



Towards Traceability support in ATL with Obeo

Traceability

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OBEO

- ATL Industrialization
 - ATL recognized as a standard solution for model transformation in Eclipse
 - Integration of ATL into our MDA tools suite
 - Need of traceability support

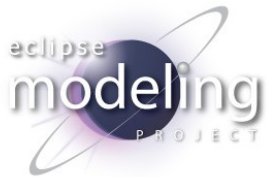


idea

Laboratory

experiment

industrialize



User



Company

validate

marketing

partnership

- Traceability is very important in the MDE context
 - “Traceability is a relationship between entities: a set of source entities, and a set of target entities. The exact meaning of the relationship depends on the context in which it is used”
- Usage scenarios for traceability include:
 - inspection of traces
 - analyses such as change impact analysis, coverage analysis, and orphan analysis
 - support for reverse engineering.
- One main difference between traditional software engineering and MDE is the use of model transformation
 - These are automatic or semi-automatic transformations using and producing traceability information.

- Current recommended approach to have a traceability in ATL attaches traceability generation code to pre-existing ATL programs
 - HOT transformation (ATL2Tracer use case)
- With this approach, traceability generation code is clearly separated from transformation logic and can be attached after a program has been written
- This kind of traceability could be easily added to ATL code and also it could be automated



- Supports traceability inside Obeo products
 - Impact analysis prior to generation
 - Metrics
 - Markers integrated within Eclipse
 - Traceability of the modifications in the generated code
 - User code conservation
 - Real-time synchronization of model, template and code
 - Round tripping (model refactoring)
 - Generation and traceability reporting

Acceleo Pro Traceability



The screenshot shows an IDE window with two tabs: 'CreateAccountAction.java' and 'Weblog.xmi'. The Java code is as follows:

```
public ActionForward create(ActionMapping mapping, ActionForm form, HttpS
    log.debug("Starting");
    String returnCode = PAGE_SELF;
    <!-- The generated code shouldn't be modified, move the text between the user tags -->
    createAccountForm) form;

    String myString = new String();

    <!-- Start of user code method create -->

    System.out.println(myString + createAccountForm);
    // TODO Write here the action code for create

    <!-- End of user code -->
    return mapping.findForward(returnCode);
}
```

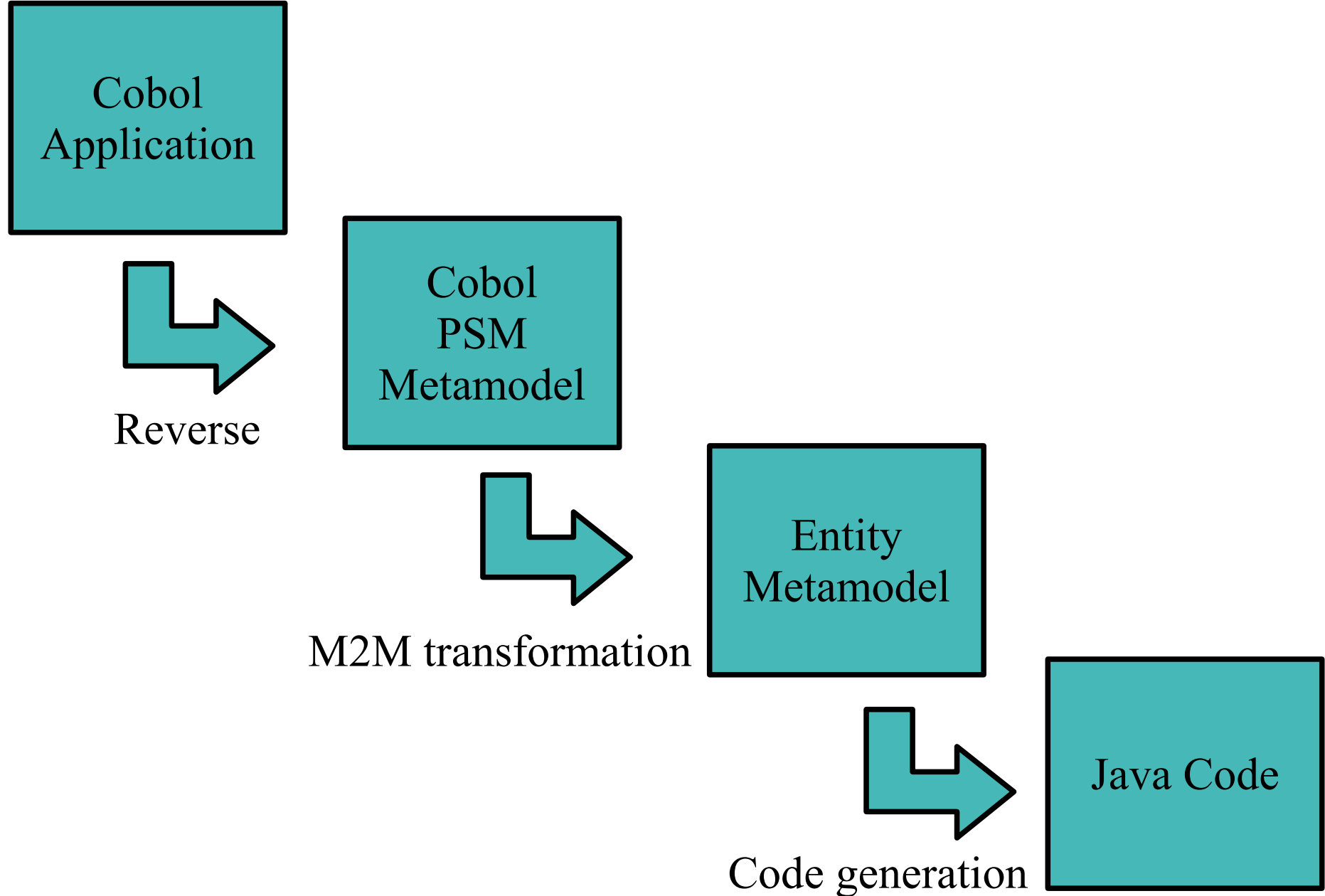
The error message at the bottom of the IDE is:

1 erreur, 30 avertissement(s), 0 info(s) (Le filtre a détecté 31 sur 32 éléments)

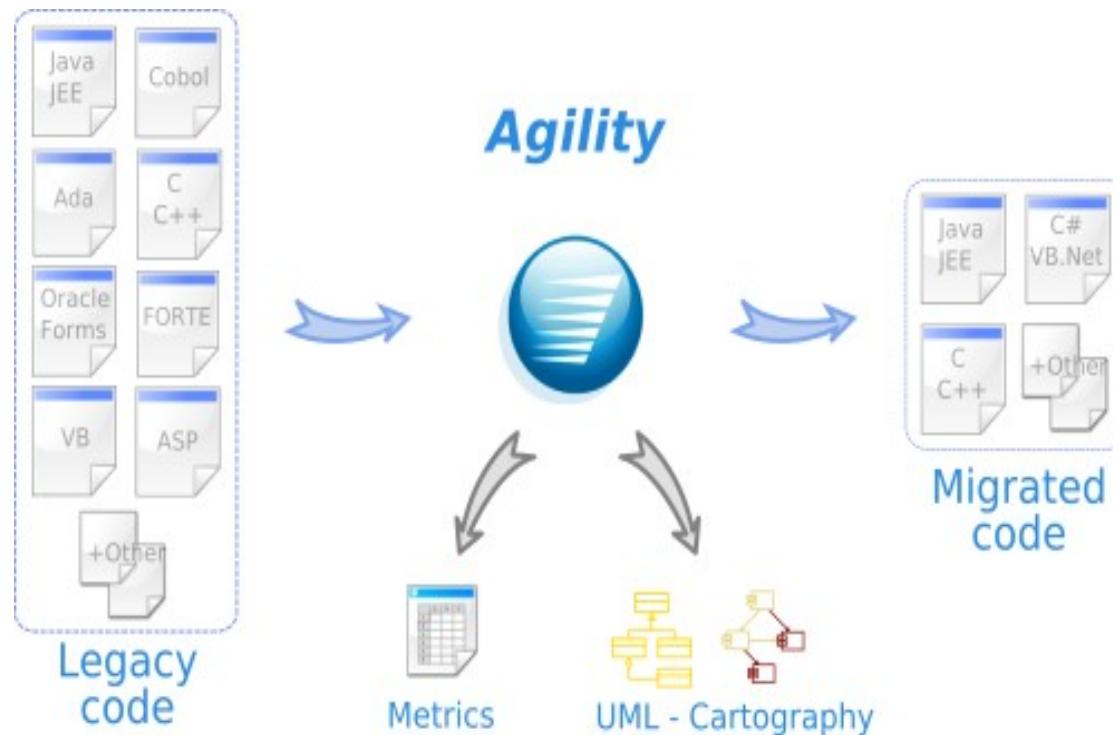
Description	Ressource	Dans le dossier
The generated code shouldn't be modified, move the text between the user tags	CreateAcc...	WebLog/JavaSource/fr/

- We need to integrate ATL is our tool chain
 - Replace Obeo Transformer, current Obeo solution for M2M transformation
 - ATL Industrialization
- This task is the opportunity to develop a dedicated tool to manage traceability
- Break dependancies to Acceleo => Independant tool
- Other products will need a traceability support
 - Eclipse Acceleo (new version of Acceleo implementing MTL OMG specification)

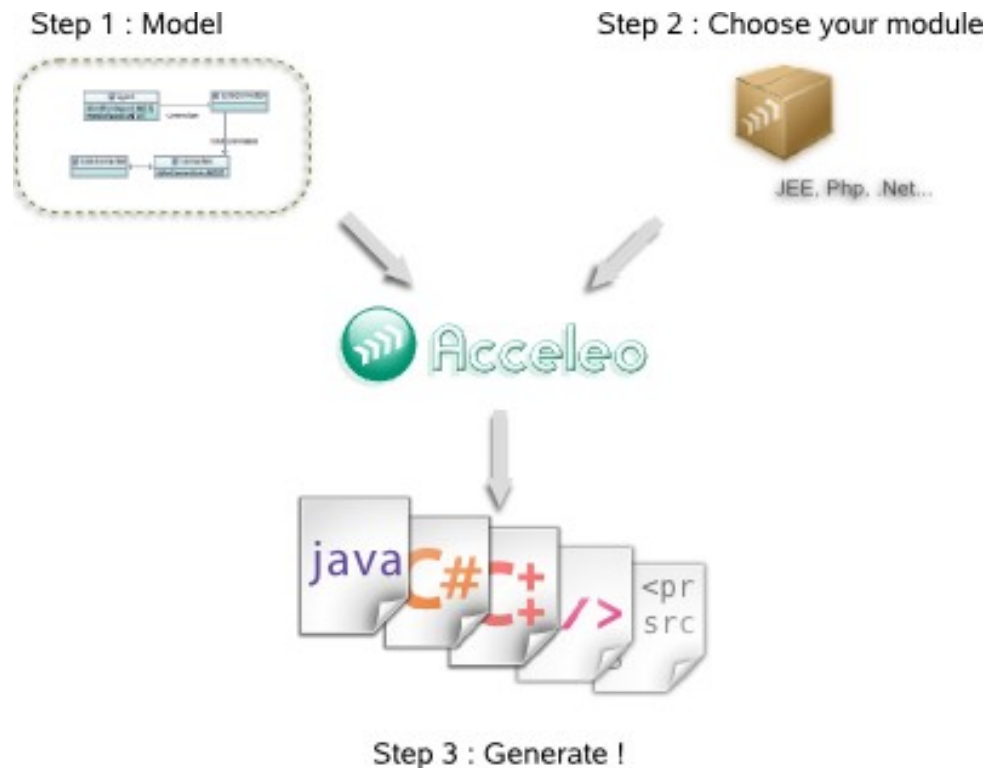
- Is able to guarantee an integration of MDE approach with projects by getting a complete traceability for software production process
- Traceability support for MDE product
 - Each product will need to implement a connector
- Based on Acceleo Pro Traceability
 - Keep features of Acceleo Pro Traceability
- Based on a traceability metamodel



- Project migration and refactoring environment
 - Reverse : Transformation of text (or code) into a model
 - Request : Model requests and impact analysis
 - Cartography : Reverse modeling of code towards UML models (or other such representations- cartography, ...)



- Code generator transforming models into code
 - OpenSource
 - Full integration within eclipse, native use of EMF
 - Edition and development environment
 - Compatibility with UML2, UML1, Merise, DSL, ...







- Obeo Traceability
 - will ease integration of ATL to have good traceability support
 - to integrate other MDE tools in complex tool chain operations

Questions ?

