Sample Wizard for LabWare LIMS: Architecture & Configuration Technology Whitepaper

Introduction

Simplica Sample Wizard is a stand-alone Web application designed to extend LabWare LIMS to users outside of the lab. It provides a simplified, user-friendly interface for logging new samples, tracking sample status, getting results as well as finding and downloading historical data. Sample Wizard works on any device with a browser – PC, mobile, tablet, etc.

Sample Wizard has been designed with the same architecture and deployment model as LabWare’s other Web interfaces (WebLIMS, Web Services API, LabWare 7 Web, etc.). In addition to accessing LabWare’s extensive LIMS Basic API, Sample Wizard also uses LIMS templates, lists and reports in delivering its user interface. This allows customers to reuse existing configurations and to make changes in Sample Wizard using familiar LIMS admin techniques.

Architecture

Sample Wizard is delivered as a standard Web application that is server-based and utilizes advanced HTML 5 and other modern browser technologies to create a rich user experience without requiring the use of any special software or plugins. It can be deployed on any recent Java Web server environment. Customers can either host Sample Wizard on their own infrastructure or host it on a cloud service provider. Sample Wizard connects directly to a LIMS database and, in most cases, to an intermediate LIMS server tier. (See Figure 1 – Overall Architecture.) Direct access to the database is for most read operations; the LIMS tier is used for write operations. Customers do not have to deploy the LabWare web client (WebLIMS or V7 Web) to enable Sample Wizard integration. The tiered architecture allows them to work equally well with any LabWare LIMS client (desktop, browser, or Citrix®).

Any database that works with LabWare LIMS is also supported by Sample Wizard, but customers will need to make sure the corresponding JDBC driver is installed in the Java environment. Sample Wizard set-up also requires creating some additional Sample Wizard-specific database tables and fields.

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**Configuration**

Sample Wizard provides various deployment options depending on customers' needs and LIMS setup. These options are generally configured by adding or modifying values in a simple XML file.

One of the most important configurations is to determine how Sample Wizard users are managed. For a lower number of users who log samples directly into LabWare LIMS, Sample Wizard can be configured for LIMS users. These users are managed within LIMS and use their LIMS credentials to log in and access the app.

For a larger number of users, Sample Wizard users can be managed within the Administrative section of the application. In addition, Sample Wizard users can utilize Single Sign-on (SSO) protocols such as SAML. SSO is ideal for company intranets where users are given access to a collection of applications by signing in to any of them, eliminating the need to sign in to the others separately. For Sample Wizard users, configuration options exist for handling ‘Remember Me,’ ‘Forgot Password’ and requesting new accounts.

**Additional configuration is accomplished using LabWare LIMS as follows:**

- The columns in tables showing sample data are controlled with LIMS sample templates
- The columns in tables showing project data are controlled with LIMS project templates
- The step-by-step collection process uses a project template to collect project information and one or more sample templates to collect sample information
- A Sample Summary or other sample based report (e.g. COA) can be used to show details of a given sample
- A Project Summary or other project based report can be used to summarize Sample Wizard projects
• Analysis records as well as Analysis groups and Analysis variations, can be used to organize the available tests for a given sample type

Security Administration

Sample Wizard security falls into two categories:

1. Data Security – this means filtering the data so the user only has access to data records for which he/she is authorized

2. Application Permissions – this means a part or function of the application requires permission to be explicitly granted

Sample Wizard creates a user hierarchy where each level in the hierarchy is a container for users. Users placed in any level can only see sample and other records for that level and any sublevels beneath it. This is the primary mechanism for filtering data access on a per-user basis and a key security feature of the system. By default, levels are customer records in the LabWare database. However, this hierarchy can easily be extended to model more sophisticated parent-child relationships.

Infrastructure Specification

<table>
<thead>
<tr>
<th>Product</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Java Web Container</td>
<td>Java Servlet 2.5 or higher</td>
</tr>
<tr>
<td></td>
<td>JDBC 2.0 or higher</td>
</tr>
<tr>
<td>Browser</td>
<td>IE 8 or higher, recent versions of Firefox, Chrome, Safari</td>
</tr>
<tr>
<td></td>
<td>Support for PDF</td>
</tr>
<tr>
<td></td>
<td>LabWare LIMS Version 6 or higher</td>
</tr>
<tr>
<td>Database</td>
<td>Any database supported by LabWare</td>
</tr>
</tbody>
</table>

We believe the Internet technology platform is the key to making future applications simpler for developers to create and users to use. For 10 years, we have delivered innovative tailored business solutions with web-based software and professional services.

We have been a LabWare development partner since 2002. We designed and built the web technology stack used in LabWare’s WebLIMS and Web Services products. We have been an integral part of their software development team and they have licensed our software technology for inclusion in their products.

In addition to LabWare, organizations around the world use our products and services to build advanced Web 2.0 applications faster and easier than traditional methods. Besides software, we provide our clients with professional support, architecture, development, and training services that help them deliver business results quickly and cost-effectively.