Eclipse Modeling Framework (EMF)

Basic course

EMF is an Eclipse-based modeling framework that provides a solid base for application development through the use of pragmatic modeling and code generation facilities.

It is used for building Code generators, Graphical diagramming frameworks, Model Transformation, Validation, and Search. Eclipse E4 and Eclipse projects such as Xtext and Sirius are entirely based on EMF.

It has transformed the modeling tools industry. Leading modeling tool vendors such as Borland and IBM have based their products on EMF. Almost the event modeling project today is based on EMF.

Workshop

This workshop is an introduction to EMF's Modeling and Code generation capabilities. Participants will have an opportunity to build models based on the EMF ECore model, Generate Java code and customize it. Important EMF concepts namely Persistence framework and Proxy resolution are covered in-depth with appropriate hands-on exercises.

Prerequisite

Knowledge of Java is essential
Prior experience of using UML is a plus

Modalities

Duration: 8 hours
Structure: Instructor-led with 100% hands-on labs
Participants: Maximum 8 per-workshop
Equipment: Participants supply their own computer with the latest Eclipse installed.

Agenda

Introduction

- Introduction to the Eclipse Modeling Framework (EMF)
- EMF Workflow - Meta-modeling, Java Code generation, Testing using the Reflective ECore editor.
- Code Generation
    - Factory, Package, Adapter Factory and Switch classes
    - Customizing the Generated code

ECore Kernel

- EClass and EObject
- Attributes - Single and Multi-Valued
- References - Non-Containment, Containment, and Bidirectional
- DataTypes, Operations, and Annotations

Persistence framework

- Persistence API - ResourceSet, Resource, EMF Package Registry

Proxy resolution

- Proxy resolution in EMF
- Cross document references - Resolve Proxies, and Containment Proxies

Dynamic EMF

- EMF Dynamic API