



IBM Software Group

Model Driven Development with IBM Rational Tools

Overview

Rational software

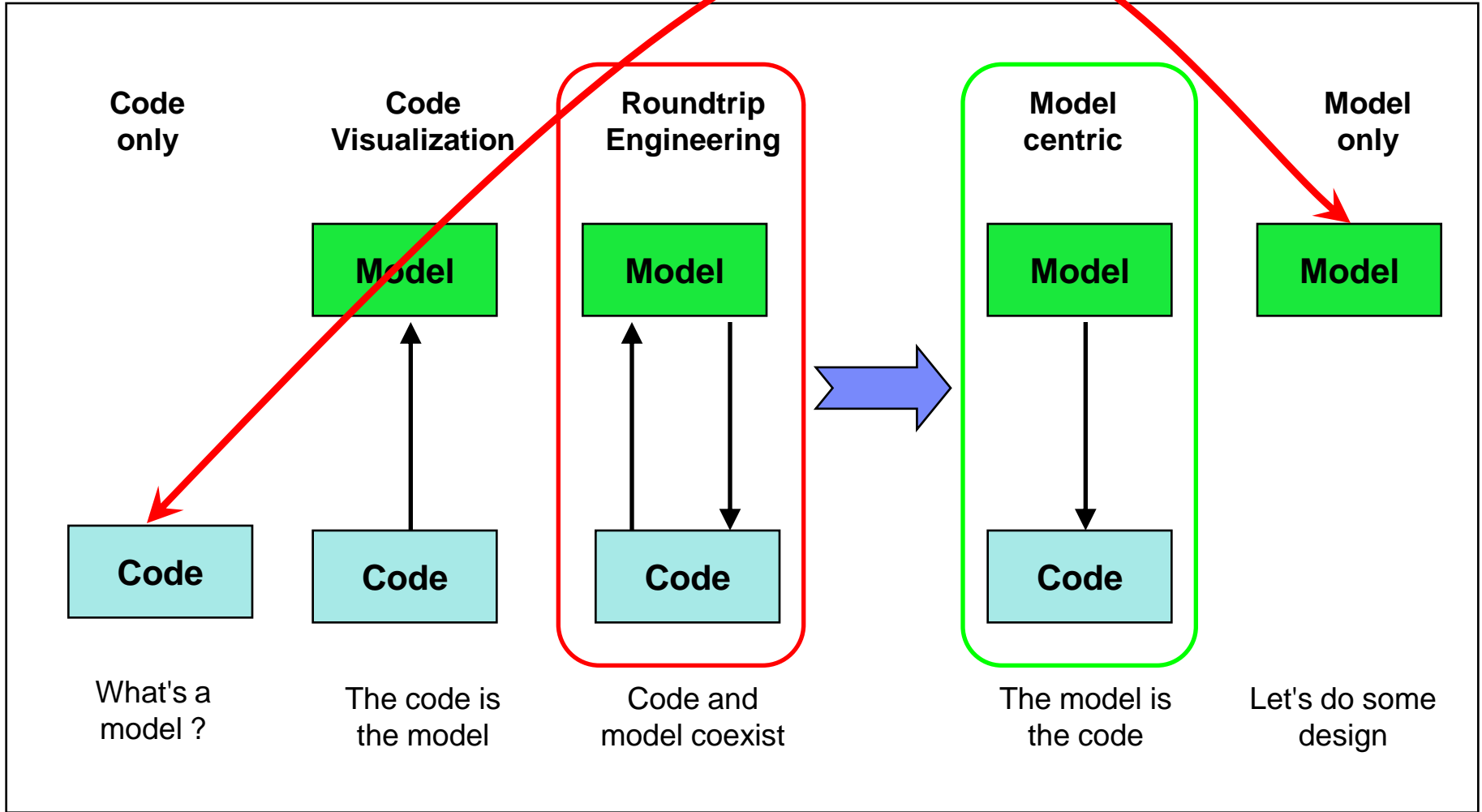


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ON DEMAND BUSINESS™

Modeling Spectrum

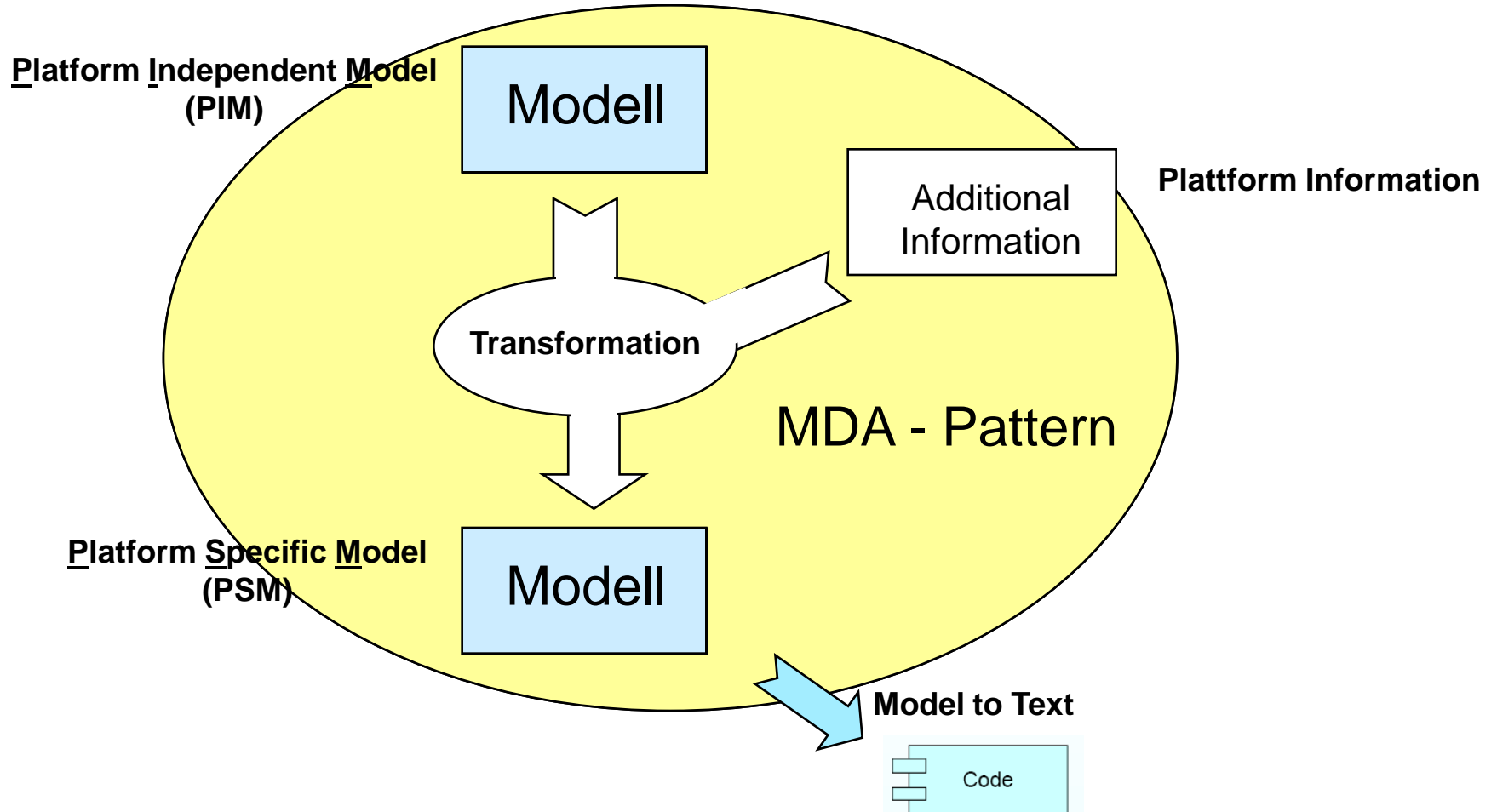


Agenda

- Model Driven Development.
- MDD & SOA
- MDD for “Technicians”
- MDD for “Legacy”
- MDD and Data Architecture
- Extensibility, Usability & Rollout



What is Model Driven Development ?



Why Model Driven Development ?

- Investitionsschutz (Fachmodelle leben länger als Technologie)
- Flexibilität
 - ▶ Trennung der Technik und Fachlichkeit
 - ▶ Technologische Änderungen einfach möglich / Plattformunabhängigkeit
- Steigerung der Produktivität
- Wiederverwendung
 - ▶ Automatisiertes / Kontrollierbares "Copy&Paste" mittels "Transformationen"
 - ▶ Modelle, Basis für Wiederverwendung
- Steigerung der Qualität / Reduzierung der Restfehlerrate
- Know How wird vervielfältigt
- Schnellere Einsatz neuer Technologien
- Reduzierung von Zeit, Kosten und Risiken
- Wartbarkeit



IBM Rational MDD Framework

Rational Software Architect

UML 2

IBM / RSA Transformation Framework

OCL

UML2 Utilities for Model Driven Development

Patterns

Off-the-Shelf Transformations

IBM Reusable MDA Assets (Pattern Solutions)

Business Prozesse

SOA

J2EE

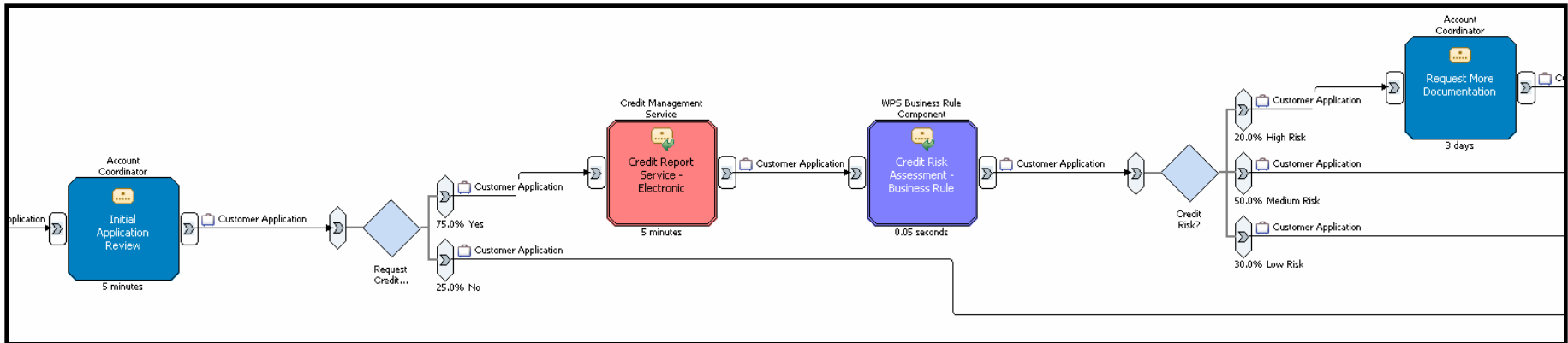
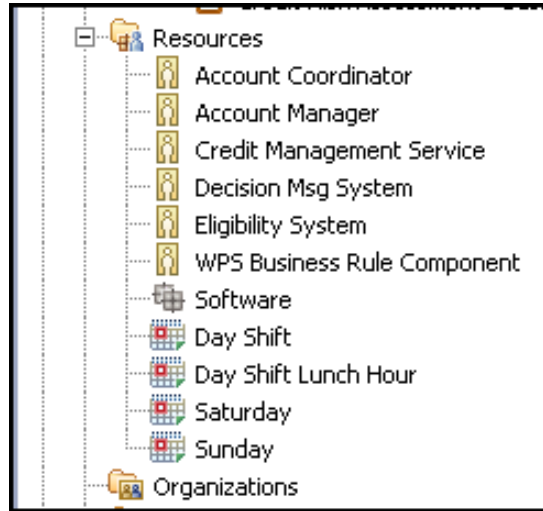
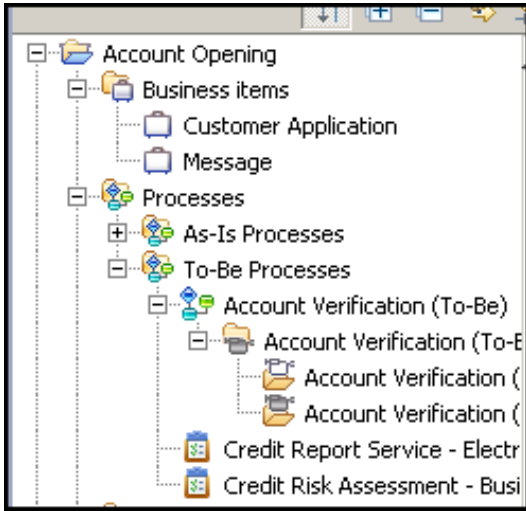
Portal

Deployment und Security



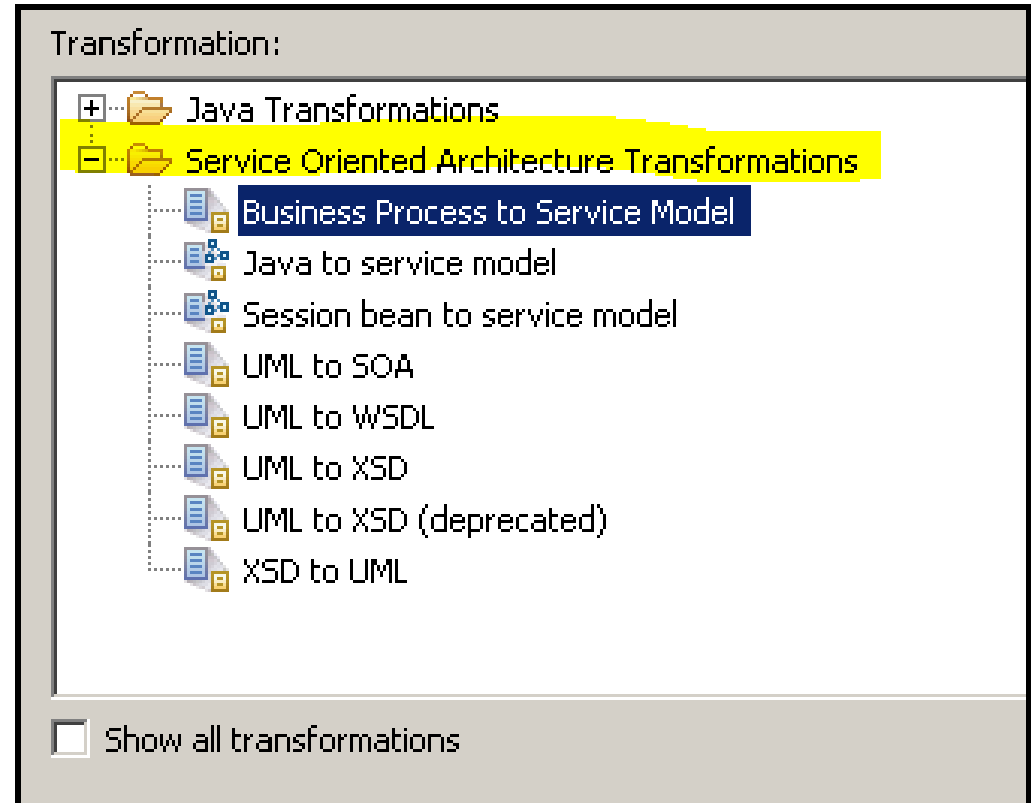
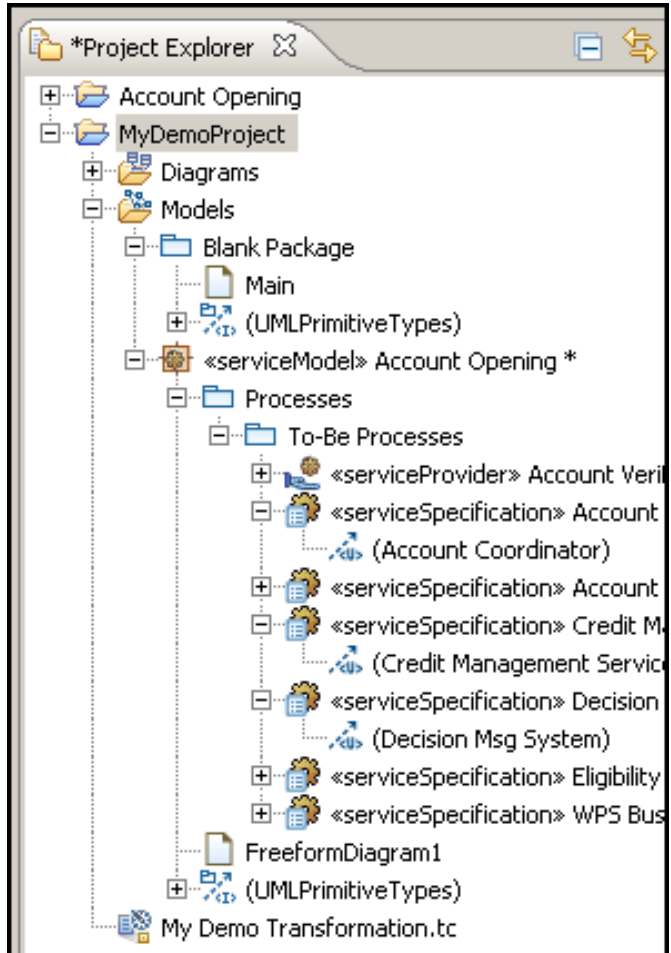
MDD & SOA

Business Processes in BPMN Notation



MDD & SOA

- Transfer Business Models into UML Notation

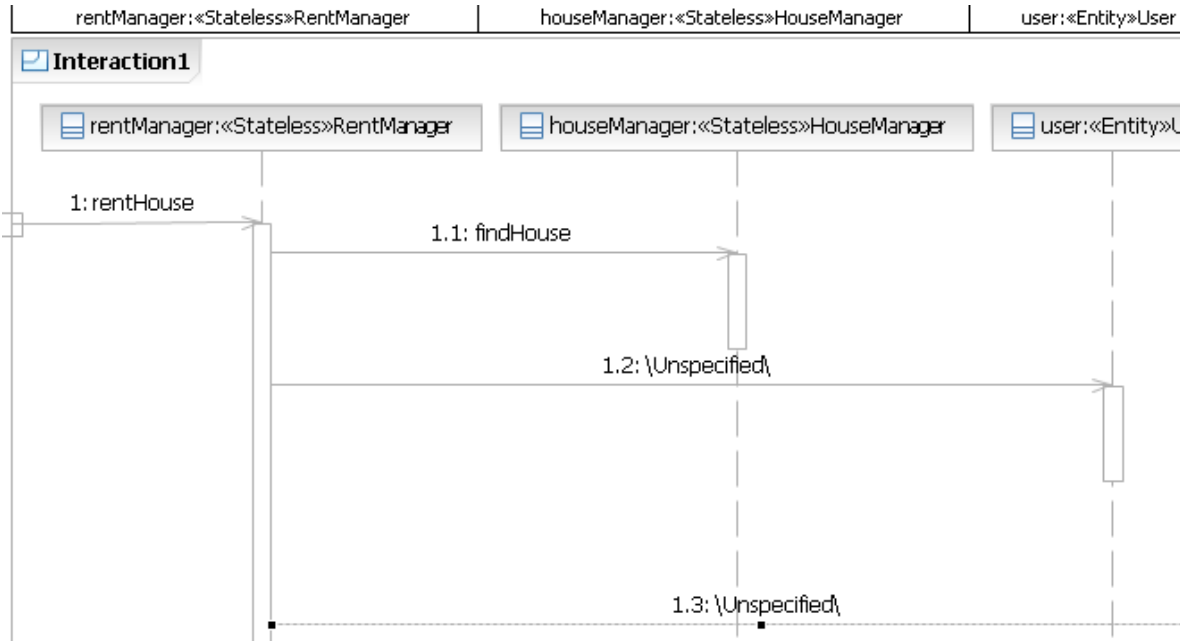
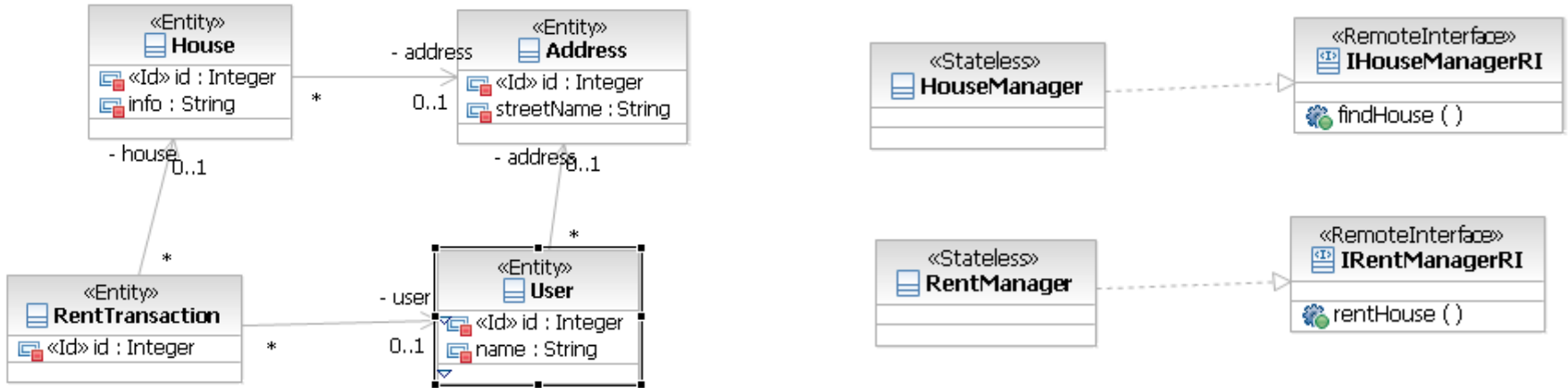


EJB3, JPA and JAVA Transformations

- 4 new Transformations
 - ▶ UML-to-JPA
 - ▶ UML-to-EJB 3.0
 - ▶ JPA-to-UML
 - ▶ EJB 3.0-to-UML
- Transformations are extensions of UML-to-Java & Java-to-UML
 - ▶ Contain full UML-to-Java / Java-to-UML functionality



EJB 3.0 Sample

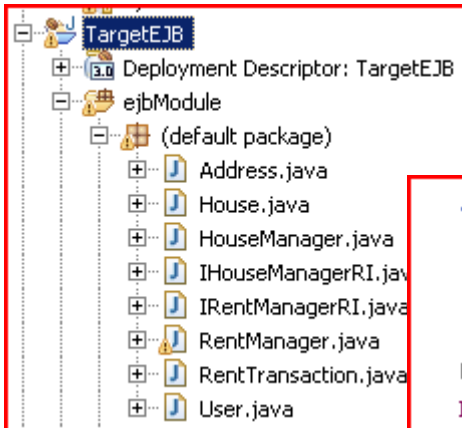


EJB 3.0 Sample

```

/**
@Entity
@NamedQueries( {
    @NamedQuery(name = "House.findById", query = "select obj from House where obj.id = :id"),
    @NamedQuery(name = "House.findByinfo", query = "select obj from House where obj.info = :info")
    @NamedQuery(name = "House.findByaddress", query = "select obj from House where obj.address = :
public class House implements Serializable {
/**

```



```

/**
 * <!-- begin-UML-doc -->
 * <!-- end-UML-doc -->
 * @generated "UML-to-EJB 3.0
 */
@ManyToOne
private Address address;

/**
 * @return the address
 * @generated "UML-to-EJB 3.0
 */
public Address getAddress()
// begin-user-code
return address;
// end-user-code
}

```

```

public void rentHouse() {
// IHouseManagerRI.findHouse();
// TODO Add method parameters

Integer id = null; // TODO initialize and set the v
User entity = entityManager.find(User.class, id);

RentTransaction entity1 = new RentTransaction();
// TODO set the entity properties
entityManager.persist(entity1);

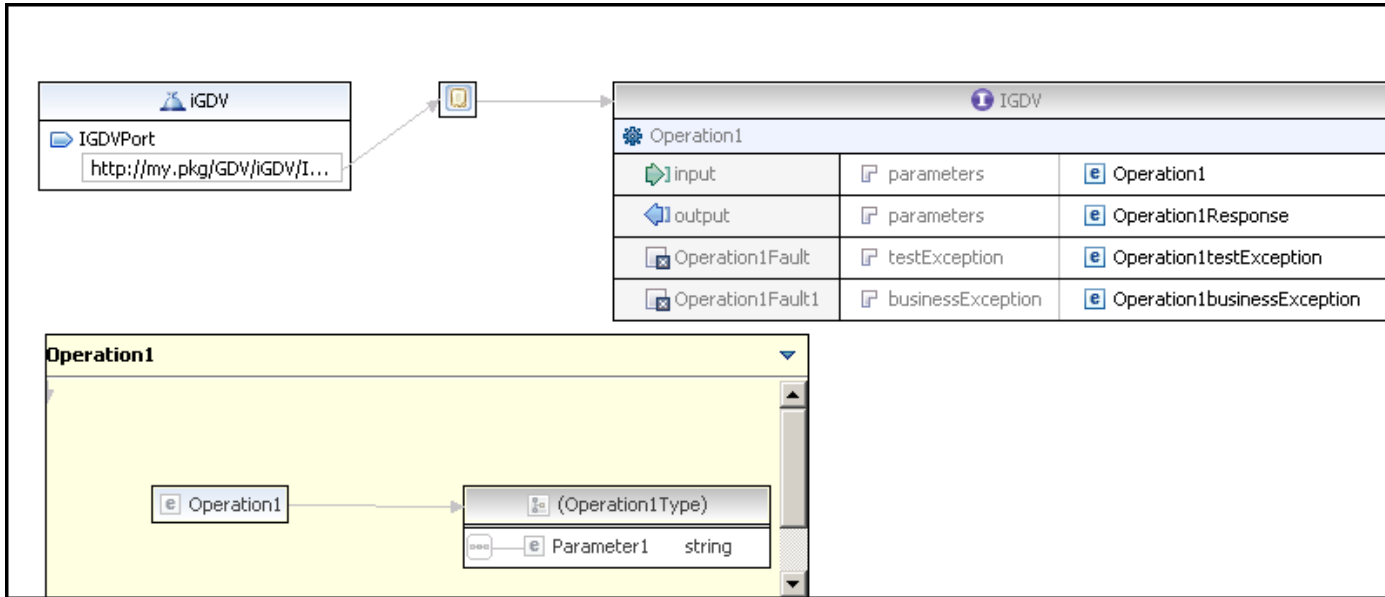
// begin-user-code
// TODO Auto-generated method stub

// end-user-code
}

```



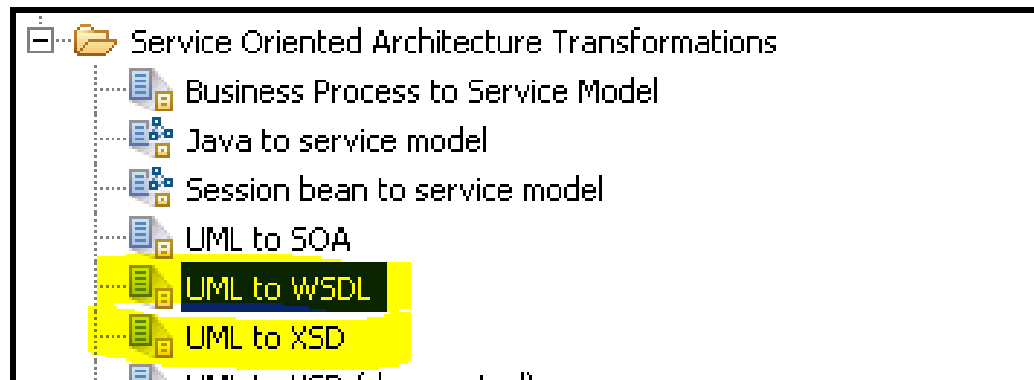
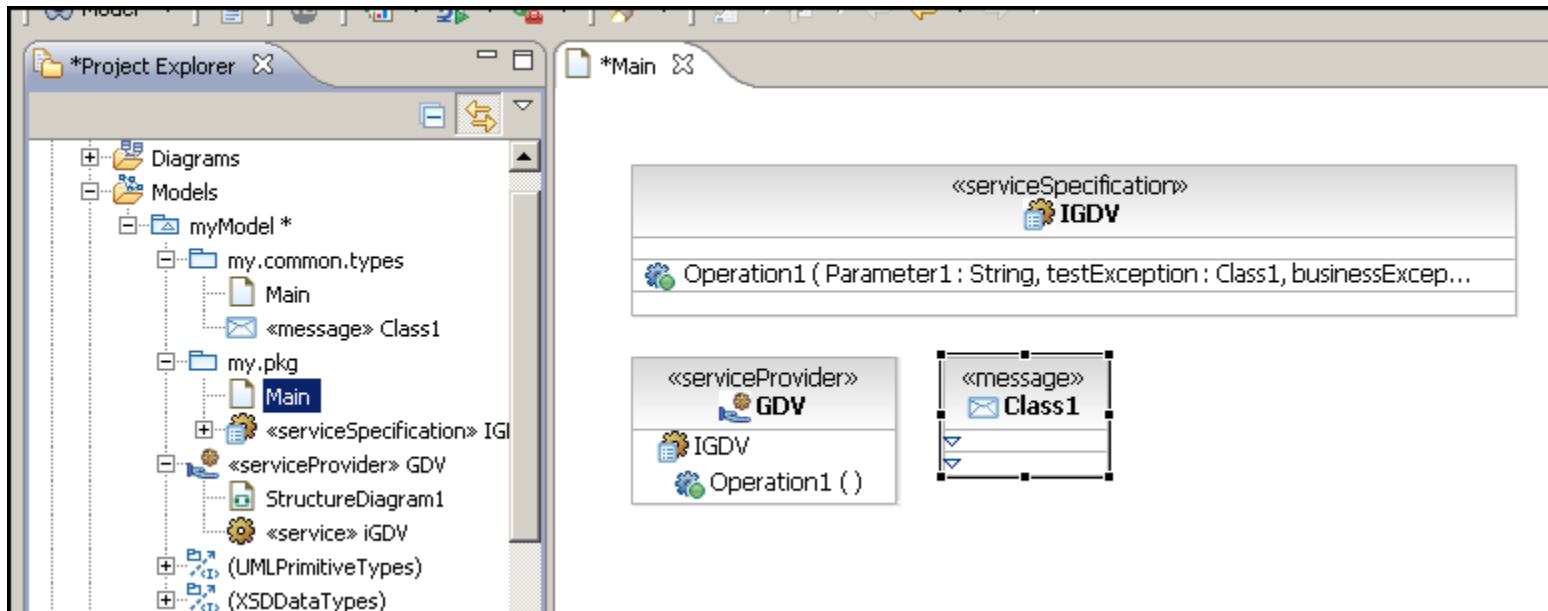
Web Services



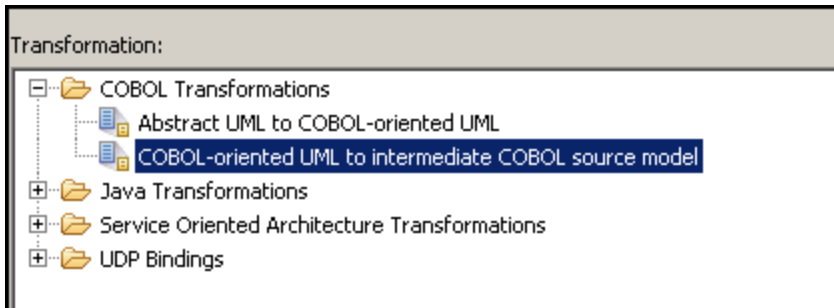
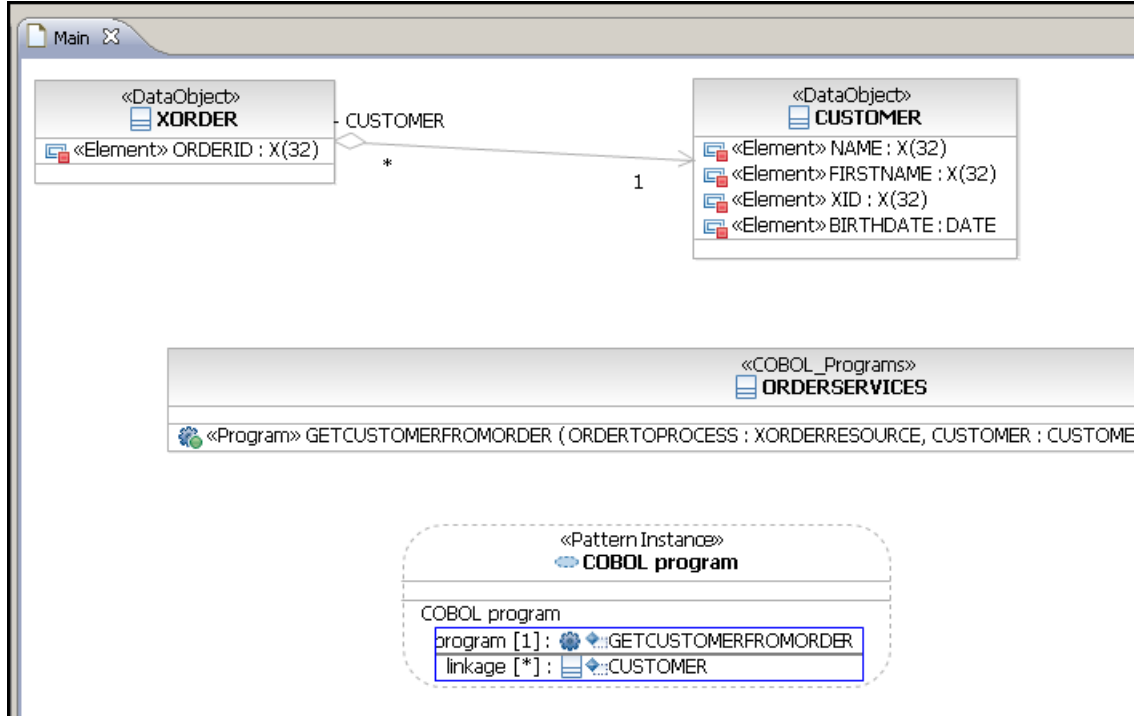
```

GDV.wsdl  Main  Inline Schema of IGDV.wsdl
<?xml version="1.0" encoding="UTF-8"?><wsdl:definitions name="GDV" targetNamespace="ht
<wsdl:import location="IGDV.wsdl" namespace="http://my.pkg/IGDV/">
<wsdl:binding name="IGDVBinding" type="wsdl_1:IGDV">
  <soap:binding style="document" transport="http://schemas.xmlsoap.org/soap/http"/>
  <wsdl:operation name="Operation1">
    <soap:operation soapAction="http://my.pkg/GDV/Operation1/">
    <wsdl:input>
      <soap:body parts="parameters" use="literal"/>
    </wsdl:input>
    <wsdl:output>
      <soap:body parts="parameters" use="literal"/>
    </wsdl:output>
    <wsdl:fault name="Operation1Fault">
  
```

Web Services

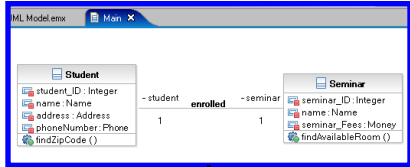


UML and COBOL

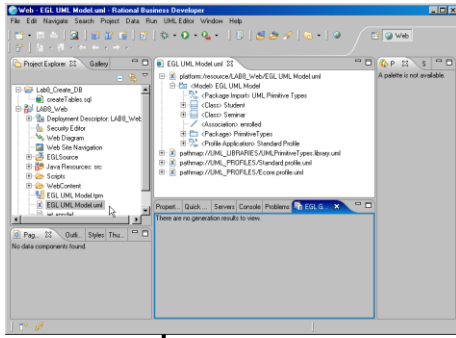


UML and EGL

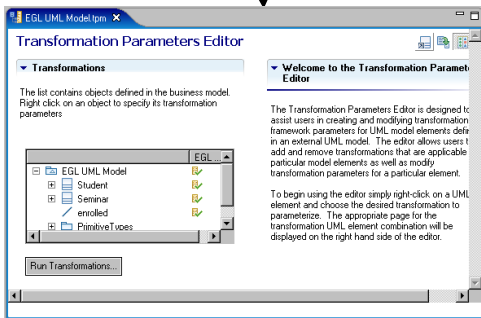
UML



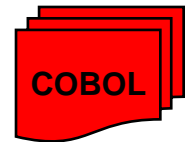
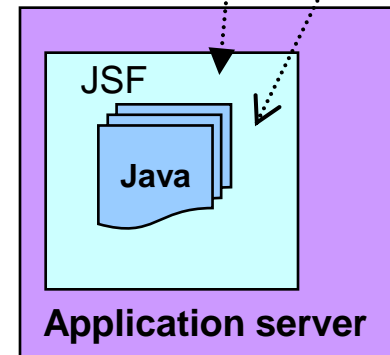
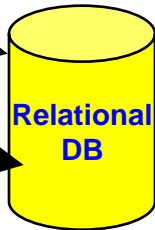
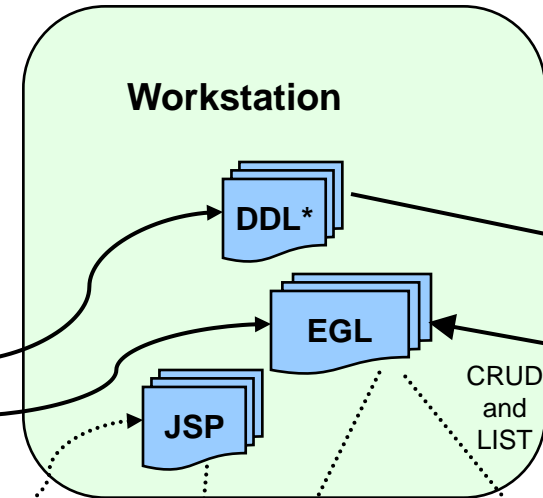
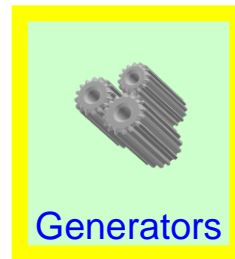
RBD



TPM Editor



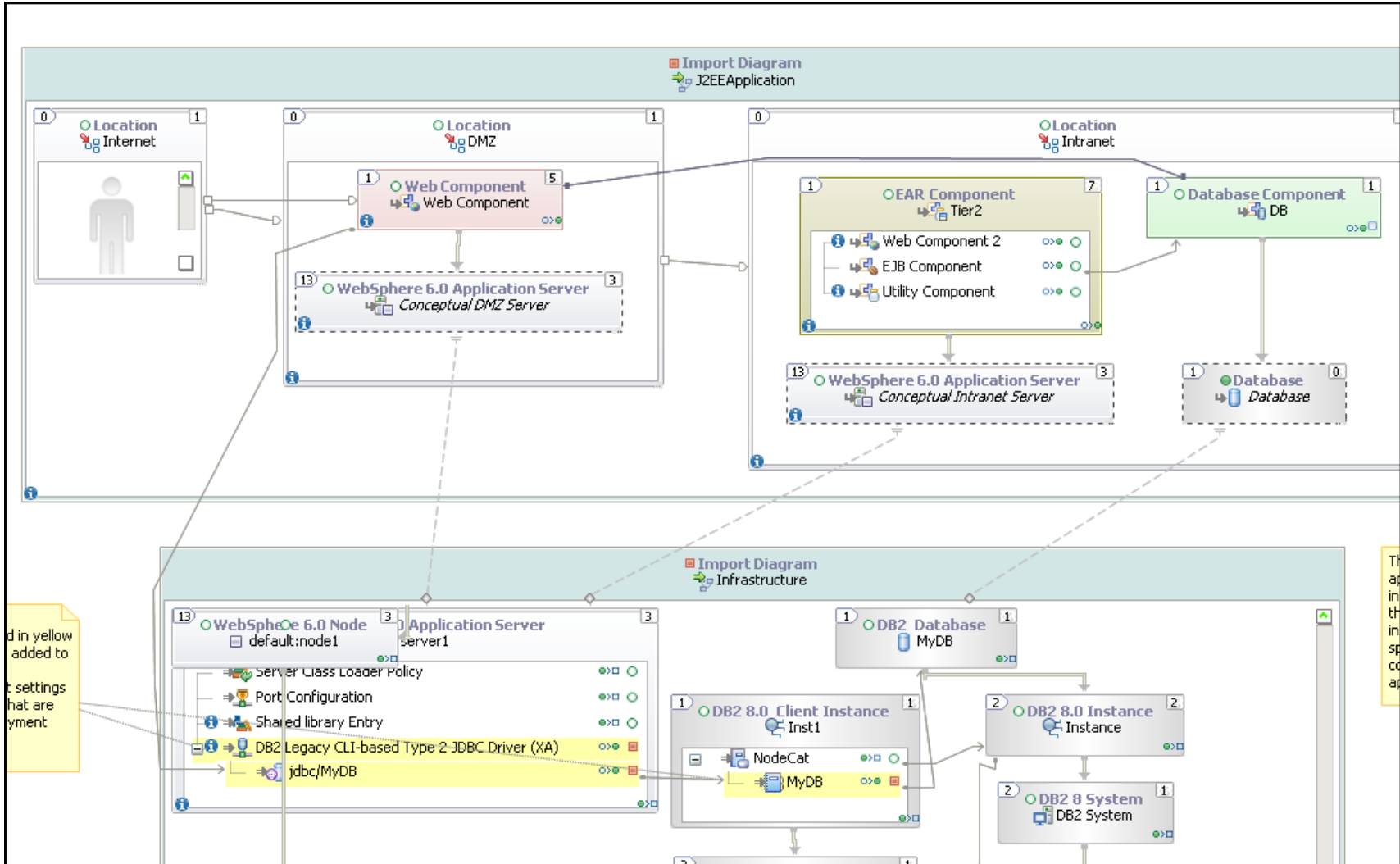
Generate



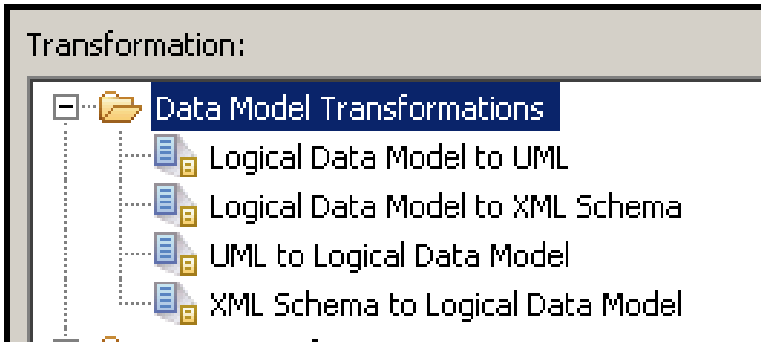
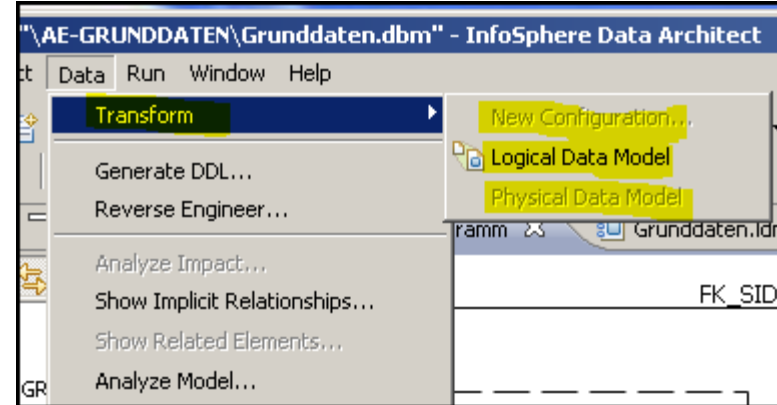
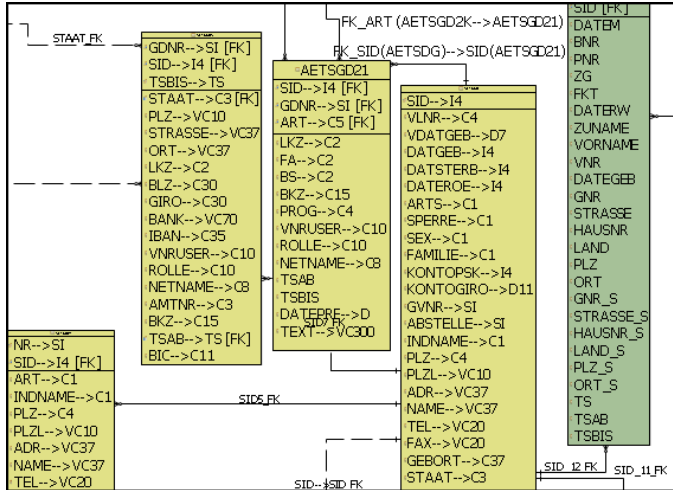
optional



Deployment Configuration and Management

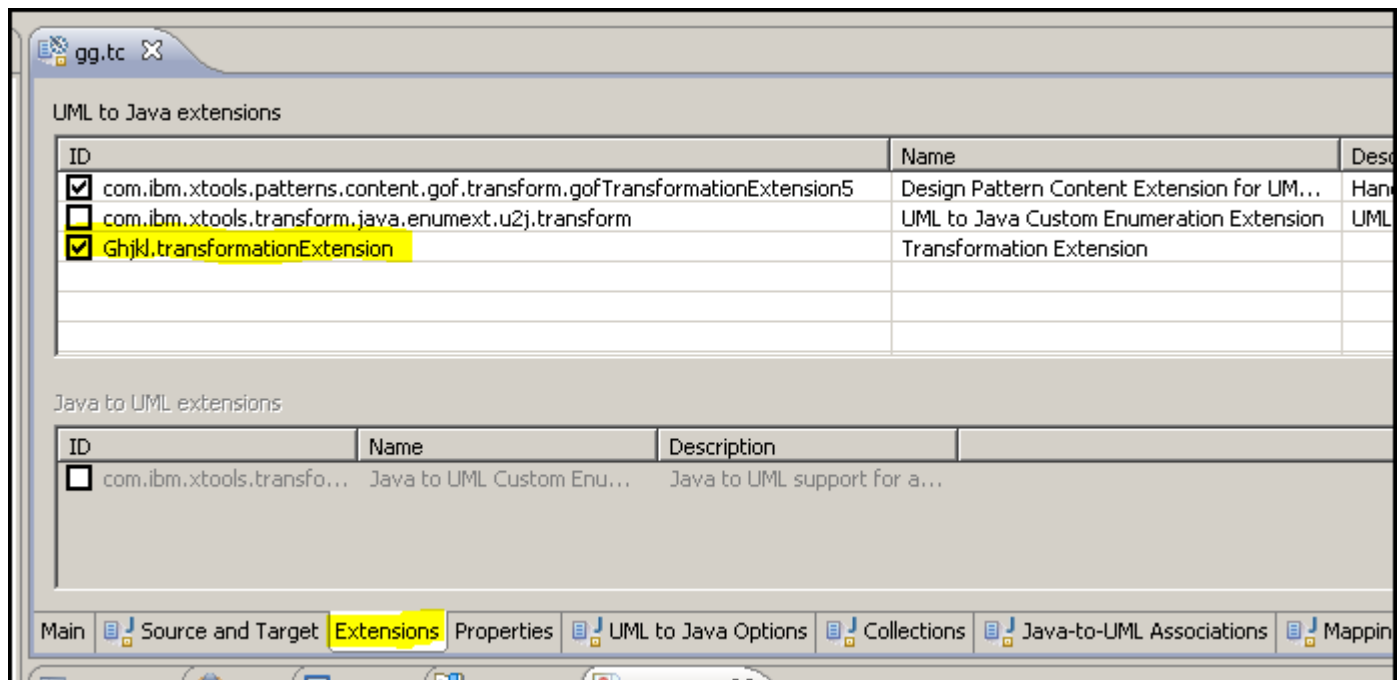


Data Architecture

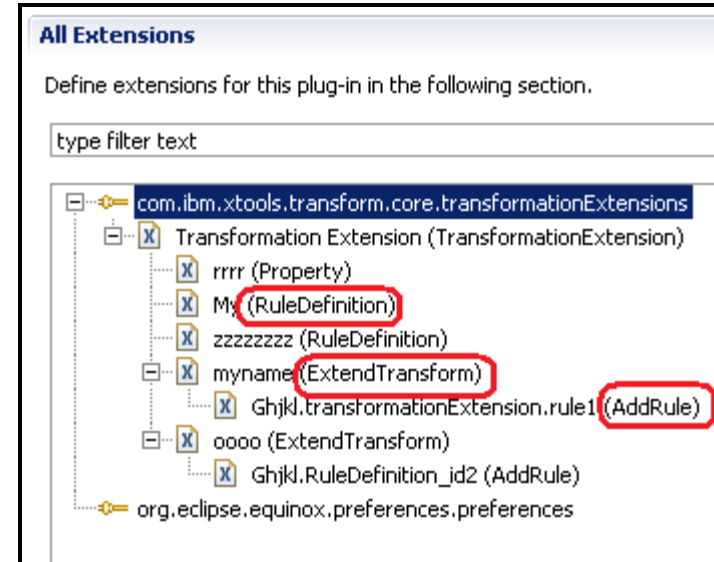
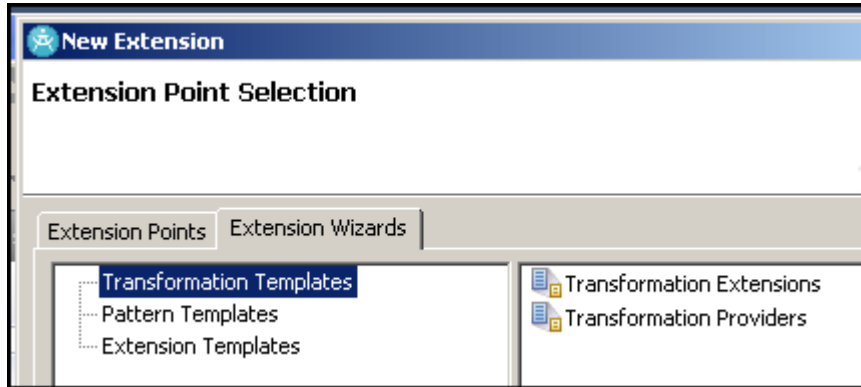


Extensibility / Transformations / Extensions

- Transformation Extensions
- Transformation cloning
- Transformation chaining



Extensibility / Transformations / Extensions



Extension Element Details

Set the properties of "TransformationExtension". Required fields are denoted by "*".

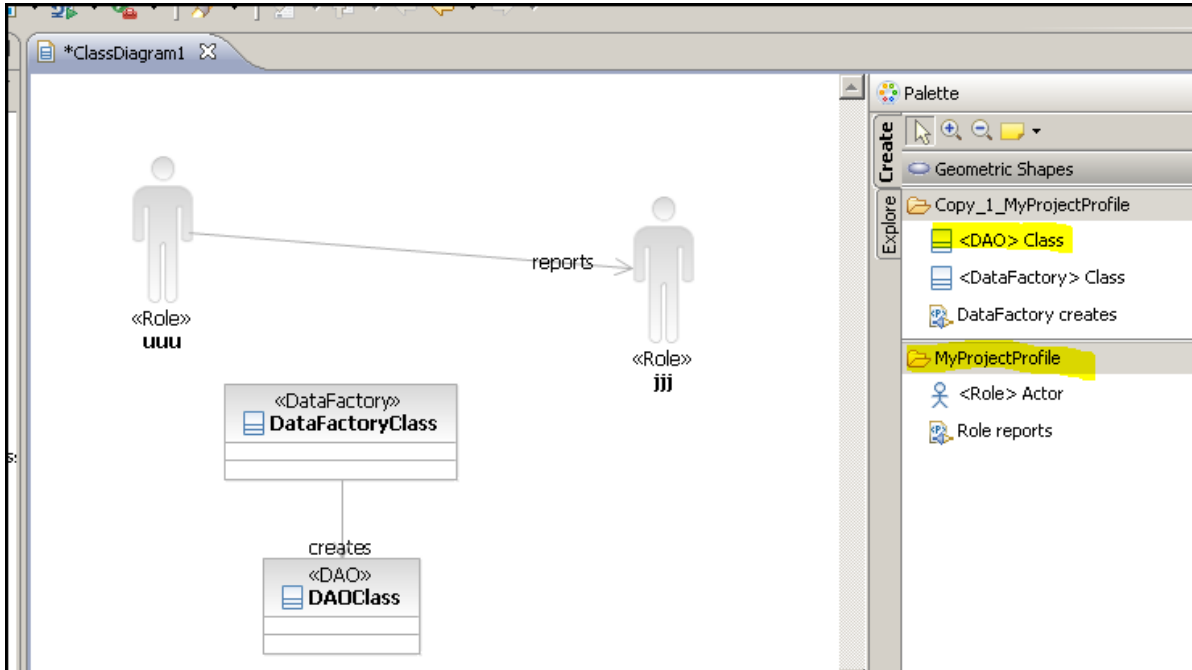
id*:	Ghjk.transformationExtension
targetTransformation*:	com.ibm.xtools.transform.uml2.java5.internal.UML2JavaTransform
version*:	1.0.0
name:	Transformation Extension
author:	
description:	
document:	
enabled:	true

```
public class MyRule1 extends ClassRule {

    @Override
    protected Object createTarget(ITransformContext context) {
        // TODO Auto-generated method stub
        TypeDeclaration target = (TypeDeclaration) context.getTarget();
        Javadoc javadoc = target.getJavadoc();
        List tags = javadoc.tags();
    }
}
```



Usability / Domain Specific Languages



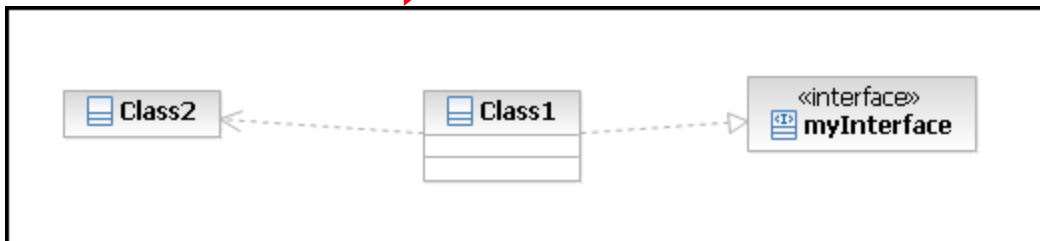
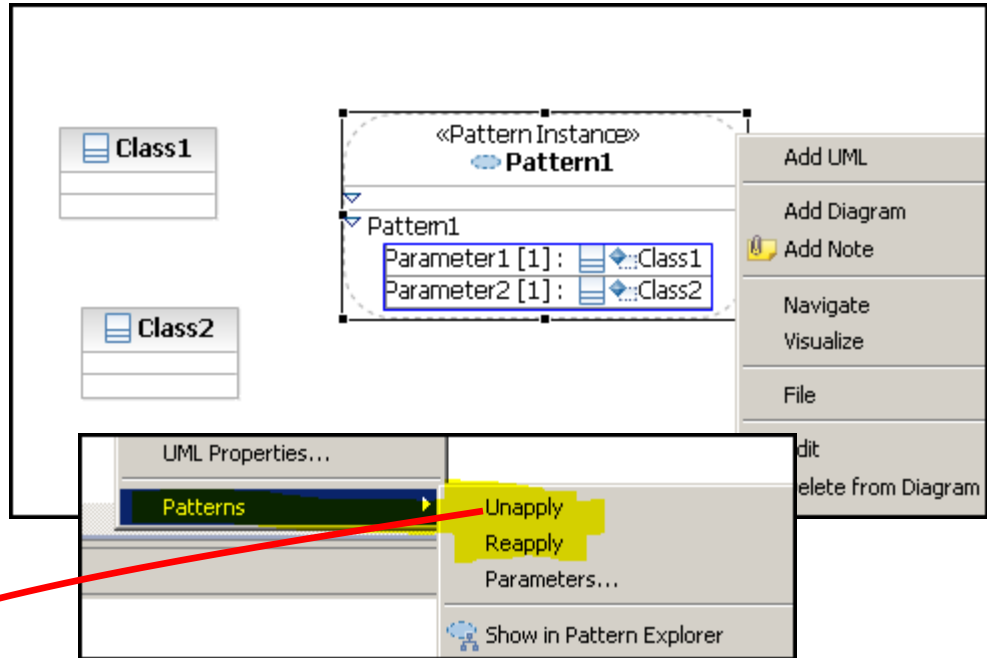
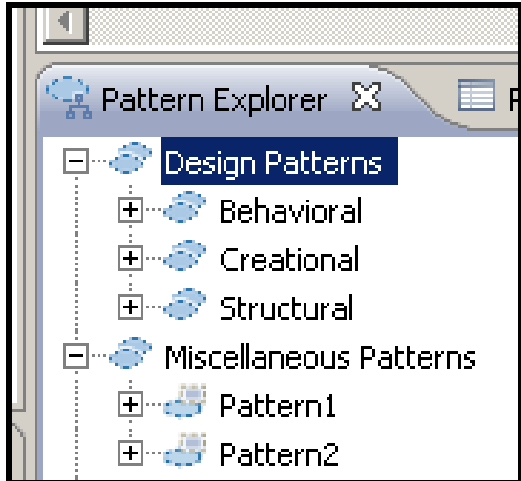
Properties | Tasks | Console | Bookmarks | Problems | Error Log

<Actor> <<Role>> MyProjectProfile Model::uuu

Property	Value
department	0 - HR
designation	2 - CFO
reports	0 - CEO 1 - HR manager 2 - CFO

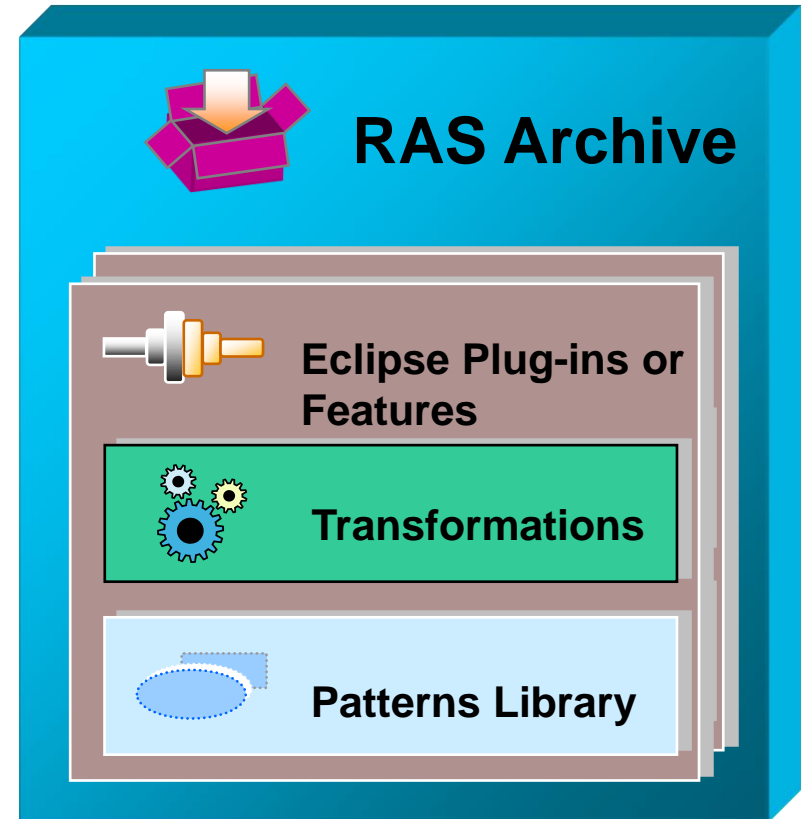
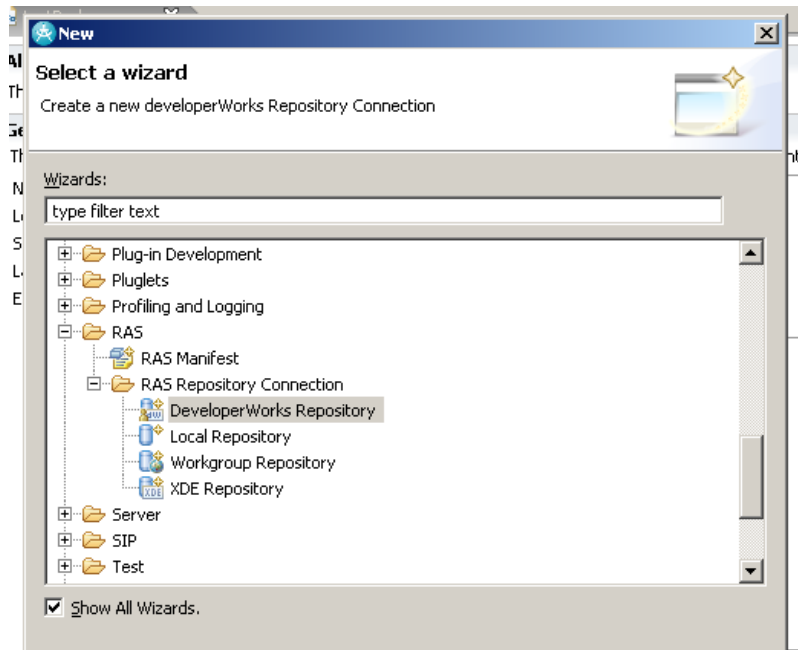


Usability / UML Patterns



Rollout / Reusable Assets

- Reusable Asset Specification (RAS)
- Group related and dependent artifacts into whole solutions
- Install artifacts easily



■ SUMMARY



Questions





Thank You