Medical Orders for Life-Sustaining Treatment (MOLST) is a physician order form approved by the New York State Department of Health to honor patient preferences that guarantee quality end-of-life care. In its current incarnation the form is printed on bright pink paper and kept in the patient's home. When the patient receives medical attention, the form travels with them. Figure 1 shows an example of the paper based MOLST form.

Electronic Medical Orders for Life-Sustaining Treatment (eMOLST) is a project that delivers software in support of the transition from a paper to web-based form and workflow, developed through the Service Oriented Architecture lab at RIT. The purpose of a web-based system is to make the form accessible to the patient wherever they are while decreasing human error in filling out the forms. The eMOLST project is meant to be a part of a complete paperless health document system for NY State.

### Features

- Log in with user name and password, complete with restricted access levels for defined roles (Physician, Physician's Assistant, EMT, Admin)
- Create forms and associate them with Physicians
- Search users, patients and forms
- Notify user of forms that require action, including signatures or required reviews
- Validate forms to ensure correctness and completeness
- Search users, patients and forms
- Create forms and associate them with Physicians
- Log in with user name and password, complete with restricted access levels for defined roles

Figure 2 shows how some of these features have been implemented.

### Architecture

The eMOLST system has been designed in a modular and easily modifiable 3-tier architecture (depicted in Figure 3). The data tier and control tiers both have a layer of abstraction to allow the adoption of different technologies. Communication between tiers is performed over the HTTPS protocol and through firewalls to ensure safety.

#### Presentation tier

Using the JQuery javascript library, CSS and XSL, information obtained from the control tier is presented in a user-friendly way within the presentation tier. Data is validated before submission using JavaScript to ensure integrity.

#### Control tier

Currently using PostgreSQL, the data tier stores all of the eMOLST information in database tables and makes them available through JDBC calls.

#### Data tier

Centered around Apache Axis, the control tier utilizes Web Services to retrieve data from the data tier and processes it for consumption in the presentation tier. These Web Services and their clients implement the same interfaces as the data tier. The five top level services provided are listed in Figure 3.

### Technologies

- Apache Tomcat 6
- Apache Axis 2.4.1
- Eclipse
- Java 1.6
- JQuery
- Maven 2
- PostgreSQL
- Windows Server 2003

### Future

In the future, it is expected that eMOLST will be picked up by another development team to expand the features into a larger system. This larger system will be a part of a nationwide push for the digitization of health records. Because eMOLST has been designed in a very modular format, it will be simple for future project teams to "plug in" different modules to meet the needs of the larger system. Two such modules the team is currently aware of are a central document store and a unified login process. With detailed documentation available, future project teams will be able to get the system configured quickly.

### Background

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