

Managing process model collections with AProMoRe

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Abstract. As organizations reach higher levels of Business Process Management maturity, they tend to collect numerous business process models. Such models may be linked with each other or mutually overlap, supersede one another and evolve over time. Moreover, they may be represented at different abstraction levels depending on the target audience and modeling purpose, and may be available in multiple languages (e.g. due to company mergers). Thus, it is common that organizations struggle with keeping track of their process models. This demonstration introduces AProMoRe (Advanced Process Model Repository) which aims to facilitate the management of (large) process model collections.

1 Introduction

AProMoRe is a process model repository which goes beyond the typical amenities of traditional repositories, such as model import/export and version control. First, it supports a variety of process modeling languages, including EPCs, BPMN, YAWL, BPEL. Second, it offers an open and extensible platform to build advanced features that specifically deal with large process model collections, such as similarity search, process merging and efficient model querying. These features can be classified according to four main service areas: i) *evaluation*, concerned with establishing the adherence of process models to various quality notions such as syntactic quality and usability issues; ii) *comparison*, offering capabilities to compute the degree of similarity between models and to merge similar models; iii) *management*, supporting the creation, modification and completion of process models, based on the reuse of existing content; and iv) *presentation*, providing visual support for improving the understanding of process models, e.g. via abstraction or coloring techniques. The possibility to operate over process models irrespective of their language and abstraction level, is made possible via the use of an internal *canonical process format* [1]. This format provides a common, unambiguous representation of business processes so that all process models can be treated alike. The idea is to represent only the structural characteristics of a process model that are common to the majority of modeling languages. Language-specific concepts are omitted because they cannot be meaningfully interpreted when dealing with process models originating from different notations, i.e. when cross-language operations need to be performed such as comparing process models that are in BPMN with models that are in EPCs. Moreover, this canonical format is agnostic of graphical information (e.g. layout, shapes, line thickness). Instead, this information is stored separately in the form

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of *annotations* linked to files in canonical format. These annotations are used when a canonical model needs to be presented to the user or converted back to a process modeling language.

2 System Overview

AProMoRe is implemented via a three-layered Service Oriented Architecture (SOA) and deployed over the internet (see Fig. 1). The Enterprise layer hosts the *Manager*—a public enterprise service which exposes all the repository features via Web service operations for integration with third-party applications, e.g. a BPM System. Moreover, these operations can be accessed via a *Web Portal*, which in turn delegates model editing functionality to Oryx (<http://bpt.hpi.uni-potsdam.de/Oryx/WebHome>).

The Intermediary layer hosts the *Canonizer* which is an adapter responsible for (de-)canonizing process models as they are imported/exported into/from the repository. The *Toolbox* is a façade over the advanced operations that can be performed on the stored process model collections. Access to these models is achieved via the *Data access* service in the Basic layer, which encapsulates data-centric operations for reading/writing data upon requests made by the other services. Finally, the *Access Control* service controls security aspects such as user authentication and authorization. In future work, we plan to also store process logs

and to integrate AProMoRe with the process mining tool ProM (<http://www.processmining.org>). AProMoRe’s portal is accessible at <http://brahms0.imag.fr:8080/Apromore-portal> (login: `icsoc`, no password). The source code, manuals and a demonstration screencast can be found at <http://code.google.com/p/apromore> (under Downloads).

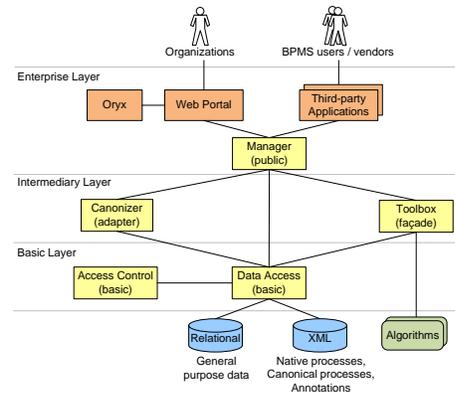


Fig. 1. AProMoRe’s SOA.

3 Demo Script

This demonstration focuses on the similarity search and merging functionality. After a quick overview of AProMoRe’s basic features—e.g. import/export and editing of process models in various formats—we will show how AProMoRe is able to retrieve models from a repository that are similar to a given model. Next, we will show how the repository can be queried according to various parameters. Finally, we will retrieve two similar models and show how they can be merged into a single model—a feature that has been used in a real process model consolidation project.

References

1. M. La Rosa, H.A. Reijers, W.M.P. van der Aalst, R.M. Dijkman, J. Mendling, M. Dumas, and L. Garcia-Banuelos. AProMoRe : An advanced process model repository. QUT ePrints Technical Report, <http://eprints.qut.edu.au/27448>, 2009.