Web-based Education Grant Workflow Application: Case Study

Version 1.0: Feb. 9th, 2005
Version 2.0: Feb. 11th, 2005
Version 3.0: Feb. 14th, 2005

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Revision History

Version	Date	Updated By	Comments
1.0	Feb. 9th, 2005	Sanjay Upadhyay	Draft for Review
2.0	Feb. 11th, 2005	Sanjay Upadhyay	Updated Introduction, Architecture Overview
3.0	Feb. 14th, 2005	Sanjay Upadhyay	Updated Overview, and explained further on Challenges & Requirements

Introduction

Overview

The client is a US-based pharmaceutical company with offices around the globe. The company primarily manufactures pharmaceutical, healthcare products, and medical diagnostic devices.

Business Situation / Need

The company felt the need to migrate a manual grant request / approval process to an automated Web-based intranet application. All documents must be reviewed and approved by various roles within the company. Time and efficiency were lost until an automated application was in place.

The web-based educational grant workflow application provides capabilities to support the collection, storage, and tracking of grant submissions, requests, and reporting services. Application features are integrated with unified internal grant workflow and approval process. As each milestone is reached throughout the process, information is provided to the stakeholders involved at the next step(s).

Solution

The accepted initiative was to deliver an environment that provides web-based capabilities for grant submission, tracking, and reporting. Key features of the application to improve grant workflow process include:

- Maintenance of grant application profiles
- Enforcement of internal business processes for grant processing
- Automated preparation of the committee packages that include documentation for distribution purposes
- Automated preparation of correspondence, notifications, and reminders
- Management reports and metrics
- Role Maintenance
- Budget Maintenance

Challenges & Requirements

Accurate assessment of client requirements had to be determined in order to eliminate redundancies, and strengthen operational procedures. To automate workflow, it was necessary to map out each step, procedure, and business rule in the process. The project required a full life-cycle development modeling process. Application was developed using a phased approach. The project was separated into three phases, with user tests and demo's conducted twice per phase. It was imperative that the application was quality-tested for six demos prior to completing development work. Development and testing work was performed in parallel. Each application update called for change management and dynamic requirement analysis skills to ensure full conformance with the client's mandates.

Avalon Technologies' Role

The Avalon Development Center provided application development, and project management services in completing the work. Remote deployment of application and quality testing services were consistently provided to ensure client expectations were exceeded. Development work was performed using J2EE technology to develop the web-based intranet application. User interface was developed using Wireframes, and UML concepts. Oracle was utilized for database management purposes, and ATG Dynamo for application deployment purposes. Documentum components are used for attachment and document storage, and document history. Data migration was necessary to transfer existing data to the new production database. Additional interfaces to Siebel, Ariba, and other legacy systems were also requested.

There was active involvement from the business users. Six demos of the application were conducted during development to provide awareness to the business users regarding system capabilities, and to conduct user tests. Application unit, system, and load tests were conducted using the client's production database.

Benefits

Reduced non-compliance risk:

- Key workflow and approval processes are automated
- Application provides consistency, completeness, and accuracy in grant submission processing
- Audit trail capabilities
- Incorporate required data sources into a common repository
- Critical documents are tracked and stored

Reduced reconciliation problems:

- Ensure consistent grant management and closeout

Increased evaluation capabilities:

- Track effectiveness of grant proposals through evaluations
- Track efficiency of grant requestor through evaluations

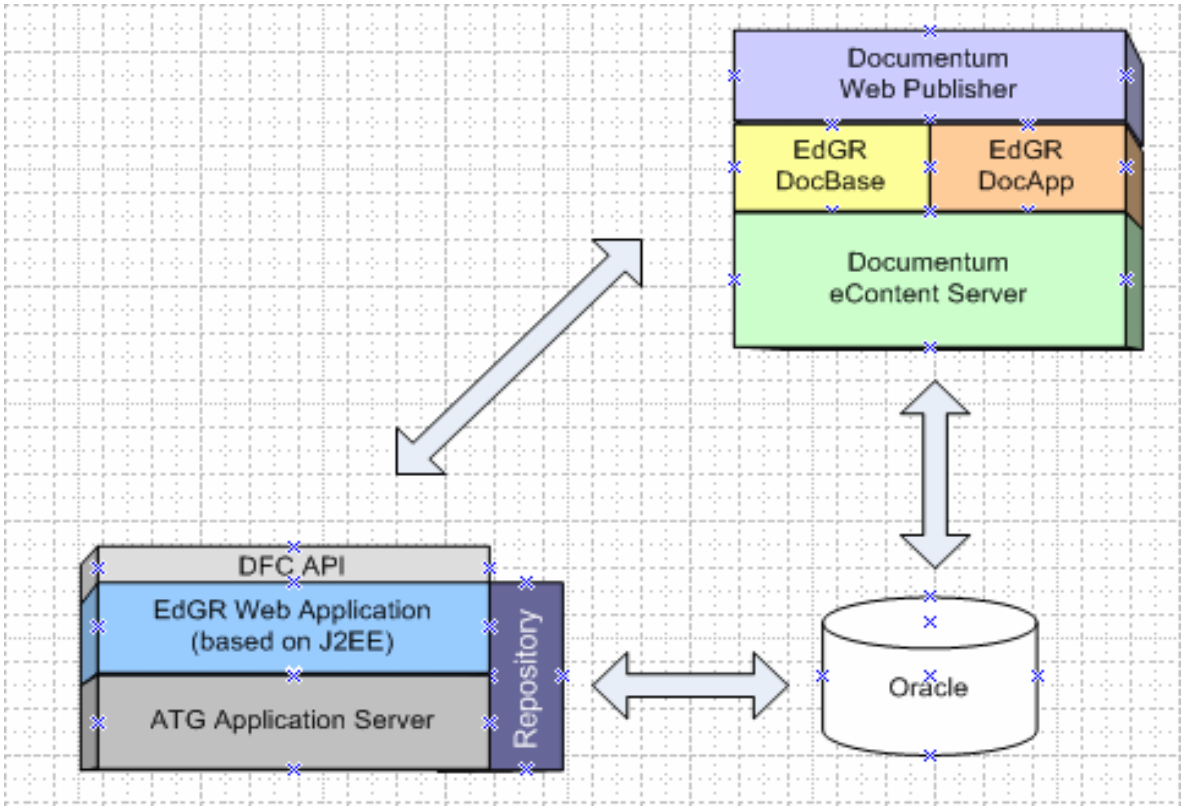
Increased internal communications and a thorough understanding of the client's processes facilitated change requests, and functionality additions and enhancements.

Technical Overview

Summary of Functionalities

Functionalities	**Purpose**
Capture	• Entry of the grant application
Review	• Routing of the grant application to the person responsible for screening & reviewing.
Approval	• Routing to user acting on behalf of the committee for final status determination
Budgeting	• Track cumulative dollars spent and display against total budget dollars maintained
Management	• Management of the process, status, reports, metrics, requestor / accreditor communication, and grant disbursements • User roles
Grant Resubmissions	• Resubmitted grants are tracked, and previous versions of grant request documents will be maintained, as well as history of rejection reasons.
Document Versioning	• Document history maintained
Evaluation	• Track effectiveness of grants through evaluation
Correspondence	• Application delivers email notifications to the user roles
Closeout & Retention	• Closure of process and electronic document / data retention policy implementation
System Administration	• Database backup / restore • Manage user roles • Document history

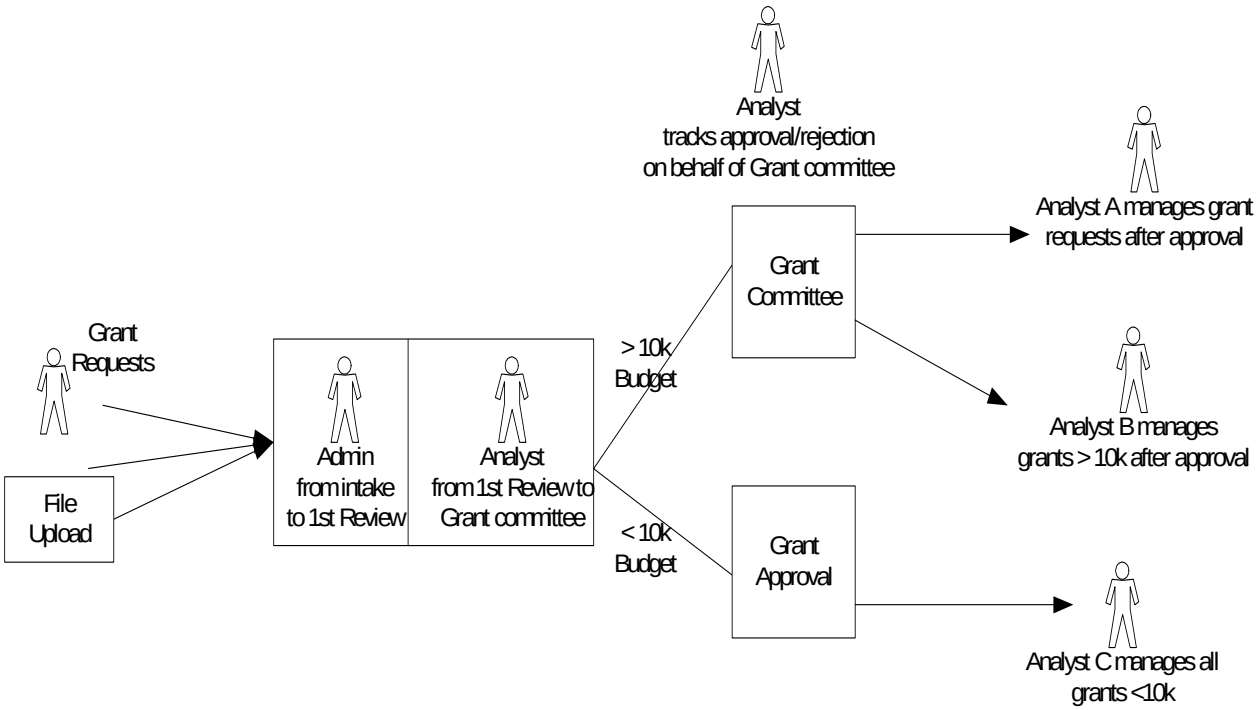
Architecture Overview



The Grant application is deployed using ATG Dynamo Server as the application server for deployment, web page presentation, and delivery. Application is developed using J2EE technology, with Oracle as the database server, and Documentum for document attachment storage, and document history purposes. The Documentum Foundation Classes (DFC) API provides communication to manage content.

The completed application resides in a FDA-level validated and secure server environment at the client's data center premises.

UML Use Case Diagram



Comment:

Purpose of the use case above is to show a high-level representation of a set of events that occurs when a grant request is initiated.
Each grant application is considered a “work item”, and appears in a “work list” until it is closed, rejected or aborted. Each work item has an owner that is responsible for promoting a grant application to the next step.

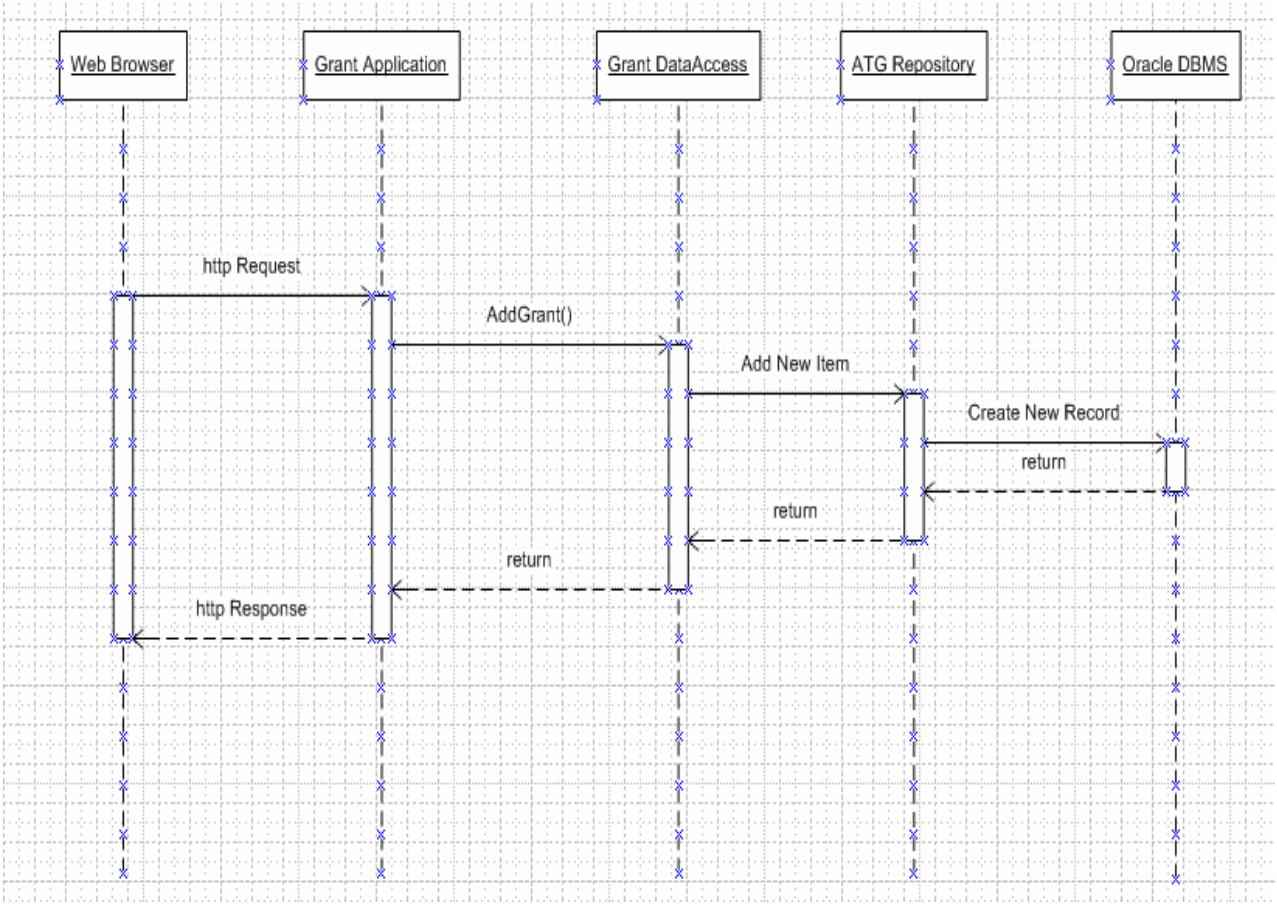
There are nine roles within the application with specific responsibilities. Roles will determine permissions and access level to screens, and data.

UML Sequence Diagram

The sequence diagrams will show the objects involved in an interaction and the events generated. The vertical dimensions in all the sequence diagrams represent time.

Four initiatives of the grant application are highlighted here.

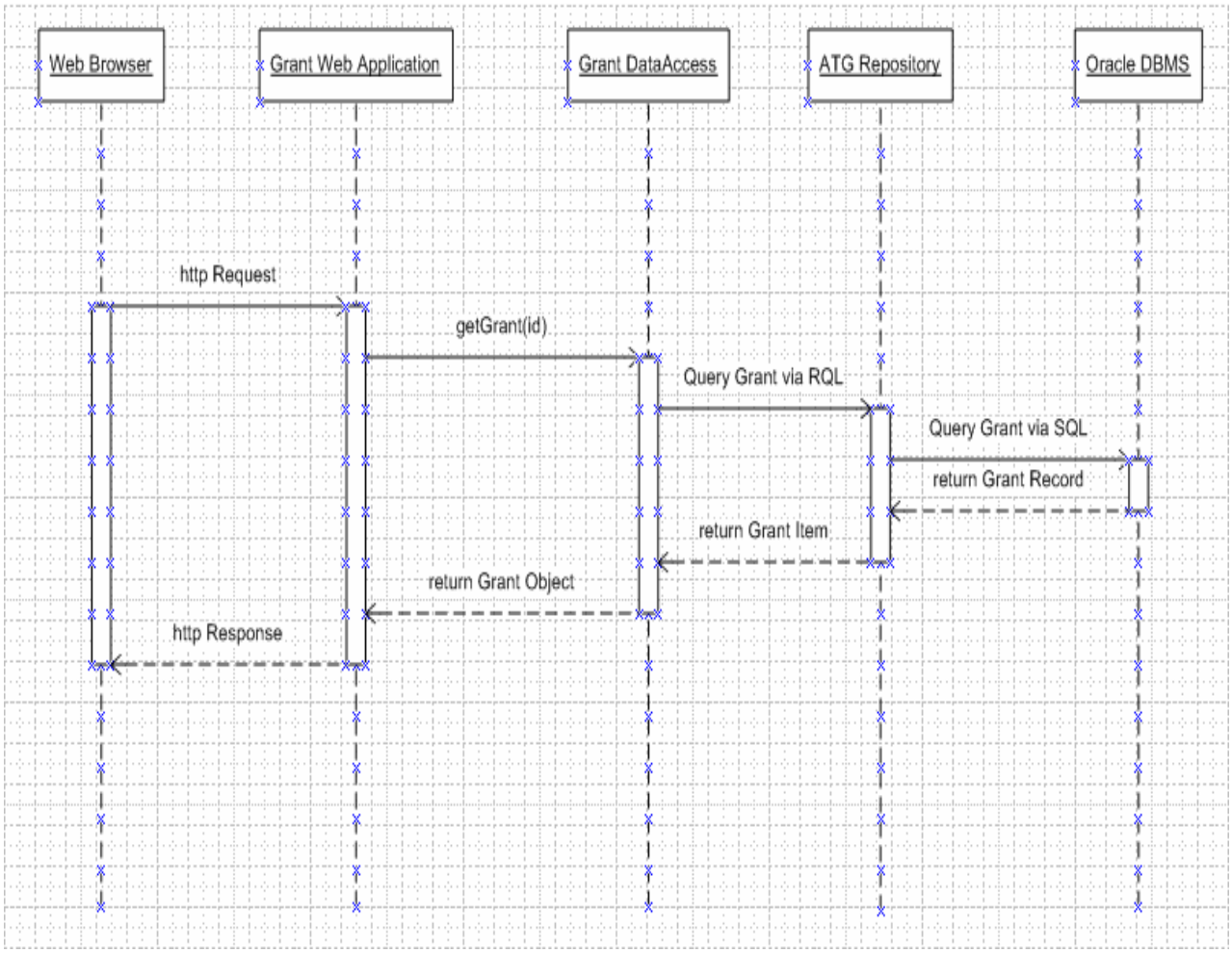
Add New Grant



Comment:

Creating a new grant initiates the managed workflow. From this point forward, until the grant is closed, the grants are tracked via a tracking number.

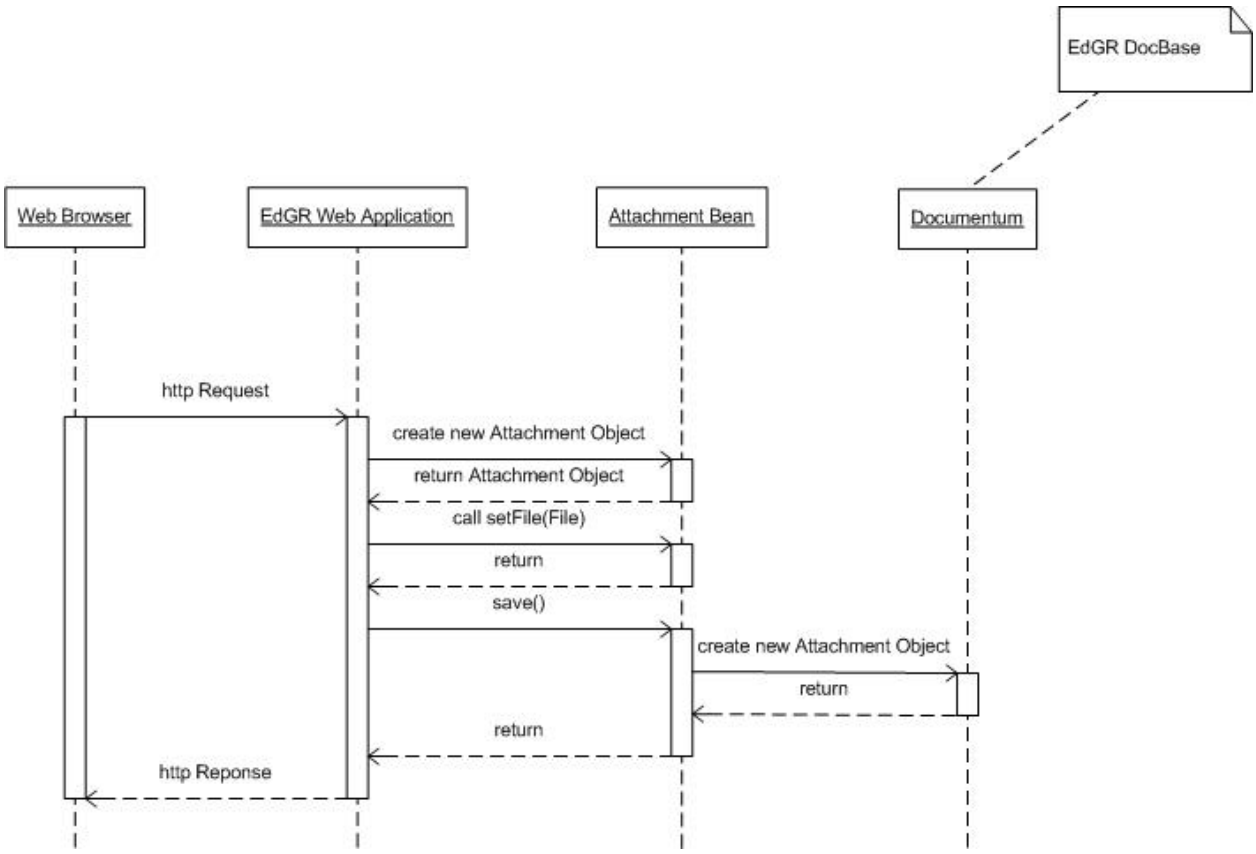
View Grant



Comment:

All grant information is displayed including the status of the grant, any listed attachments of emails, and/or scanned correspondence.

Add Attachments



Comment:

Attachments can be added at any time while a grant is processed. Attachment types supported by the system include as follows:

Attachment Type	Description
Letter of Request (LOR)	Signed Letter of Request require to initiate the grant process
Unsigned Letter of Agreement (LOA)	Customized letter of agreement submitted which may be stored in the system for review prior to grant approval or execution.
Signed Letter of Agreement	Fully executed letter of agreement
Signed Grant Committee Coversheet	This attachment is required to proceed beyond Approval page for grants where the amount requested is above a designated number.
Correspondence	Email correspondence attachments
Status reports	Status report attachments
Other attachments (as needed)	Optional attachments

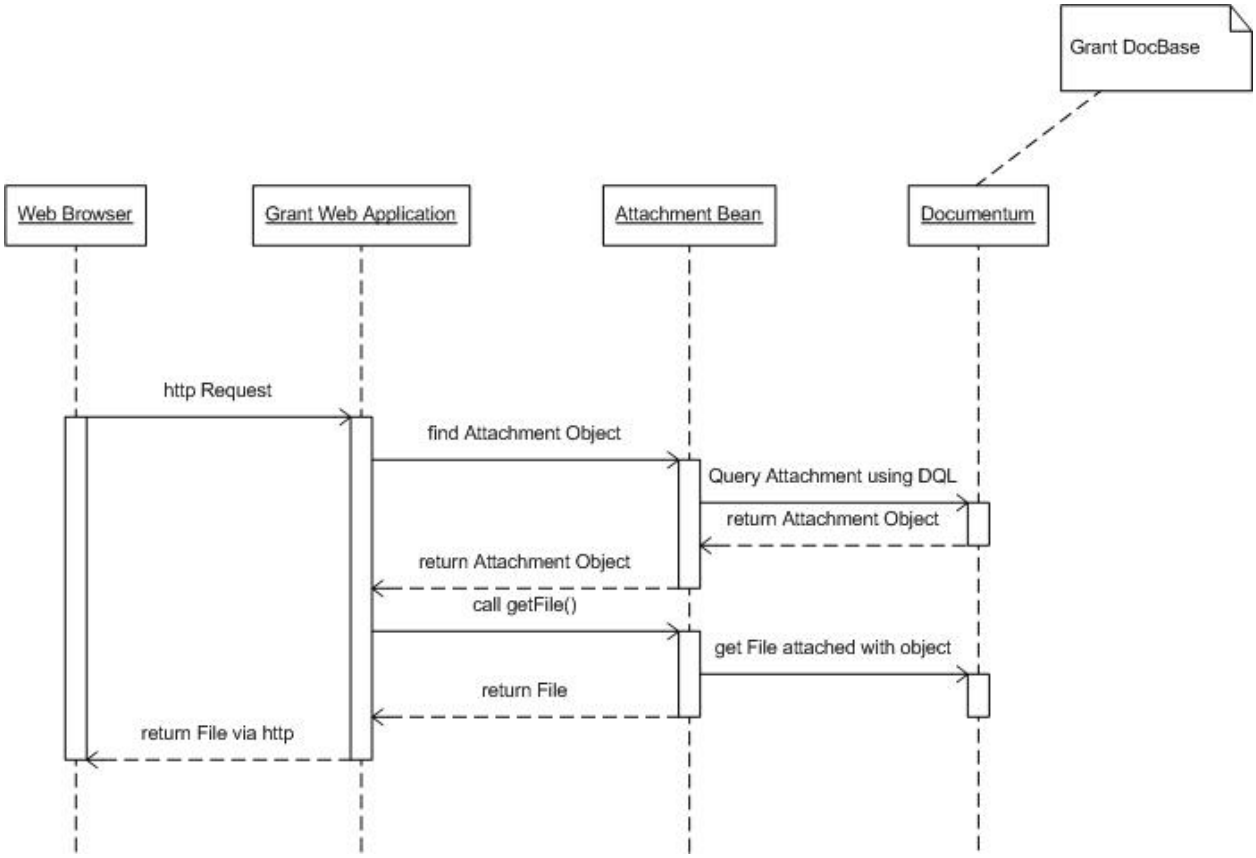
Grant intake personnel (i.e. Grant Admins) are responsible for attaching scanned documents or LOR attachments from emails to grant applications.

Committee Packages:

The application will manage committee distribution lists, generate cover sheets, and print the committee package. Distribution is performed via hardcopy and email, and distributed to all committee members.

The committee can also be optionally placed in Documentum's eRoom for remote access purposes. The eRoom interface is not managed by the grant application.

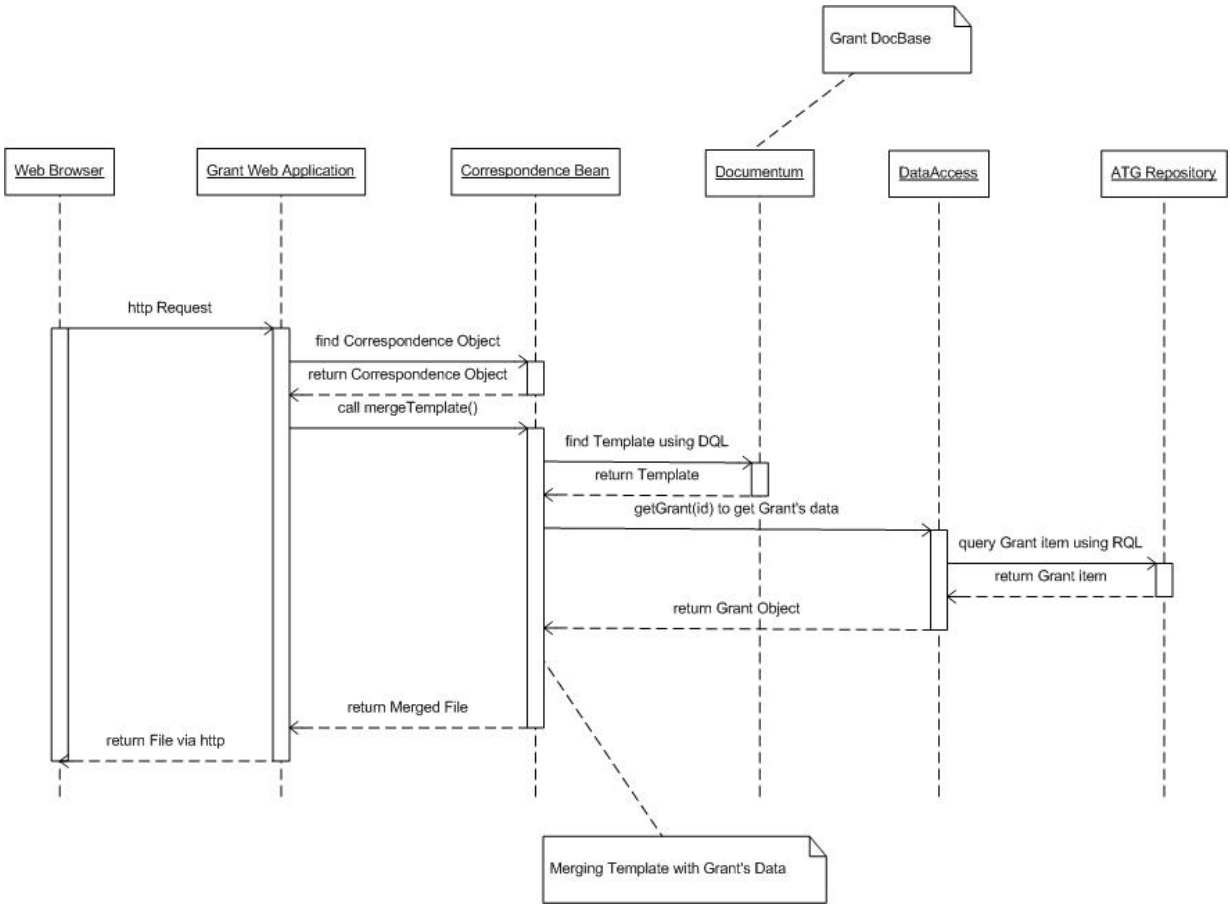
View Attachments



Comments:

The attachments are queried using Documentum Query Language (DQL), which is a specific dialect of SQL. The query provides access to the information in the Docbase.

Print / Merge Correspondence



Comment:

All correspondence generated will be in printed format. Designated roles are responsible for approving and delivering correspondence.

Correspondence is automatically merged with the appropriate database fields and printed or presented to users to be saved (option). Correspondence will open as populated word documents that can be customized. Customized documents can then be saved as attachments with the grant record.

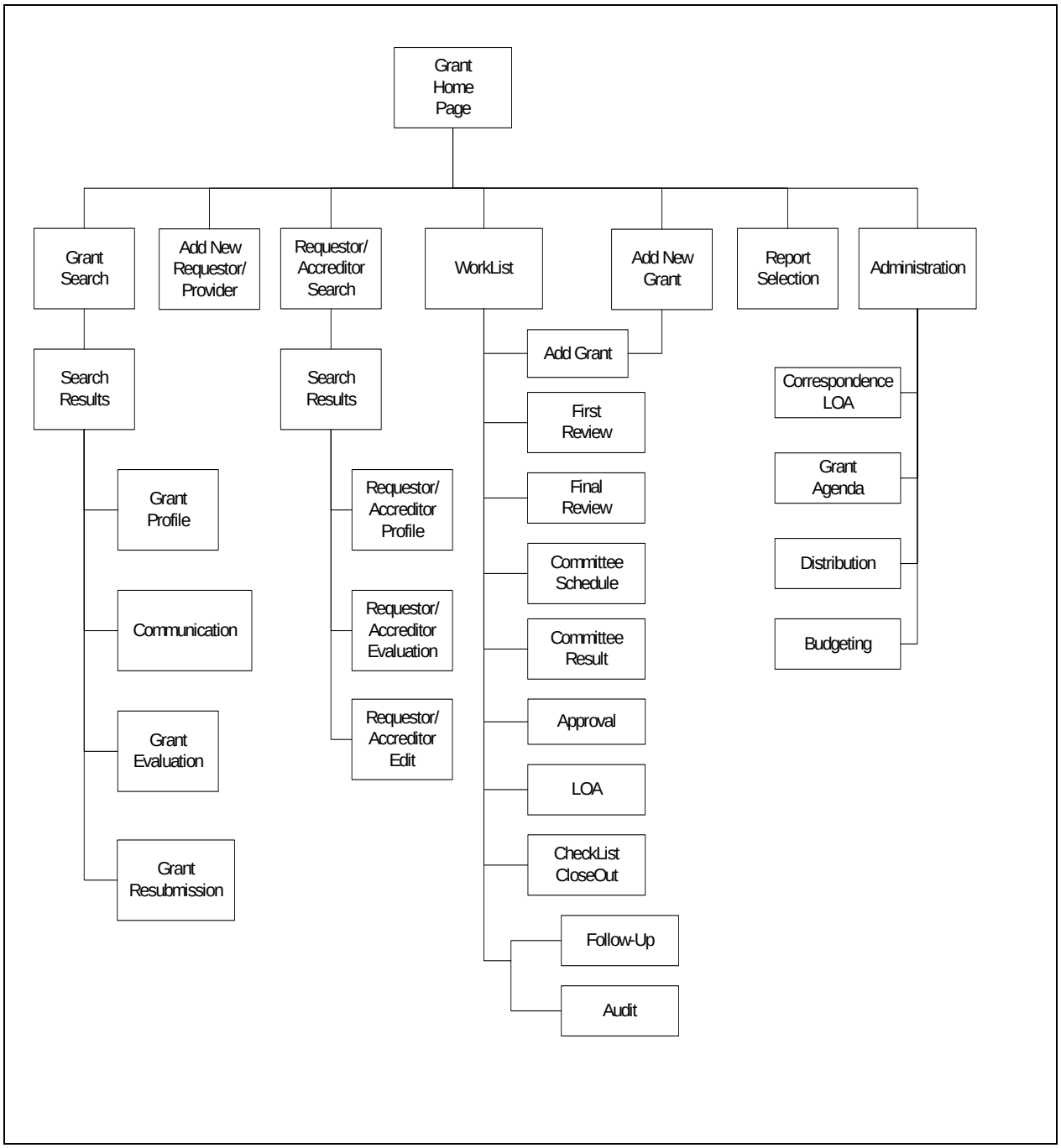
Document templates are stored in Documentum's eContent Server, and viewed using Documentum Administrator and/or Documentum Web Publisher.

Typically, the users will select the letter to print or save via the web page. For example, selecting to print the attachment (i.e. LOA) will merge the Rich Text Format (RTF) templates with the database and open a copy of the letter with Microsoft Word.

Users can then edit, print, and save the RTF documents. Edited documents can then be saved and attached to the Grant application to maintain a record of any manual changes to letters.

Screen Flow Diagram

This flow was utilized as a guide for screen-mockup purposes focusing on content, page layout, and functionality.



For More Information

Please contact Avalon Technologies for additional information on the Grant application project.

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