Eclipse Modeling Framework (EMF)

Advance 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 projects such as Xtext and Sirius are entirely based on EMF.

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

Workshop

In this workshop, we focus primarily on the advance EMF concepts besides the Modeling and Code generation capabilities. Participants will have an opportunity to make use of all the advance EMF concepts.

Key concepts namely Persistence framework, Proxy resolution, Dynamic EMF, Notification and Adapters, and EMF Compare framework are covered in-depth with appropriate hands-on exercises.

Prerequisite

Eclipse EMF basic course
Prior experience of 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 with Modeling tools installed.

Agenda

Introduction

- EMF Workflow - Meta-modeling, Java Code generation, Testing.
- Code Generation
  - Factory, Package, Adapter Factory and Switch classes
  - Customizing Generated code.

Runtime framework

- Notification and Adapters
  - Model change notification
  - Observing the model changes
  - `EContentAdapter.`
- Persistence framework
  - Persistence API - ResourceSet, Resource, and URI
  - EMF Package Registry - Local and Global Registry
  - Registering and Reading packages from the registry.
- Proxy resolution
  - Proxies in EMF
  - Influencing Proxy resolution - Resolve Proxies, and Containment Proxies fields.
- Dynamic EMF
  - Creating and Instantiating model using EMF Dynamic API.

Validation framework

- Defining Constraints and Invariants
- Invoking Validation.

Compare framework

- Comparing EMF Models
- Customizing the framework.