29 Oct. – 31 Oct. 2007

Plano, TX

ModelCVS – Boosts CA Gen's Functionality

Mustafa ARIKAN, Xiaoxia LIN

ARIKAN Productivity Group

Biography

- **Mustafa ARIKAN**
  ARIKAN Productivity Group

  mustafa.arikan@arikan.at
- Senior Software Engineer
- Prior to APG he served as software consultant and industrial engineer (operations research) for various industrial organizations
- More than 25 years of industrial experience and leadership in many innovative technical and commercial IT projects and many awards throughout his IT career so far.
- Mustafa Arikan has a BSc degree in industrial engineering from the Bosporus University in Istanbul and some postgraduate education in IT and Mathematics in Vienna.

Biography

- **Xiaoxia LIN**
  ARIKAN Productivity Group

  xiaoxia.lin@arikan.at

- Senior Software Engineer
- Xiaoxia LIN is currently working at her doctoral work in Model Driven Development at the Vienna University of Technology
- She is author of many mission critical software systems in Europe
- She has more than 10 years of IT experience in various industrial organizations
- Xiaoxia Lin has a MSc degree in informatics from the Vienna University of Technology and a BSc degree in Medicine from China

ModelCVS Project

- Sparked by APG
- Consortium
  - ARIKAN Productivity Group
  - Vienna University of Technology
  - Johannes Kepler University Linz
  - Austrian Ministry of Defence
- This work has been awarded and partly funded by the Austrian Federal Ministry of Transport, Innovation and Technology (BMVIT) under Grant FIT-IT-810806

Goal of ModelCVS

The aim of our project is to overcome the Tool Integration problem and to thus gather the full potential of the model-centric paradigm, means to enable interoperability between modeling tools. At the core of this effort lies model transformation and model integration, as to enable interchange of models between different tools, *and a version control system* facilitating distributed development.

Sessions

Session 18: ModelCVS boosts CA Gen's functionality **Room: B**

Mustafa Arikan, Software Engineer, Arikan Productivity Group
Xiaoxia Lin, Software Engineer, Arikan Productivity Group

Following examples related to CA Gen and Eclipse Modeling Framework will be covered in this session. CA Gen Adapter as import export PlugIn ,UML2 - CA Gen Transformation, a sample component for code convention check, model reporting using eclipse's BIRT , CA Gen .. SWT Transformation, Database Reverse Engineering, BPEL for CA Gen, Test Support ,Legacy Renewal, etc

Session 21: CA Gen goes Eclipse **Room: B**

Mustafa Arikan, Software Engineer, Arikan Productivity Group
Xiaoxia Lin, Software Engineer, Arikan Productivity Group

In collaboration with two Austrian Universities and the Austrian Ministry of Defense, ARIKAN Productivity Group – A CA partner and IT technology provider for over two decades - is developing tools which will be commercially available under the name ModelCVS by APG ™ by April 2008. This new unique awarded*) technology enables tool integration through transparent transformation of models between metamodels representing the modeling languages of different tools. This session will cover the technical background of CA Gen's integration with eclipse. EMF is a modeling framework and code generation facility for building tools and other applications based on a structured data model. From a model specification described in XMI, EMF provides tools and runtime support to produce a set of Java classes for the model, a set of adapter classes that enable viewing and command-based editing of the model.

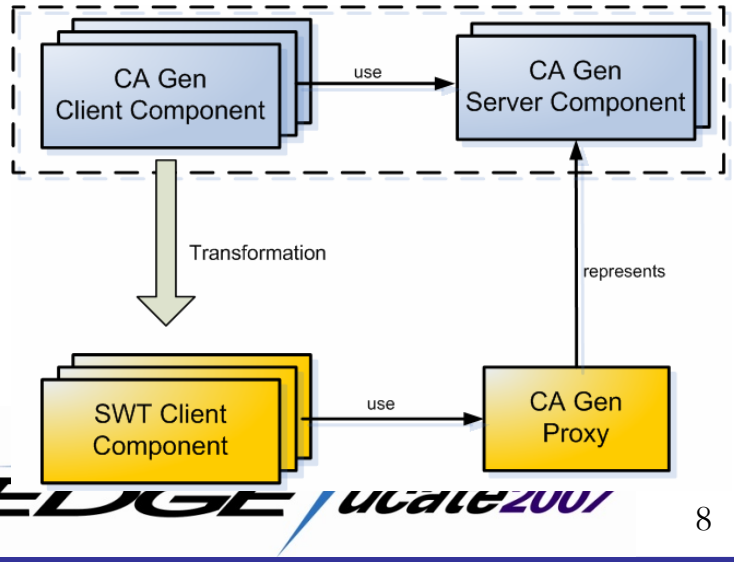
USER GROUP MEETING **Room: E**
ARIKAN PRODUCTIVITY GROUP

Content

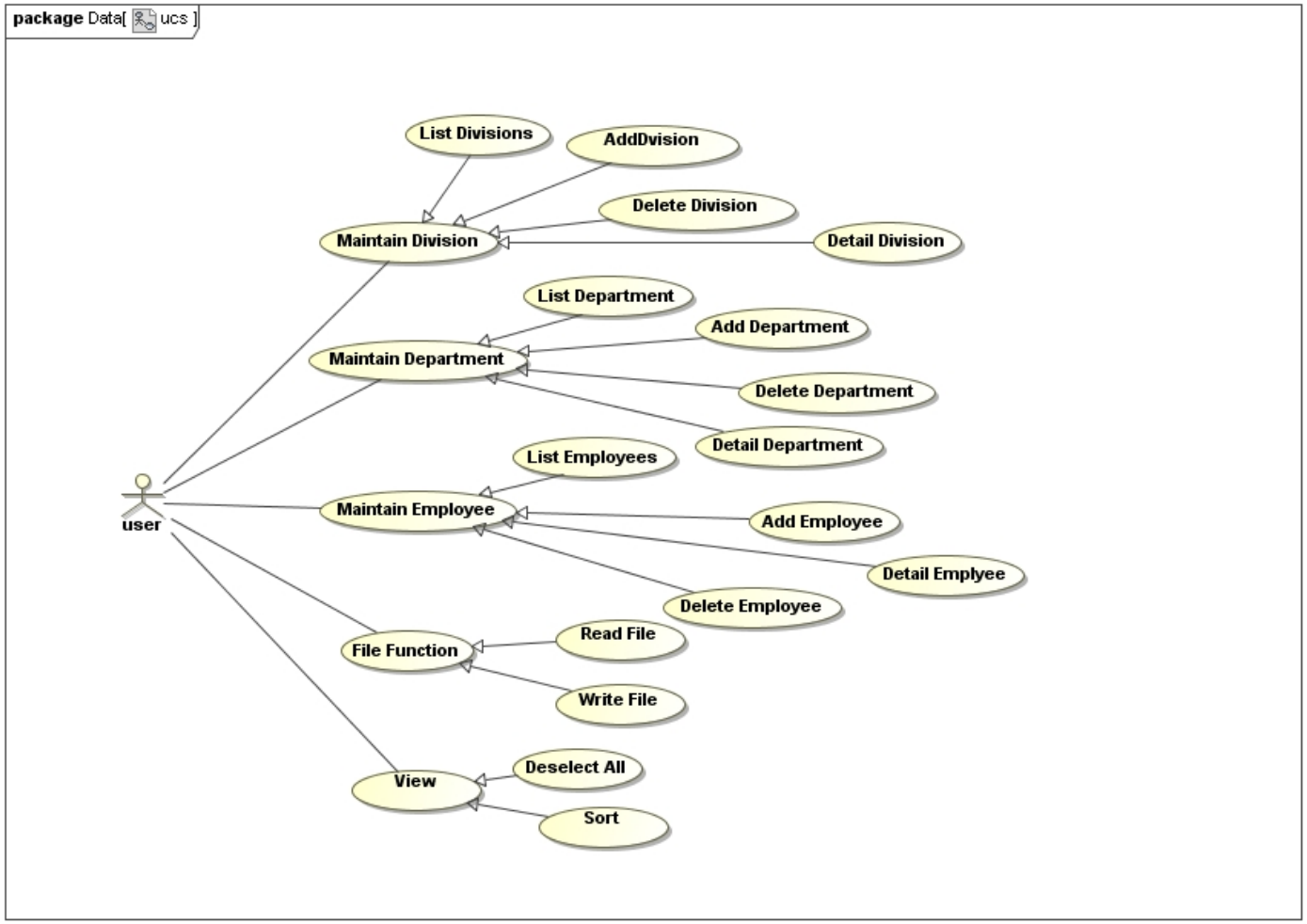
- CA Gen goes SWT
- CA Gen → UML2
- Using OO API for CA Gen's Encyclopedia
  - Example Code Convention Check
  - Database Reverse Engineering
- Reporting using BIRT
- Further Eclipse Integration by using ModelCVS's CA Gen Adapter

Pilot Project „GEN goes SWT“

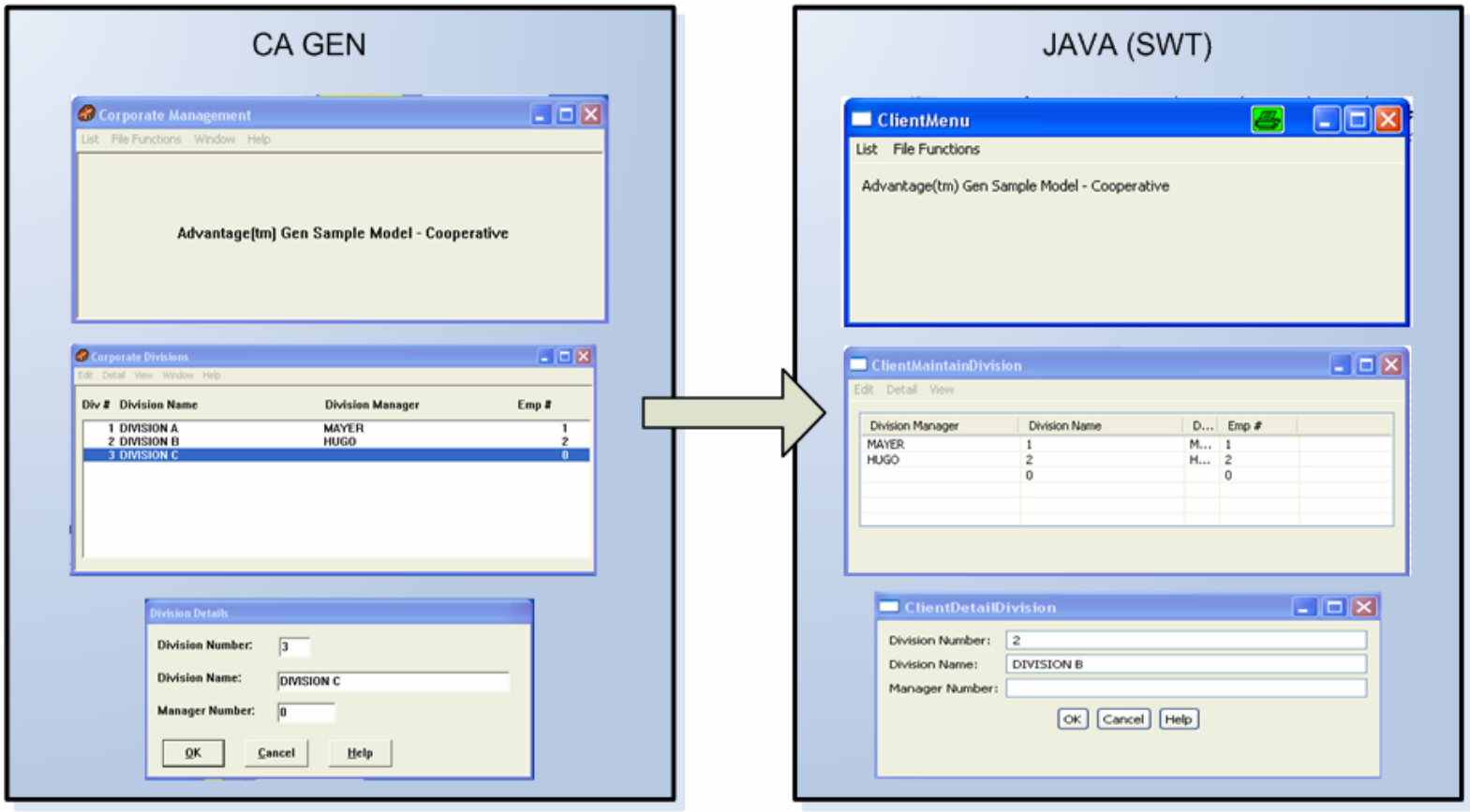
- Requirement of Austrian Ministry of Defense within the scope of the research project “ModelCVS”
- Project idea:
  - Transform CA Gen client to SWT client
  - Use CA Gen proxy to access CA Gen Server



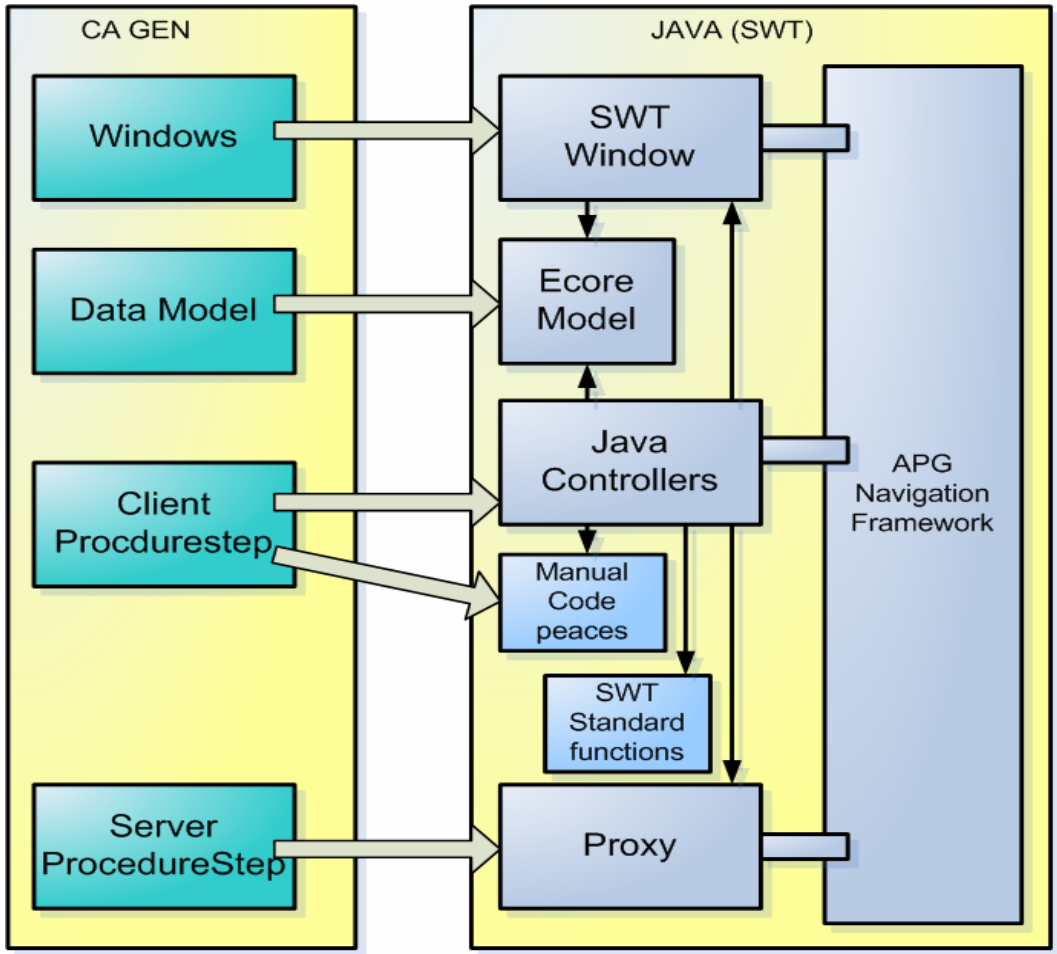
Use Case Diagram CA's Sample Model



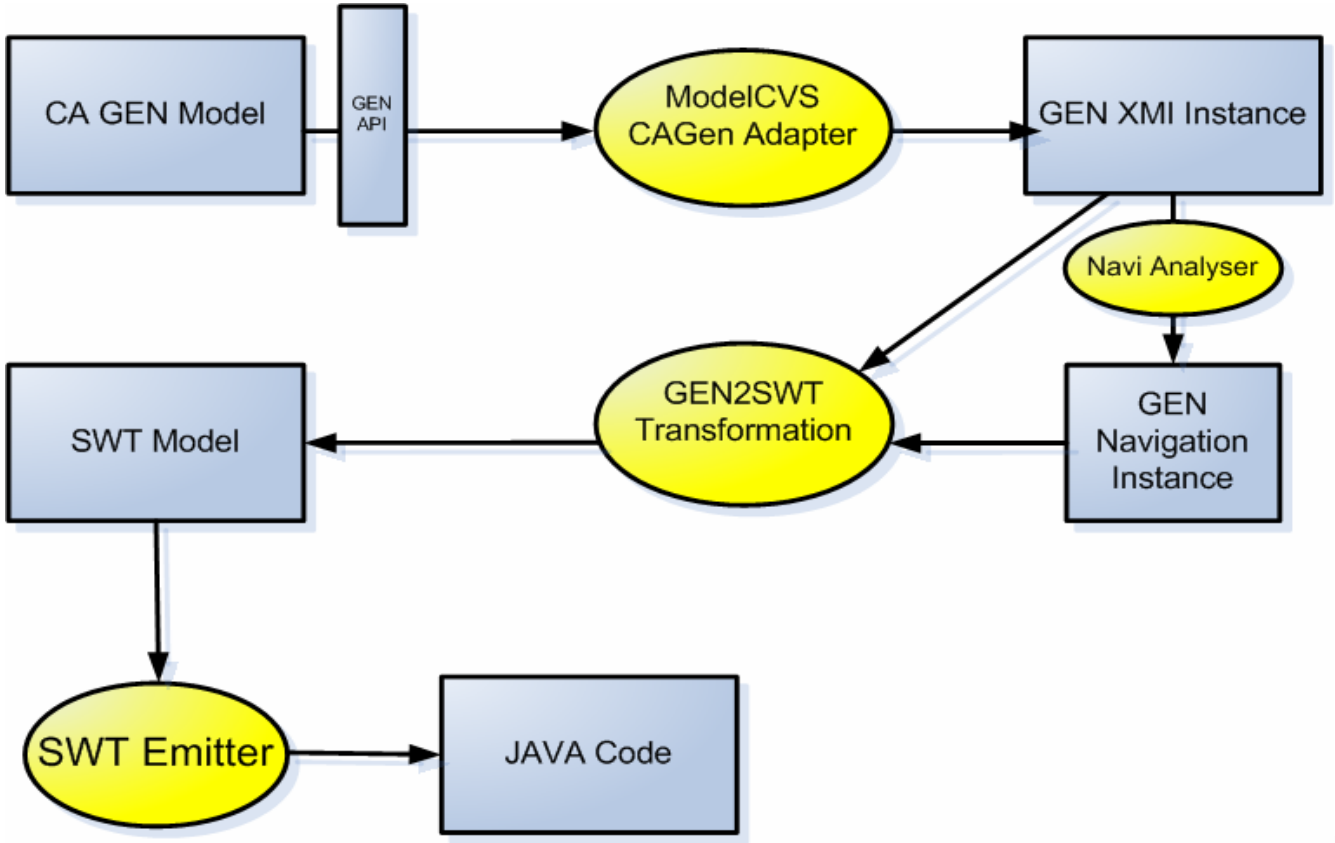
CA's Sample in SWT



Idea behind Gen2SWT Transformation

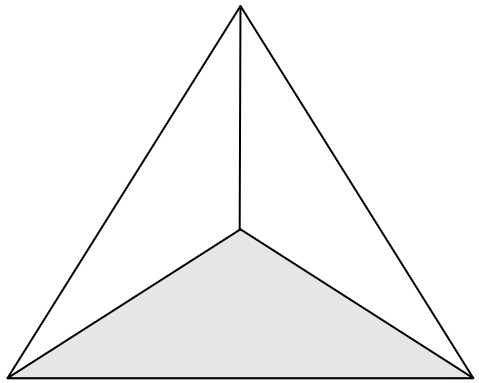


Process behind Gen2SWT Transformation



Demo

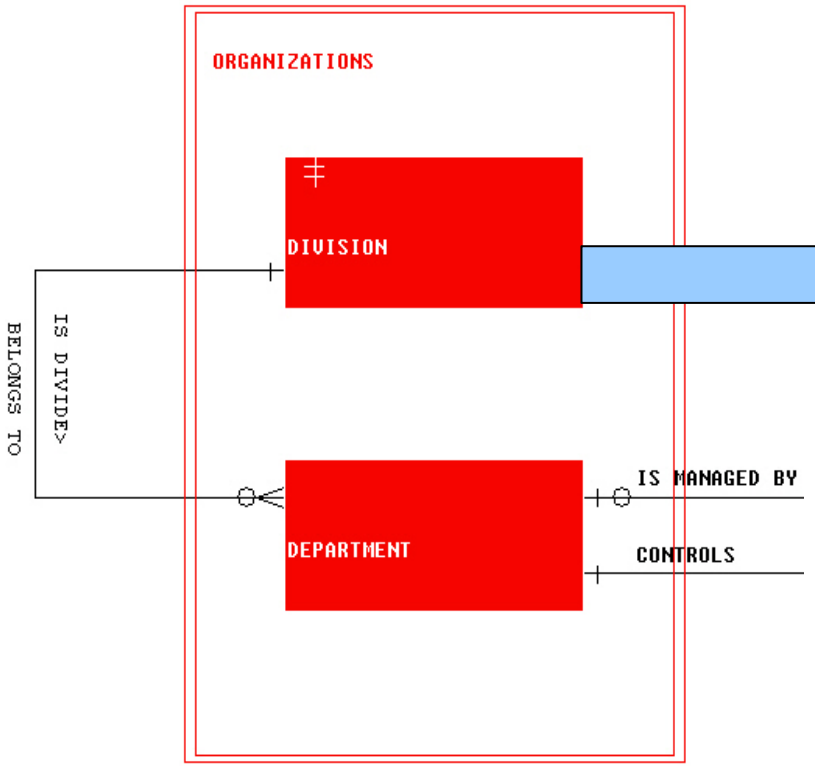
APG's SWT Transformation

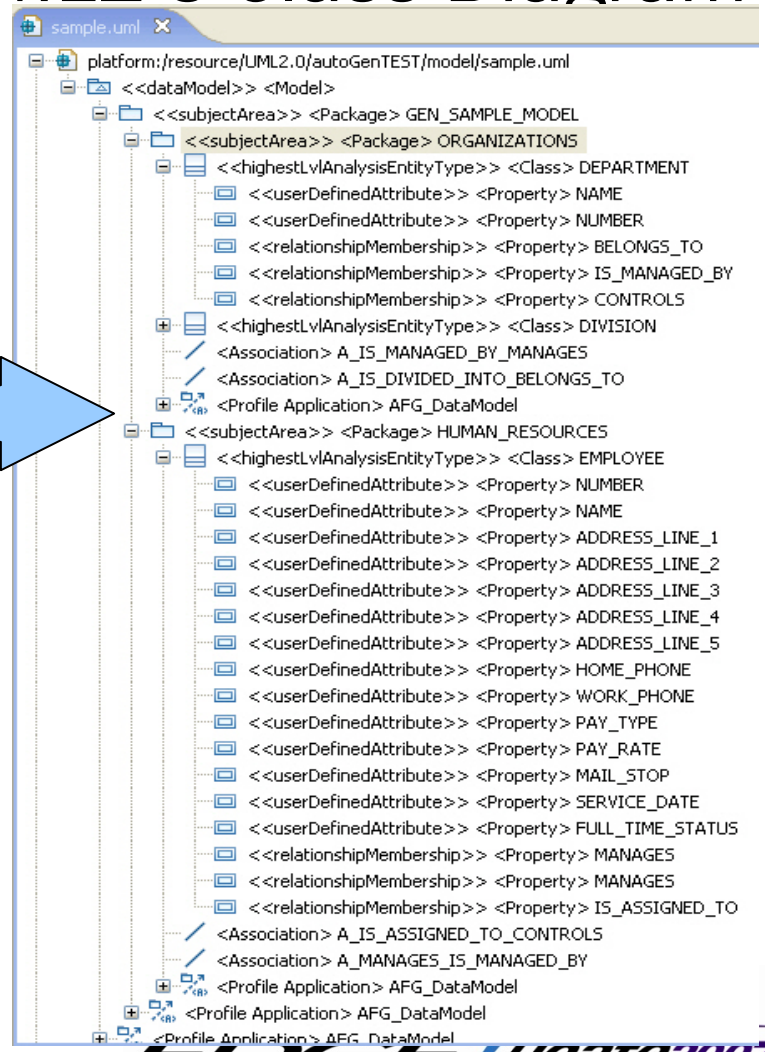


APG

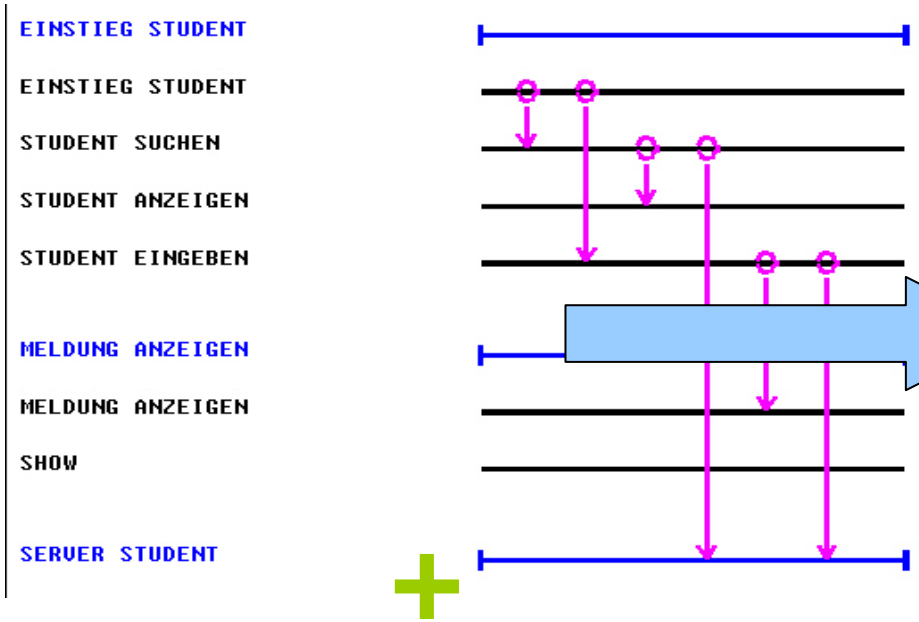
EDGEucate2007

CA Gen' Datamodel to UML2's Class Diagram





CA Gen' Navigation to UML2's State Machine




```
USE show (procedure step)
    WHICH IMPORTS: Entity View inp_student student  TO Entity View inp_student student
    WHICH EXPORTS: Entity View out_student student  FROM Entity View out_student student
                   Group View  out_anzeige  FROM Group View  out_info

COMMAND IS bypass

EVENT ACTION studentenanz_pb_exit_click
EXIT STATE IS suche

EVENT ACTION goback
EXIT STATE IS processing_ok
```

umlOutput.uml | stud_reg.uml

- <Model>
  - <State Machine>
    - <Region>
      - <State> EINSTIEG_STUDENT
      - <State> SERVER_STUDENT
      - <State> MELDUNG_ANZEIGEN
      - <State> STUDENTEN_LESEN NaviActionBlock
      - <State> STUDENT_ANLEGEN NaviActionBlock
  - <Model>
    - <State Machine> EINSTIEG_STUDENT
    - <Profile Application>
  - <Model>
  - <Model>
  - <Signal Event> STUDENTENSTA_PB_STUDENT_ANLE_CLIC
  - <Signal Event> STUDENTENSTA_PB_STUDENT_SUCH_CLICK
  - <Signal Event> STUDENT_DETA_PB_OK_CLICK
  - <Signal Event> STUDENT_DETA_PB_CANCEL_CLICK
  - <Signal Event> STUDENTENANZ_PB_EXIT_CLICK
  - <Signal Event> STUDENT_DETA_PB_OK_CLICK
  - <Signal Event> STUDENT_DETA_PB_CANCEL_CLICK
  - <Signal Event> GOBACK
  - <Profile Application>
- Navigation Model
- Navi Procedure
  - base_StateMachine='_lhv8dXjBEdyJ5pcizeGqfg'
  - name='MELDUNG_ANZEIGEN'
- Navi Procedure
  - base_StateMachine='_lhv8eXjBEdyJ5pcizeGqfg'

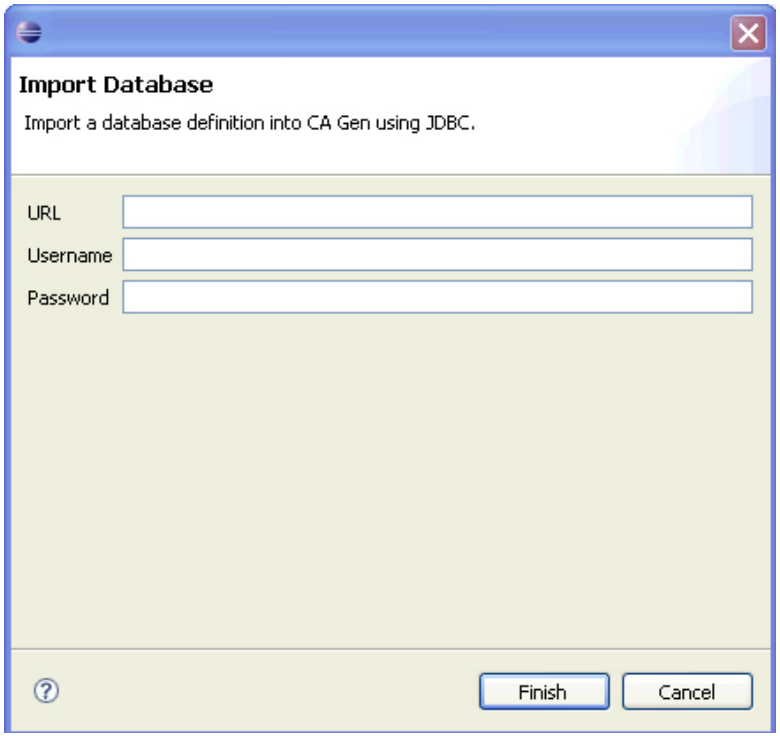
Example: Code Convention Check (1)

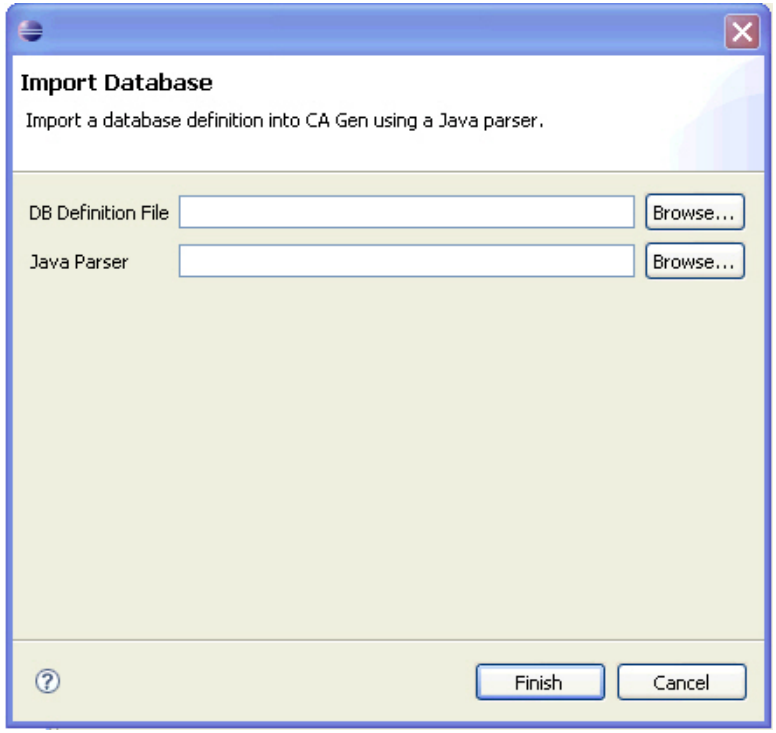
```
public void checkEntityNameConvention(String modelPath){

      //load all gen entity objects
      EClass metaClass =
                DataPackage.eINSTANCE.getHighestLvlAnalysisEntityType();

      HighestLvlAnalysisEntityType[] allEntities =
                (HighestLvlAnalysisEntityType[])ModelManager.
                loadGenModelObjects(modelPath, metaClass, false);

      // do something
      for(int i = 0; i<allEntities.length; i++){
                System.out.println(allEntities[i].getName());
      }
}
```

Example: Code Convention Check (2)

```
public void updateEntityName(String modelPath){

            //load all gen entity objects
            EClass metaClass =
            DataPackage.eINSTANCE.getHighestLvlAnalysisEntityType();

            HighestLvlAnalysisEntityType[] allEntities =(HighestLvlAnalysisEntityType[])
                        ModelManager.loadGenModelObjects(modelPath, metaClass, false);

            List<EObject> list = new ArrayList<EObject>();
            //collect gen objects need update
            for(int i = 0; i<allEntities.length; i++){
                        String name = allEntities[i].getName();
                        if(!name.startsWith("E_")){
                                    allEntities[i].setName("E_" +
                                    allEntities[i].getName());
                                    list.add(allEntities[i]);
                        }
            }

            //update
            ModelManager.updateGenModelObjects(modelPath,     list.toArray(new
            EObject[list.size()]));
}
```

Database Reverse Engineering



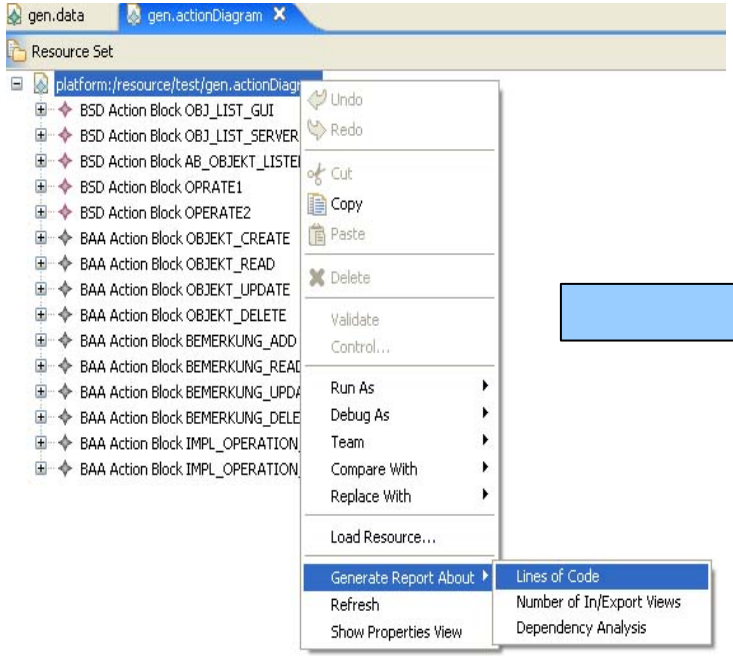


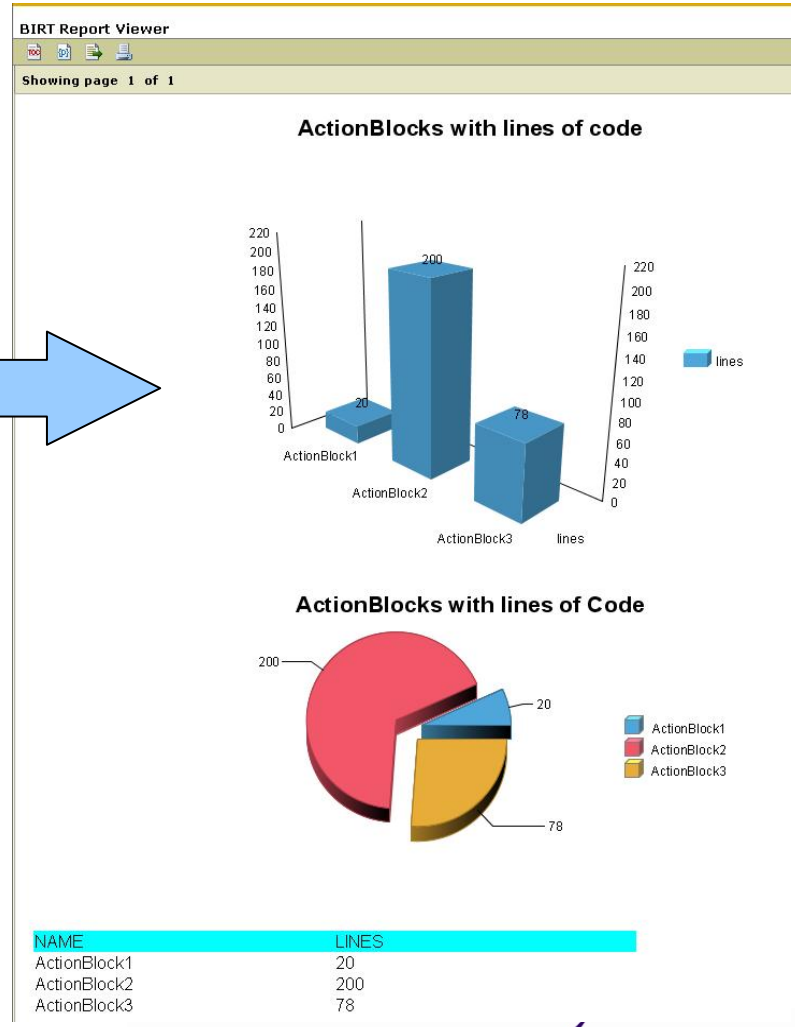
- Database Structure Analysis from DDLs
- Database Structure Analysis from XML Schema of any Database
- Generation of ER-Diagramms
- Generation of DB Access Action Blocks

APG

EDGEucate2007

BIRT





- Information about Models using BIRT
- Various Charts
- Written Reports & Forms
- Any types of model Information
- CA Gen QS Check

Further Eclipse Integration by using ModelCVS's CA Gen Adapter

- Context menu „Search references“ in model Tree editor: Procedure Step, Command, Exitstate…
- Using or integrating other EMF-based eclipse projects: Compare, Search, BPEL, TPTP, OWL…
- Plugin your own eclipse actions as the tree editor‘s sub-menu!

EDGE Needs Your Feedback!

- Please complete the conference evaluations
- Your feedback/suggestions are necessary to continue to bring you top-notch events

- Thank You for Coming – See you in 2008!