

**Group:** Aspect-Oriented Product Lines Development

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The main goal of this group is to define a model-based aspect-oriented software product line (SPL) development environment, named MaRiPLA (Mapping Requirements to Product Line Architecture), that focus on the mapping from SPL requirements to SPL architecture. MaRiPLA applies (i) aspect-oriented software development (AOSD) to modularize variability and (ii) model-driven development (MDD) to express models of each software activity and to define model transformations between requirements and architecture activities.

Our proposal consists of: (i) using a traditional features model at the requirements level; (ii) extending AOV-Graph to express variability at the early design level; (iii) extending AspectualACME to deal with variability at the architecture level. In addition, we aim to define the metamodel of each language used in MaRiPLA and transformation rules between these languages. MaRiPLA tool will be developed in the Eclipse platform using ATL (Atlas Transformation Language) and KM3 (Kernel MetaMetaModel) and will support the automatic generation of PL-AOV-Graph and PL-AspectualACME specifications from the feature model specification.

A meshing tool will be used as a case study in order to evaluate MaRiPLA.

Next steps:

1. Description of the overall idea of MARIPLA in the paper “A Marriage of MDD and Early Aspects in Software Product Line Development” to be submitted to the Early Aspects Workshop at SPLC 2008 (Deadline: July 1<sup>st</sup>)
2. Description of the case study using the feature model
3. Extension of AOV-Graph to express variability (PL-AOV-Graph)
4. Extension of AspectualACME to express variability (PL-AspectualACME)
5. Definition of the KM3 metamodels of the feature model, PL-AOV-Graph and PL-AspectualACME.
6. Definition of the transformation rules, in ATL, from the feature metamodel to the PL-AOV-Graph metamodel
7. Definition of the transformation rules, in ATL, from the PL-AOV-Graph metamodel to the PL-AspectualACME metamodel
8. Implementation of MaRiPLA
9. Automatic generation, using MaRiPLA of th meshing case study in PL-AOV-Graph e PL-AspectualACME
10. Paper “MaRiPLA: Mapping Requirements to Architecture in Software Product Lines” to be submitted to FASE’09 (Fundamental Approaches to Software Engineering (Deadline: October 9<sup>th</sup>))