

The ARCHway Software Infrastructure: a Demo of a Platform and Utilities for Building Applications for Electronic Editions

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As advocated in our paper (Jaromczyk & Bodapati), the *Eclipse* platform (*Eclipse Platform Technical Overview*) is a suitable choice for building complex systems in environments that involve interdisciplinary collaboration and the involvement of researchers and students at different levels. *Eclipse* provides a *universal tool platform* (*Eclipse*) which allows different software tools to work together using a plugin system to form an integrated whole. This architecture underlies the *Edition Production Technology* (Kiernan et al.), an integrated set of tools for creating, managing, and viewing image-based electronic editions (IBEEs) (Dekhtyar et al.). In order to provide more comprehensive and integrated support for the needs of editors and students of electronic editions, we provide an additional, task-oriented, infrastructure which provides functionality for extending *Eclipse* to support tasks for editing electronic editions.

In this demonstration, we will present several pieces of this infrastructure. The infrastructure includes support for management of resources essential for humanities scholars interested in electronic editions, and a uniform structure for accessing and combining transcripts, concurrent XML documents, and images. It is designed to accommodate the varying needs of editors and allows for specializations ranging from simple adaptation through the graphical user interface (GUI), to medium-level changes based on XML configuration files and wizards, and finally to advanced customization by developing new plugins in Java. As such, it is intended to meet needs of individual scholars or large groups.

The infrastructure we present consists of a number of parts, organized into *layers*. The lowest layer, sitting directly atop *Eclipse*, is the Data Layer, a framework for uniform access to resources in different physical locations such as filesystems,

databases, and web servers. Above the Data Layer is the Project Explorer, a tool for modelling resources and projects for IBEEs and navigating those models. Making use of both the Data Layer and the Project Explorer is the Resource Registry, which organizes collections of resources according to user-defined criteria. Finally, higher-level components of the *EPT* use these tools as a framework for managing and organizing the data in an image-based electronic edition.

This demonstration will present the infrastructure and show how it fits into the general architecture of the *EPT*. We will furthermore give examples illustrating how the tools can be customized. We demonstrate the use of the Project Explorer to create, manage, and navigate electronic edition projects, accessing both local and remote data sources through the Data Layer. We will also show how the Project Explorer's model-based approach to projects allows for highly customizable views of the structure of an electronic edition. In particular, the Resource Registry contributes a model of the contents of a project that can be changed on the fly at runtime.

In addition to this infrastructure, we will present tools which make use of the infrastructure to help editors produce electronic editions. The Line Tracer allows editors to annotate (mark up) images in an electronic edition, using a model based on the segment tree data structure (Dekhtyar et al.; Jaromczyk & Moore) that provides a natural support for the concurrent XML based on image tagging. Another tool, the Image Morpher, works with the Line Tracer and Resource Registry to *re-morph* manuscript pages, correcting deformations of the lines of text introduced by centuries of wear and tear.

The demo will focus on illustrating how the implemented infrastructure can be customized to meet a broad range of needs related to individual and collaborative work on electronic editions.

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