**caTissue GSID Integration Design**

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**Document Change History**

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| --- | --- | --- |
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| 0.0.1 | 02/16/2011 | Initial Document |
| 0.0.2 | 02/21/2011 | Complete Document for Review |
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# Introduction

The Global Specimen Identifier (GSID) service provides a service that maintains the relationships between biospecimens acroos multiple applications to facilitate interoperability. The caTissue application is an application for biospecimen inventory management, tracking and annotation. The purpose of this document is to describe the integration of the caTissue application with the GSID service.

# Scope

The scope of this integration is as follows:

* Modify the user interface (UI) to register and fetch GSID upon the creation of a biospecimen.
* Provide a configurable mechanism to specify if a caTissue application instance will make use of GSID integration or not.
* The Biospecimen class in caTissue will be amended to include a new Global Specimen Identifier attribute.
* The solution will support searching of GSID.
* The solution will provide a tool to upgrade a new caTissue installation by register every specimen to the GSID service.

Some other potential enhancements to this integration are to be considered out of scope. These include the following:

* A management user interface that will track errors when registering GSIDs.
* The registrations of GSIDs in a thread that is separate from the main UI thread.
* Selectively registering biospecimens to the GSID service.

# Requirements

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| **Requirement ID** | **Requirement** |
| caTissue-v20-GSID-1 | The system shall remotely register biospecimens with the GSID service automatically. |
| caTissue-v20-GSID-2 | The UI shall display the registered GSID for every biospecimen. |
| caTissue-v20-GSID-3 | The UI shall provide a mechanism for searching GSIDs . |
| caTissue-v20-GSID-4 | The system shall manage errors when registering GSIDs. |

# System Flow



Figure 1. System flow of GSID registration.

In the figure above, a user creates a biospecimen withing caTissue. Upon creation of the specimen, caTissue will remotely invoke the GSID service to register a new specimen. Upon the return of the remote invocation, caTissue will store the newly assigned UUID to an attribute (i.e. globalSpecimenId) of the Biospecimen instance.

The implementation will also provide a batch interface independent of the caTissue UI that will allow the bulk registration of GSID registrations.

# Algorithms

The algorithm for registering a biospecimen is as follows:

Input: Specimen

Pre-Conditions: globalSpecimenIdentifier is null.

Post-Condition: Specimen with globalSpecimenIdentifier attribute assigned

Implementation:

Navigate to the parent of the input ‘specimen’.

If the parent has a globalSpecimenIdentifier then store this in a variable ‘parents’

Else recursively register the parent specimen with the GSID service.

Register the input specimen with the GSID service using the ‘parents’ variable for its parents.

Exceptional Condition:

If the registration fails, leave the globalSpecimenIdentifier attribute as null.

The algorithm for bulk registering a caTissue application is as follows:

Input: Collections of Specimen instances.

Pre-Conditions: All the globalSpecimenIdentifiers of the Collection are null.

Post-Condition: All specimen in the collection will have their globalSpecimenIdentifier attribute assigned

Implementation:

Loop through each value in the collection

For each value register and assign the global specimen identifier using the previous algorithm.

Exceptional Condition:

If the registration fails, leave the globalSpecimenIdentifier attribute as null.

# Data Model



Figure 2. Datamodel that shows modified Specimen class.

To support this integration a new attribute on the Specimen class of caTissue will be created.

# CaTissue UI Modifications

The following pages will be modified to include a field that shows the registered GSID.

* Single Specimen Page
* Multiple Specimen Flex Page
* Aliquots Page
* Derivatives Page
* Collection Protocol Summary Page

# Unit Tests

The following table provides a description of the unit tests performed to validate this functionality.

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| **Name** | **Description** | **Test Date** | **SVN Tag** |
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