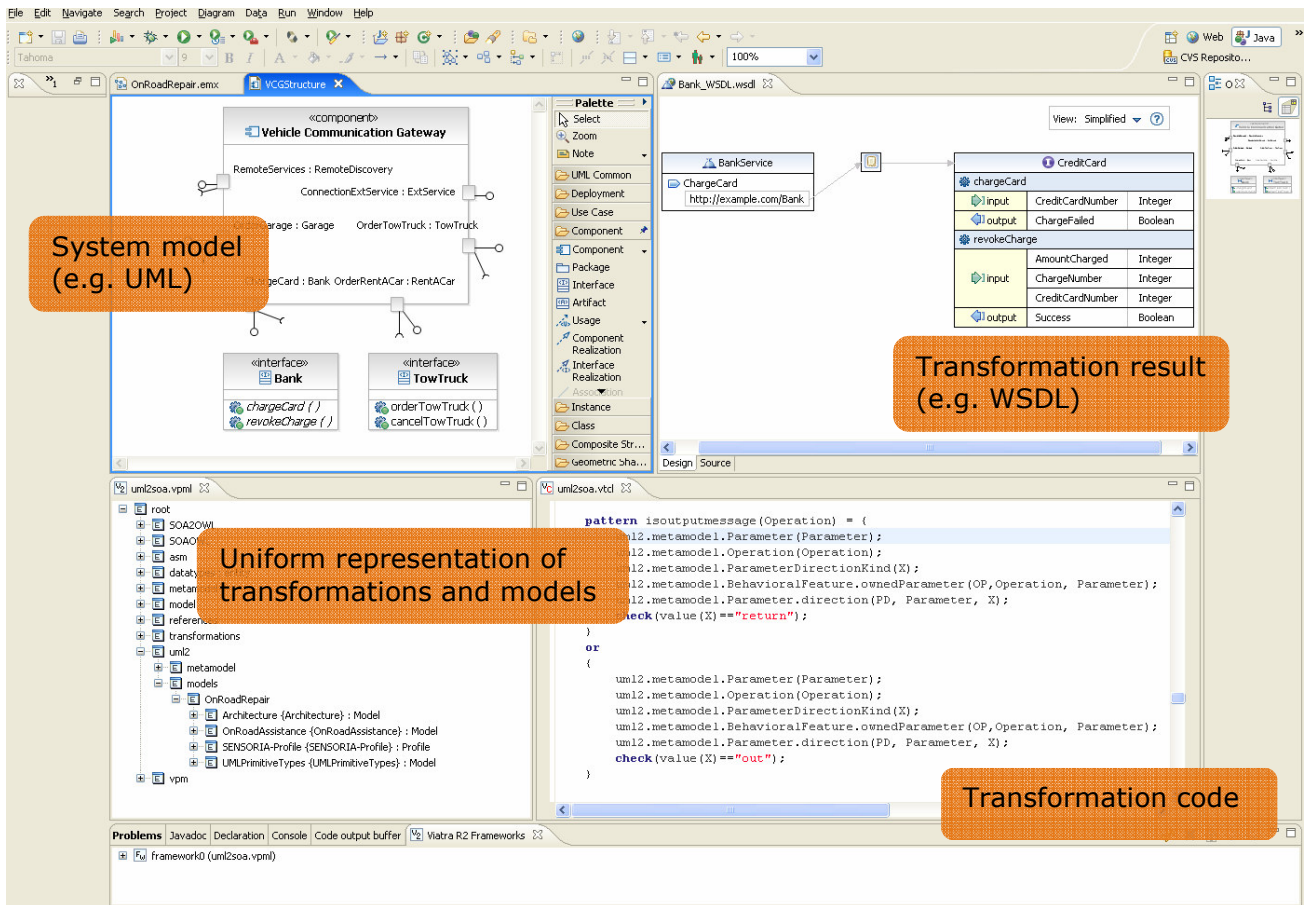
VIATRA integrates intuitive and mathematically precise formalisms (graph transformation rules and abstract state machines) to capture declarative model queries, elementary model manipulations and complex model transformations to support precise model-driven development.

Transformations can be customized by calling external tools and algorithms integrate expert knowledge available in domain-specific tools. During transformation development, transformations can be run within the Eclipse-based VIATRA framework. For the transformation execution phase, native (standalone) transformer plugins are generated from model transformations, which can be embedded into the vendor's own tool.



Licencing and Development team.

The core VIATRA framework is available under the Eclipse Public Licence (EPL), while certain transformer plugins and model importers are proprietary. VIATRA is developed in a strong collaboration between the Budapest University of Technology and Economics (BUTE) and OptXware LLC. BUTE is responsible for carrying out initial, research intensive prototype developments, and OptXware provides industrialization and support for the core framework.



UML2WSDL transformation in VIATRA

OptXware

OptXware LLC is a spin-off company created by a team of experts from the Budapest University of Technology and Economics (BUTE). OptXware offers its customers state-of-the-art professional services in Dependability Consolidation. Through OptXware services customers can evaluate, test and upgrade the dependability of their business systems and their technology infrastructure.

Dependability Consolidation

Dependability is the ability of an entity to deliver services on which a user can rely. Dependability Consolidation is a novel solution that includes in-depth analysis of business systems and their technology infrastructure for identification of risk areas. Results include the generation of precise metrics to quantify the risk and definition of solutions that minimize risk.

Services

OptXware is pleased to offer its customers leading edge services to evaluate, test and upgrade the dependability of their business systems and their technology infrastructure. OptXware's professional services include:

- Business and IT systems dependability consulting by using advanced modeling techniques
- IT systems management consulting
- Customized training on dependability related technologies