Eclipse EJB 3.0 Object/Relational Mapping Project Proposal

Creation Review

July 21, 2005

Introduction

- EJB 3.0 is the next revision of the Enterprise Java Beans specification. One of the most significant changes in EJB 3.0 is the introduction of a standard O/R mapping specification and the move to POJO based persistence.

  One of the principal goals of EJB 3.0 is:

  > "Simplification of object persistence by the definition of a light-weight object/relational mapping facility based on the direct use of Java classes rather than persistent components."

  JSR 220: Enterprise JavaBeans^{TM}, Version 3.0
  EJB 3.0 Simplified API

- Why an Eclipse EJB 3.0 O/R Mapping Project?
  - To make light-weight EJB 3.0 persistence available to the large number of Java developers using Eclipse.
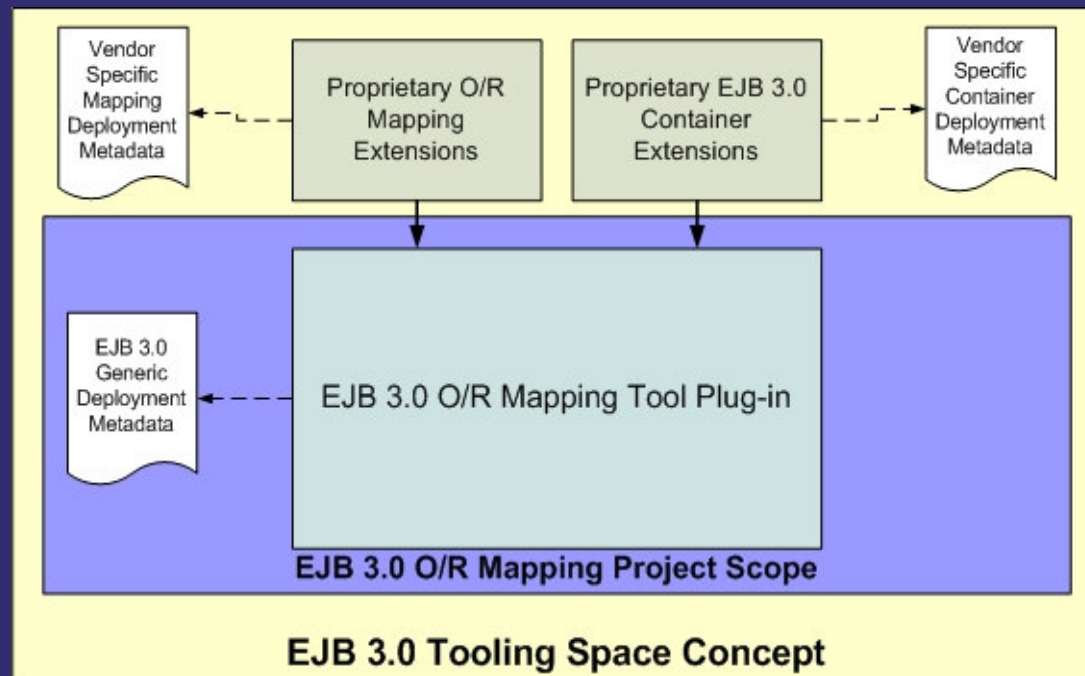
Goals

- Support for the definition, editing, and deployment of Object-Relational (O/R) mappings for EJB 3.0 Entity Beans (JSR 220).
- Simplify mapping definition and editing through:
    - creation and automated mapping wizards
    - intelligent mapping assistance
    - dynamic problem identification
- Exemplary tools and frameworks for EJB 3.0 mapping
- Extensibility so vendors and open source projects can provide specific support for their EJB 3.0 runtimes

Project Principals

- Leveraging Eclipse Ecosystem
- Vendor Neutrality
  - targeting the EJB 3.0 reference implementation
- Extensibility
  - a platform for building enhanced O/R mapping tools
- Agility
  - incremental and iterative development tracking the evolving specification
- Standards Compliance
  - JSR 220: Enterprise Java™ Beans
- Inclusiveness
  - open multi-party development team

Scope Overview

- Scope is limited to support for the O/R mapping model defined by JSR 220: Enterprise Java Beans 3.0
  - Vendor extensions will be supported but not implemented as part of the project

Scope Details

- JSR 220 support for mapping Objects to Relational databases
    - Annotation and XML specification of Object/Relational mappings
    - JSR 220 deployment artifact creation and editing support
- Automation/Generation Functionality
    - Generation of Entity Beans from table definitions (bottom up)
    - Generation of table definitions from Entity Beans (top down)
    - "Automap" between existing Java classes and tables (meet in the middle)
- Developer Productivity Support
    - Coding assistance for annotation parameters (e.g., valid table/column names)
    - Mapping assistance and validation through dynamic problem reporting
    - Visual EJBQL Builder
    - Ability to keep mappings and EJBQL queries in sync with Java class and Table definitions in the face of refactoring

Out of Scope

- EJB Session Beans
- EJB Message Beans
- EJB 3.0 runtime
    - Project will target the EJB 3.0 Reference Implementation
    - Vendors will test with their EJB 3.0 runtimes to ensure tooling is compatible
- Other mapping technologies are out of scope
    - E.g., JSR 222 Java Architecture for XML Binding

Relationship to Other Projects

- The EJB 3.0 O/R Project will interact with and leverage, at a minimum, the following Eclipse Projects:
    - JDT (Java Development Tools) Core, UI
    - DTP (Data Tools Project)
    - WTP/JST (j2ee Standard Tools) J2EE Core Model
- EJB 3.0 Reference Implementation
    - The EJB 3.0 RI will be open source under Sun's CDDL license (Project Glass Fish).

Current Status

- Proof of concept demonstrated at JavaOne provides:
    - Entity Creation Wizard
    - O/R mapping annotation editing in both Java source files and through property editors (synchronized with source code).
        - @Entity
        - @Table
        - @Basic

- Current work includes:
    - EMF model construction for persistent Entities
    - Integration of existing views with the EMF model
    - Investigation into DTP integration
    - Investigation into WTP integration

Initial Participants

Participants with committed resources:

- Oracle*
- SolarMetric*
- JBoss*

* Member of the JSR 220 Enterprise Java™ Bean Expert Group

Initial Team

- **Project Lead**
  - Neil Hauge—Oracle
- **Committers**
  - Brian Vosburgh—Oracle
  - Karen Moore—Oracle
  - Marc Prud'hommeaux–SolarMetric
  - Max Rydahl Andersen—JBoss
  - Paul Fullbright—Oracle
  - Tran Le—Oracle
- **Developers**
  - Greg Campbell–SolarMetric
  - Marshall Culpepper–JBoss
  - Shaun Smith—Oracle

Schedule

- Milestone 1 – Integrated EJB 3.0 Entity source annotation by rich UI (Prototype)
  - Ability to define an Entity and its properties with the plug-in UI, via annotation
  - Ability to define an Entity's Table and its properties with the plug-in UI via annotation
  - Ability to define a Basic Mapping with the plug-in UI via annotation

- Milestone 2 – Modeling, XML Descriptor management and deployment
  - Basic EMF model for EJB 3 Entities
  - Ability to annotate Entities and manage the XML Descriptor file for Entity definition

- Milestone 3 – DTP integration, extended mapping support, Entity generation from tables
  - Integrate with DTP for off-line schema support
  - Ability to define Reference Mappings
  - Basic Entity generation from table support

- Milestone 4 – Complete mapping support, Named Query support

Questions?