

DSpace ClientUI built on RESTful API - GSoC 2011

Summary

Project	DSpace ClientUI built on RESTful API
Student	Vibhaj Rajan
Mentors	• Bojan Suzic (lead) • Mark Diggory
Technologies	DSpace REST JavaScript jQuery FireSpark
Proposal	Melange
Repository	https://github.com/tr4n2uil/restclient
Demo	http://107.20.35.121:8080/restclient/
Presentation	DSpace REST ClientUI
Notes	jQuery DSpace deployment on Amazon EC2

Project Requirements

1. Client run interface
2. Attractive look and feel
3. Easy to customize

Features

DSpace REST	Built on the DSpace REST API developed as GSoC project in 2009-10 https://wiki.duraspace.org/display/DSPACE/REST+API
FireSpark	Interface powered by FireSpark - JavaScript Service Computing Platform - which is an experimental platform currently under my research. https://github.com/tr4n2uil/firespark
RESTClient Extensions	Services and Workflows built for RESTClient using FireSpark for providing core UI functionality while interfacing the RESTful API https://github.com/tr4n2uil/restclient
jQuery Templates	Client side processing supported by flexible templates written in JavaScript thereby enabling easier evolution of the UI http://api.jquery.com/category/plugins/templates/
CKEditor	HTML Rich Text Editor supported for easier text input during repository manipulation http://ckeditor.com/

User Documentation

Source Structure

File / Directory / Subdirectory	Description	Files
index.html	initialization page for loading all necessary client scripts + basic document layout	
README		
ui/	top level folder containing interface resources	
ui/css/	styles and themes directory default theme is redmond other themes provided are smoothness and ui-lightness more themes may be downloaded from http://jqueryui.com/themeroller/	
ui/css/default.css	global styles	
ui/css/jquery.css	jquery styles	

ui/css/restclient-styles.css	RESTClient styles unified from dev/ see dev/ structure description for information on unification during build	
ui/img/	images directory	
ui/js/	scripts directory	
ui/js/jquery-1.6.1.min.js	jQuery	
ui/js/jquery-ui-1.8.13.min.js	jQuery UI	
ui/js/jquery.tmpl.min.js	jQuery Templates	
ui/js/jquery-firespark.js	jQuery FireSpark	
ui/js/ckeditor	CKEditor directory	
ui/js/restclient-jquery.js	RESTClient Extensions unified from dev/	
ui/js/restclient-templates.js	RESTClient Templates unified from dev/	
dev/	top level folder containing developer resources	
dev/styles/	individual styles directory files will be unified to ui/css/restclient-styles.css during build	• home.css • layout.css • all-communities.css • all-collections.css • all-items.css • all-users.css • all-groups.css • all-stats.css • community.css • collection.css • item.css • user.css
dev/templates/	individual templates directory files will be unified to ui/js/restclient-templates.js during build	• Account.js • Browse.js • Login.js • AllCommunities.js • AllCollections.js • AllItems.js • AllUsers.js • AllGroups.js • AllStats.js • Community.js • Collection.js • Item.js • User.js • Group.js • CommunityEdit.js • CollectionEdit.js • CommunityDelete.js
dev/build.bat (build.sh for linux)	Build script for unification Unification is the merging of individual files to single file for client use	
dev/init.js	RESTClient initialization It will be unified to ui/js/restclient-jquery.js during build	
dev/helpers/	individual helpers directory files will be unified to ui/js/restclient-jquery.js during build	• GetDate.js • ReadFileSize.js
dev/services/	individual services directory files will be unified to ui/js/restclient-jquery.js during build	• Resource.RESTURL.service.js • Session.RESTURL.service.js • Session.Write.service.js
dev/workflows/	individual workflows directory files will be unified to ui/js/restclient-jquery.js during build	• Session.Begin.workflow.js • Session.End.workflow.js • Resource.Load.workflow.js • Resource.Edit.workflow.js • Resource.Delete.workflow.js

Customizations

Customization	Support	Description
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Stylesheets (CSS)	Yes	Individual stylesheets in dev/styles/ control the styles for different pages Additionally, ui/css/default.css is the global style sheet (Note : Individual stylesheets override global styles)
Layout	Yes	Layout is configured in dev/styles/layout.css Currently jQuery UI Tabpanel (which is the container supported in FireSpark) is used for viewing different pages as it provides faster navigation (without breadcrumbs) although simple layout is also possible. (Containers may be developed/changed easily though it shall require understanding of FireSpark whose documentation will be completed by the end of the 2011) Other UI containers are under development in FireSpark.
Themes	Yes	Themes are supported natively by jQuery UI Themes may be downloaded from http://jqueryui.com/themeroller
Internationalization	No	Support for i18n is planned to be integrated into FireSpark soon using the i18n plugin This will allow easy internationalization for RESTClient

Developer Documentation

RESTClient Extensions

Services

Name	Description	Options (Parameters passed to service in FireSpark)	Return Values
SessionWrite	Saves session information (email/password) for use in further requests	form : string : Selector for login form : optional default false	None
ResourceRESTURL	Generates REST URL from resource information	- rsrctype : string : Resource type : values ('allcommunities', 'community', 'community-edit', 'community-delete', 'community-change', 'allcollections', 'collection', 'collection-edit', 'collection-delete', 'collection-change', 'allitems', 'item', 'item-edit', 'item-delete', 'item-change', 'allusers', 'user', 'allgroups', 'group', 'allstats') - rsrcid : number : Resource ID : optional default false - rsrcfield : string : Resource Field : optional default false - rsrcvalue : string : Resource Value : optional default false - end : boolean : Should '.json' be appended to URL formed : optional default false	url : string : Resource URL generated
SessionRESTURL	Appends Session information (email /password) to URL	url : string : Resource URL	url : string : Resource URL with session appended

Workflows

Name	Description	Options (Parameters passed to service in FireSpark)	Return Values
SessionBegin	Stores login information into session, authenticates and loads account template	- cntr : string : Container selector for account panel : optional default '#account-panel' - sel : string : Selector for login form : optional default '#login-container'	None
SessionEnd	Deletes session and loads account template	- cntr : string : Container selector for account panel : optional default '#account-panel' - sel : string : Selector for login form : optional default '#login-container' - data : object : Indicate whether to show invalid message : optional default { invalid : false }	None
ResourceLoad	Loads resource using GET and applies template into selected element	- type : string : Resource Type : values (refer ResourceRESTURL service rsrctype values) - tabpanel : string : Saved reference index for Tabpanel : optional default 'tabpanel' - title : string : Tab Title : optional default 'DSpace RESTUI' - id : number : Resource ID : optional default false - ld : string : HTML Loading content : optional default RESTClient.jquery.constant.loadmsg - anm : string : Animation Type : optional default 'fadein' : values ('fadein', 'fadeout', 'slidein', 'slideout') - dur : number : Animation Duration : optional default 100 - dly : number : Animation Delay : optional default 0	None

ResourceEdit	Edits resource fields using PUT	- type : string : Resource Type : values (refer ResourceRESTURL service rsrctype values) - id : number : Resource ID : optional default false - field : string : Resource Field - sel : string : Selector for element where response is to be loaded - cf : boolean : Confirm edit : optional default false - cfmsg : string : Confirmation Message : optional default 'Are you sure you want to continue ?' - ld : string : HTML Loading content : optional default RESTClient.jquery.constant.loadmsg - anm : string : Animation Type : optional default 'fadein' : values ('fadein', 'fadeout', 'slidein', 'slideout') - dur : number : Animation Duration : optional default 100 - dly : number : Animation Delay : optional default 0	None
ResourceDelete	Deletes resource fields using DELETE	- type : string : Resource Type : values (refer ResourceRESTURL service rsrctype values) - id : number : Resource ID : optional default false - field : string : Resource Field : optional default false - sel : string : Selector for element where response is to be loaded - cf : boolean : Confirm edit : optional default false - cfmsg : string : Confirmation Message : optional default 'Are you sure you want to continue ?' - ld : string : HTML Loading content : optional default RESTClient.jquery.constant.loadmsg - anm : string : Animation Type : optional default 'fadein' : values ('fadein', 'fadeout', 'slidein', 'slideout') - dur : number : Animation Duration : optional default 100 - dly : number : Animation Delay : optional default 0	None

Helpers

Name	Description	Arguments	Return Value
getDate	Returns timestamp as properly formatted date string	time : number : Timestamp	date : string : Formatted Date
readFileSize	Returns size in bytes as properly formatted string	size : number : Size in bytes	size : string : Formatted Size

init.js

Option	Description	Default Value
RESTClient.urls	URLs to be used	<pre>{ base : '/dSPACE/', allcommunities : 'communities', community : 'communities/', allcollections : 'collections', collection : 'collections/', allitems : 'items', item : 'items/', bitstream : 'bitstream/', receive : 'receive', allusers : 'users', user : 'users/', allgroups : 'groups', group : 'groups/', allstats : 'stats' };</pre>
RESTClient.jquery.constant.loadmsg	HTML content to show while loading content	'<p class="loading">Loading ...</p>'
RESTClient.jquery.constant.successimg	HTML content to indicate successful execution	''
RESTClient.jquery.constant.errorimg	HTML content to indicate erroneous execution	''

Documentation Resources

Name	Available	Description
FireSpark	No	Partially available in the heavily commented source code https://github.com/tr4n2uil/firespark
jQuery Templates	Yes	Available as jQuery plugin API documentation http://api.jquery.com/category/plugins/templates/template-tags/

Screenshots



RESTClient

Browse

- Communities
- Collections
- Items
- Users
- Groups
- Statistics

Account

Email

Password

Login

Home



Welcome to DSpace RESTClient UI - a jQuery user interface built on DSpace REST API

DSpace is a digital service that collects, preserves, and distributes digital material. Repositories are important tools for preserving an organization's legacy; they facilitate digital preservation and scholarly communication.

Powered by FireSpark





RESTClient

Browse

- Communities
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- Users
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- Statistics

Account

Logout

Home All Communities

Communities in DSpace

Community 1 Name Edited

Community 1 Short Description Edited

- Collection Name New 1-1
- Sub-Community 1-1 Name

Community 2 Name

Community 2 Short Description

- DSpace Demo Harvest 1

Boj Community

This is a test community for one of MIT collections

- MIT Economics
- Robotic Research

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Browse

[Communities](#)[Collections](#)[Items](#)[Users](#)[Groups](#)[Statistics](#)

Account

[Logout](#)[Home](#)[All Communities](#)[Community 2 Name](#) ✕

Community 2 Name



Community 2 Short Description

Community 2 Introductory text (HTML)

Community 2 Copyright text (HTML)

Collections in this Community

- DSpace Demo Harvest 1

News

Community 2 News (HTML)

Recent Submissions

- test 3
Rajan, Vibhaj (Mon Aug 08 2011)
- test 2
Rajan, Vibhaj (Mon Aug 08 2011)
- Test
Rajan, Vibhaj (Mon Aug 08 2011)
- This is a test submission
Rajan, Vibhaj (Mon Aug 08 2011)
- Test PowerPoint Document

Context

[Edit Community](#)[Delete Community](#)

Browse

[Communities](#)[Collections](#)[Items](#)[Users](#)[Groups](#)[Statistics](#)

Account

[Logout](#)[Home](#)[All Communities](#)[Community 2 Name](#)[Edit Community 2 Name](#) ✕

Community Name

Community 2 Name

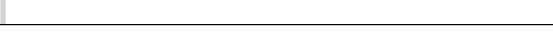
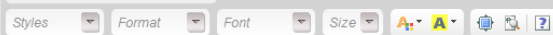
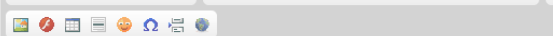
[Change](#)

Short Description

Community 2 Short Description

[Change](#)

Introductory Text (HTML)





RESTClient

Browse

- Communities
- Collections
- Items
- Users
- Groups
- Statistics

Account

- Logout

Home	All Communities	Community 2 Name	Remove Community 2 Name ✕
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Sub-Communities
Select Sub-Community

Collections
Select Collection

Delete Community Community 2 Name

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RESTClient

Browse

- Communities
- Collections
- Items
- Users
- Groups
- Statistics

Account

- Logout

Home	All Communities	Community 2 Name	Sub-Community 1-1 Name ✕
------	-----------------	------------------	--------------------------

Sub-Community 1-1 Name

DSpace
Sub-Community 1-1 Short Description
Sub-Community 1-1 Introductory text (HTML)
Sub-Community 1-1 Copyright text (HTML)
Collections in this Community

- Collection 1-1-1 Name

News
Sub-Community 1-1 News (HTML)

Context

Powered by FireSpark



Browse

- [Communities](#)
- [Collections](#)
- [Items](#)
- [Users](#)
- [Groups](#)
- [Statistics](#)

Account

- [Logout](#)

[Home](#)
[All Collections](#)

Collections in DSpace

Collection Name New 1-1

- Item Title

Collection 1-1-1 Name

- Item 1-1-1-1 Title

DSpace Demo Harvest 1

- Test Excel Document
- Test PowerPoint Document
- This is a test submission
- Test Word Document
- Test
- test 2
- test 3

Powered by FireSpark


Browse

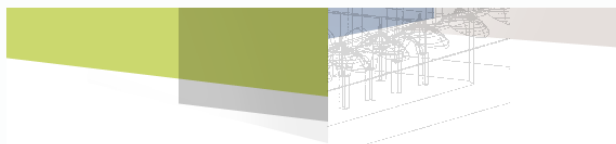
- [Communities](#)
- [Collections](#)
- [Items](#)
- [Users](#)
- [Groups](#)
- [Statistics](#)

Account

- [Logout](#)

[Home](#)
[All Collections](#)
[Collection Name New 1-1](#)

Collection Name New 1-1



Collection 1-1 Short Description

Collection 1-1 Introductory Text (HTML)

Collection 1-1 Copyright Text

(HTML)

Items in this Collection

- Item Title
Rajan, Vibhaj (Sun Jun 05 2011)

Provenance

Collection 1-1 Provenance

License

Collection 1-1 License

News

Collection 1-1 News (HTML)

Context
[Edit Collection](#)

Community Name

Community 2 Name

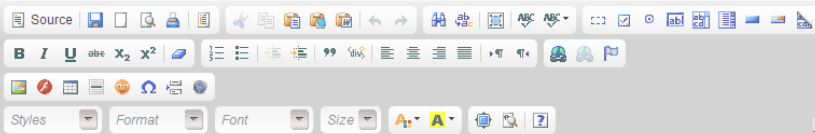
Change

Short Description

Community 2 Short Description

Change

Introductory Text (HTML)



Community 2 Introductory text (HTML)

Test PowerPoint Document

Author: Rajan, Vibhaj

Date: Mon Aug 08 2011

URI: <http://hdl.handle.net/10673/7>

Files in this Item

- test_ppt.ppt.txt
Text [3.04 KB]
- test_ppt.pptx.txt
Text [3.04 KB]
- test_ppt.ppt
Microsoft Powerpoint [12.12 MB]
- test_ppt.pptx
Microsoft Powerpoint XML [11.89 MB]
- ORE.xml
XML [3.67 KB]

Parent Collection(s)

- DSpace Demo Harvest 1



RESTClient

Browse

- Communities
- Collections
- Items
- Users**
- Groups
- Statistics

Account

- Logout

Home All Users ✕

Users in DSpace

Rajan, Vibhaj
vibhaj.general@gmail.com

Rajan, Vibhaj
vibhaj8@gmail.com

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RESTClient

Browse

- Communities
- Collections
- Items
- Users**
- Groups
- Statistics

Account

- Logout

Home All Users Vibhaj Rajan ✕

Rajan, Vibhaj

Email : vibhaj.general@gmail.com

Language : en

Require Certificate : No

Self Registered : Yes

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Browse

- Communities
- Collections
- Items
- Users
- Groups**
- Statistics

Account

- Logout

Home

All Groups ×

Groups in DSpace

Anonymous

Administrator

- Vibhaj Rajan

COMMUNITY_2_ADMIN

- Vibhaj Rajan

COLLECTION_2_ADMIN

- Vibhaj Rajan

COLLECTION_2_WORKFLOW_STEP_1

- Vibhaj Rajan

COLLECTION_2_SUBMIT

- Vibhaj Rajan
- Vibhaj Rajan

COMMUNITY_3_ADMIN

- Vibhaj Rajan

COLLECTION_3_ADMIN

- Vibhaj Rajan

Browse

- Communities
- Collections
- Items
- Users
- Groups**
- Statistics

Account

- Logout

Home

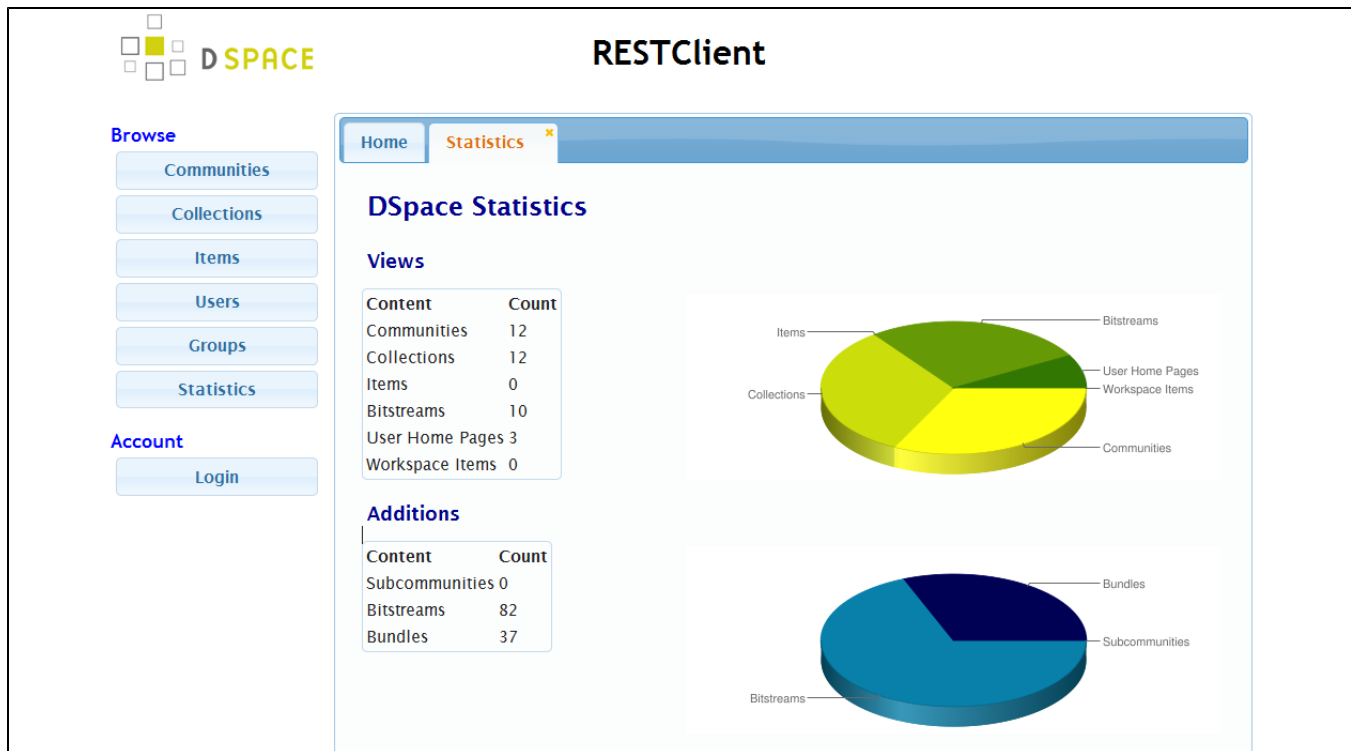
All Groups

COLLECTION_2_WORKFLOW_STEP_1 ×

COLLECTION_2_WORKFLOW_STEP_1

Users in this Group

- Vibhaj Rajan
vibhaj8@gmail.com



Functional Specifications

- Features to be supported
 - Repository Browsing
 - Repository Manipulation
 - Content Searching
 - Statistics
 - Administration
- Customizations to be supported
 - Stylesheets (CSS)
 - Layout
 - Themes
 - Internationalization

Project Timeline

✓	Ready
+	Base done, Improvement phase
👍	In Progress

Before May 24

- Obtain access to :
 - ✓ Wiki
 - ✓ Project repository
- ✓ Download, build and install local DSpace instance
- ✓ Download, build and install DSpace REST module
- ✓ Test and verify the installation
- ✓ Go through the functionality of DSpace and DSpace REST API
- ✓ Compare possible JavaScript UI frameworks -- Ext JS preferred

Mark: I would like to see a bit more dialog with Bojan concerning the REST API contracts and migration to Spring, mainly, are we happy with these API contracts and using them for the students project, or do we need to consider some possible changes in the API to adopt to using Spring REST instead of Entity Broker. And if so, is there a timeline for providing those changes in scope of the 1.8 release?

Vibhaj: Confirmed that the possible migration shall not affect the REST interface and hence RestClient project.

May 25 - June 15

1. + Get familiar with DSpace REST API
 - a. collections, communities, items and bitstreams
 - create
 - ✓ view
 - ✓ edit
 - ✓ delete
 - b. users and groups
 - ✓ view
 - c. search
 - d. ✓ generating statistics
2. ✓ Decide the JavaScript Library to be used by discussing with the DSpace community: **jQuery** [decided by community]
3. + Learn the jQuery JavaScript Library
 - ✓ Selectors
 - ✓ Actions and Methods
 - ✓ Events
 - + UI Widgets
4. + Design client run FireSpark framework supporting JavaScript UI for RESTful (JSON) services
5. + Design generic Services and Workflows in FireSpark
6. + Plan these extensions for RestClient
 - + RESTUI.Resource.Load Workflow
 - + RESTUI.Resource.Edit Workflow
 - + RESTUI.Resource.Delete Workflow
 - 📁 ParseItemMetadata helper

June 15 - July 10

1. + Implement extensions (Services and Workflows) to FireSpark in RestClient to provide support for :
 - a. Repository Browsing
 - Communities
 - + All
 - + Single
 - + Subcommunities
 - + Recent Submissions
 - Sort
 - Collections
 - + All
 - + Single
 - Sort
 - Items
 - + All
 - + Single
 - 📁 Read Metadata
 - Bitstreams
 - + Download

July 11 - July 15

1. ✓ GSoC Mid Term Evaluations

July 15 - July 31

1. + Implement extensions (Services and Workflows) to FireSpark in RestClient to provide support for :
 - a. Repository Manipulation
 - Communities
 - + Edit
 - + Delete
 - Collections
 - + Edit
 - b. Administration
 - Users
 - + Login
 - + Logout
 - + All
 - + Single
 - Groups
 - + All
 - + Single
 - c. Content Searching
 - d. Statistics
 - + Reports (simple)
 - + Charts and Visualization (simple)

August 1 - August 15

1. + Enhancing the look and feel
2. 📁 Look into and improve scope for customizations

3. 👉 Improve the architecture of RESTClient and FireSpark
4. ➕ Testing
5. ➕ Complete Documentation
6. 👉 Final Improvements