Exposing WebCenter Data on Mobile & Desktop Devices through the REST API

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1 Introduction – Executive Overview

Do you have WebCenter Portal: Spaces? If you do, did you know about its REST API? This API enables you to create WebCenter Portal:Spaces & Sites cross-device compliant mobile and desktop applications. Learn how frameworks like Jquery, Phonegap, Adobe Air, EXTJs can allow you to interact with WebCenter without the need to use ADF to authenticate, pull, push, sync information instantly.

2 What is REST

REST (REpresentational State Transfer) is an architectural style for making distributed resources available through a uniform interface that includes uniform resource identifiers (URIs), well-defined operations, hypermedia links, and a constrained set of media types. Typically, these operations include reading, writing, editing, and removing, and media types include JSON and XML/ATOM.

REST commands use standard HTTP methods as requests to point to the resource being used. Every request returns a response, indicating the status of the operation. If the request results in an object being retrieved, created, or updated, the response includes a standard representation of that object.

3 WebCenter Portal REST (HATEOAS)

Hypermedia as the Engine of Application State (HATEOAS), is a constraint of the REST application architecture that distinguishes it from most other network application architectures. The principle is that a client interacts with a network application entirely through hypermedia provided dynamically by application servers. A REST client needs no prior knowledge about how to interact with any particular application or servers beyond a generic understanding of hypermedia.

The HATEOAS constraint serves to decouple client and server in a way that allows the server to evolve functionality independently.

4 Available WebCenter Portal: Spaces Services

These are currently some of the available services within the REST API that you can interact with using any technology .Net, RoR, Javascript, Java, etc.

4.1 Discussion

Enable a client to post, read, update, and delete discussion forums, topics, and messages.

4.2 Lists

Enables a client to browse all the lists associated with a named group space; search list columns given a search term; create new lists; add, update, and remove list rows; and similar sorts of list-related tasks.

4.3 Feedback

Enables a client to create, read, and delete feedback in a social networking application.

4.4 Activity Graph

Enables you to create your own interface for providing recommendations for connections, group spaces, and items using the underlying Activity Graph engine.

4.5 Events

Lets you access calendar events associated with a named group space.

4.6 Search

Post, read, update, and delete searches. You can specify keywords and the scope of the search; for example, the iPhone could search for "smith" in all Spaces, documents and wiki pages. The API also lets you build a customized search user interface on top of the Search service.

4.7 Tagging

Enables a client to read, post, update, and delete tags and tagged items.

4.8 Message Board

Post, read, and delete messages to a user's or a group space's message board.

4.9 Activities

Browse user application activities in an activity stream.

4.10 People Connections

- View a stream of your connections' activities in an activity stream
- Browse a profile or connections list
- Update profile status messages
- Add and remove members from connection lists
- Create and delete connection lists
- Create, read, and delete messages
- Read and delete feedback

4.11 CMIS

(Content Management Interoperability Services) RESTful server binding to provide access to the CM VCR (Content Management Virtual Content Repository).

4.12 Navigations

Create your own interface for displaying navigations.

4.13 Who

Information on the User accessing the REST API.

4.14 Spaces

Access to the Services available on a space.

4.15 Templates

Access properties associated to a predefined template for setting up a space.

5 Real World Integration Examples

5.1 iTwitter portlet

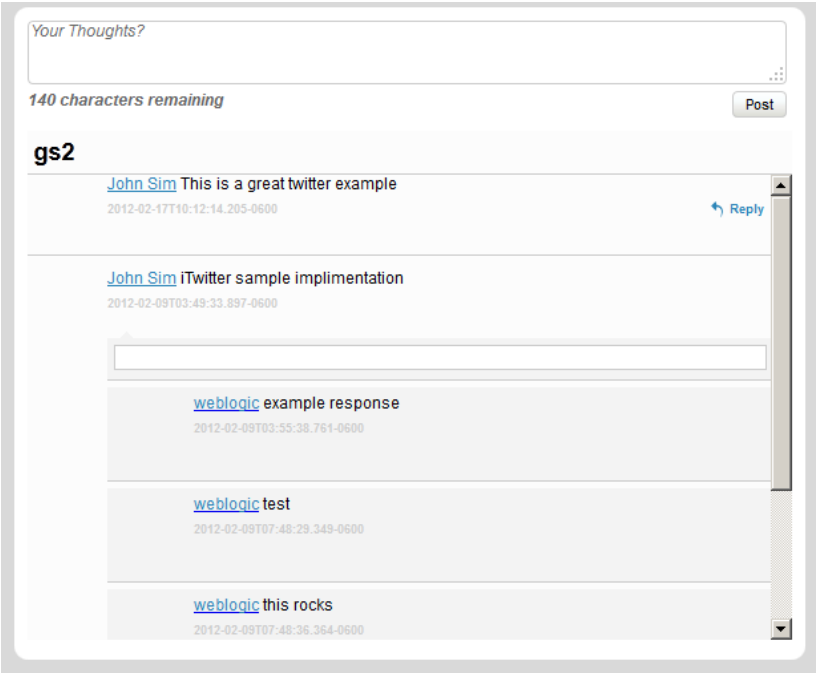

Figure 1: iTwitter Portlet

The iTwitter portlet written with HTML5 and javascript allows you to have an internal Twitter, yammer, messageboard portal application using the WebCenter Forums as your central data store; consolidating your information internally and allowing for greater internal collaboration within a clean recognised UI Standard via the REST API. No ADF was required to create this portlet.

5.2 Oracle WebCenter Spaces iPhone

The Oracle WebCenter Spaces iPhone application delivers iPhone access to the Oracle WebCenter Spaces Application. It enables business end-users, managers and executives to manage and participate in professional connections, group projects and dynamic online communities via iPhone.

The Benefits

- Search has been added for People Connections, files on your iOS device and (PS3 only) WebCenter resources on the server
- Recent Items are tracked for People, Documents, Document Folders, Group Spaces, Discussions, Topics, Lists, and visited web links
- Links in Activity Streams are now clickable
- Easily post to your activity stream, including attachments and camera support
- Improved status update interface in your user profile
- Improved support for adding/updating your Connections with the native iOS Contacts app
- Links to each person's Manager and Reports, if available

Figure 2: Oracle WebCenter Spaces SpringBoard

- People Connection Lists to view your Connections more efficiently
- Local file system support and "Open In…" (can save documents to your iOS device, open them in other apps, and have this app open docs from other apps)
- Personal Documents support, both public and private, including the ability to upload, download, and delete
- Documents can be emailed as an attachment, or you can email a link instead
- Playback of video and audio files
- Easily post to a Group Space's activity stream
- Message Board support in each Space

- Discussions has an improved user interface, including forward and back buttons for navigating messages
- Bookmark your favorite items as icons on the main launcher screens and re-position them (for Group Spaces, People, Documents, Document Folders, Discussion Forums, Discussion Topics, and Lists)
- "Quick Note" feature allows you to write text notes or record audio notes and save them in your Personal Documents on the server

5.3 Fishbowl Solutions WebCenter Spaces Mobile

Fishbowl Solutions WebCenter Spaces Native Application delivers, iOS, BlackBerry (RIM), Android and Windows access to the Oracle WebCenter Portal: Spaces application.

It enables business end-users, managers and executives to manage and participate in professional connections, group projects and dynamic online communities via the majority of mobiles there is also a web based solution so that the user can access WebCenter without the native application via a browser.

The Benefits

- Cross device compliant (RIM, Android, IOS, Windows – Tablets & Mobile support)
- Can be installed as a native application or access via the website via any mobile device
- Completely Skin able
- Sits on HTML 5
- Portable to ADF Mobile
- All interaction is cached for offline access
- Storage is encrypted if files stored in DB
- Add contacts direct to mobile from application
- Application has access to all native mobile device functions like contacts and camera.

Figure 3: Fishbowl Solutions WebCenter Spaces SpringBoard

- Ability to take a picture edit on mobile device and upload direct to UCM three touch interaction from app.
- Pull content from external sources like intranet via site studio or Feed based services (ie RSS)
- Ability to extend and add support with People Finder as all data is service ajax based

- Synchronise content from UCM to pull latest document revisions onto mobile quick offline access.
- Can be tied into GeoLocation services to show location of connections
- Future facilities to (record video, audio and push to UCM – WebCenter Content)

6 Accessing the REST API

When you install Portal: Spaces the REST API is not configured or accessable out of the box; you must first do this task on the environment before you can access the API.

Here is a quick guide on how to set it up -

http://docs.oracle.com/cd/E23549_01/webcenter.1111/e10148/jpsdg_rest_api.htm

When the REST API has been configured you can access its XML structure via its point of entry.

http://webcenterDomain/rest/api/resourceIndex

You cannot access any area of the REST API until you have authenticated against the Root resourceIndex

On authenticating you will see an XML structure unless you passed a header request for JSON –

Figure 4: WebCenter REST Output - ResourceIndex

7 Accessing the REST API via JQuery

To authenticate you need to make an initial request to the WebCenter resourceIndex – this will popup an authentication login box to authenticate your session; you must do this first as you will not be able to access any of the Services until you have a session key.

```
var vUrl = 'http://webcenterDomain/rest/api/resourceIndex';
$.getJSON(vUrl, function(data) {
    console.log(data);
});
```

Or to authenticate via JavaScript to prevent the popup request you must set the request header on the AJAX call passing in the username and password base64 encrypted - I use the Crypto JS Library :

```
var bytes  =
Crypto.charenc.Binary.stringToBytes(vUserName+':'+vPassword),
    base64 =  Crypto.util.bytesToBase64(bytes);
xhr.setRequestHeader('Authorization', 'Basic ' + base64);
```

8 Interacting with the Message Board Service

I have created my own browser implementation for quickly navigating the REST API and applying custom properties to templates. But you can use Firebug or any REST API explorer available.

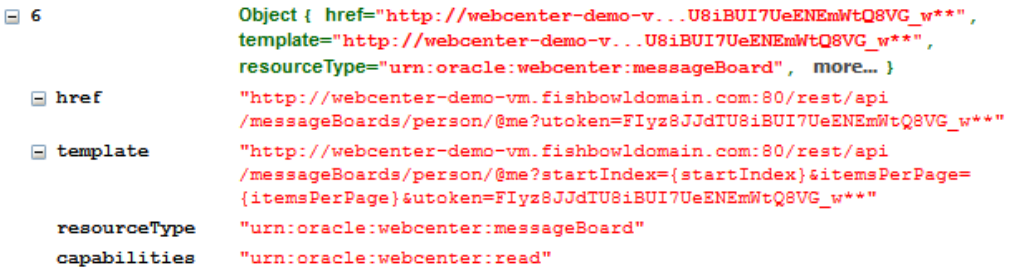

Figure 5: FireBug Console - ResourceIndex - Message Board

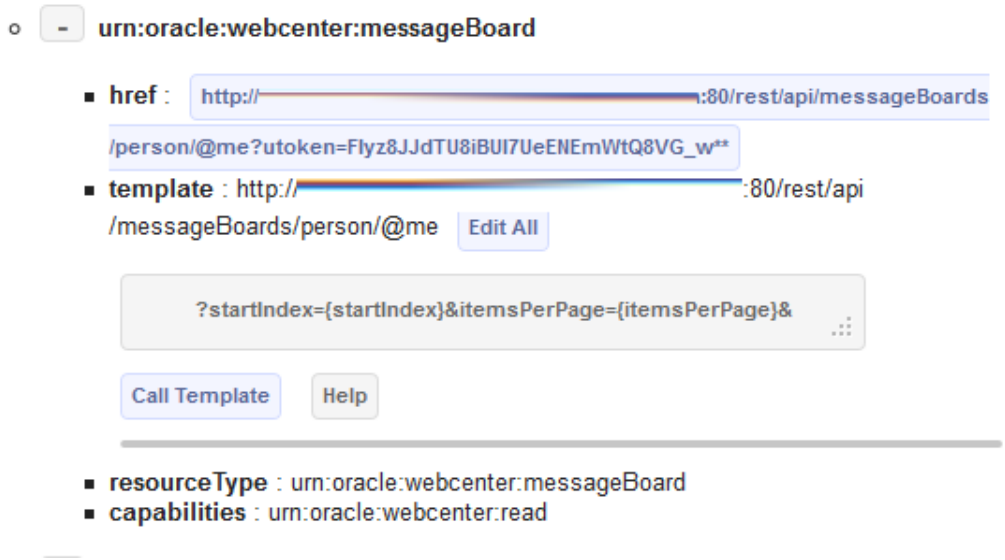

Figure 6: Fishbowl REST API Explorer - ResourceIndex Message Board

From the resourceIndex request you can loop through the XML or JSON structure; I stick with JSON as it is more light weight and I find it easier to traverse than XML.

Loop through until you find the value - urn:oracle:webcenter:messageBoard value associated to the resourceType Key access the href value.

8.1 The Keys

- ***href*** - will take you into the message board service and list the first 10 message boards from the database.
- ***Template*** – allows you to pass paramaters into the href to customize the result set ie {startIndex} replace these with parameters to apply filters on the service.
- ***Capabilities*** – will notify you what action are available on this service – ie Read, Create, Delete, Update

Figure 7: Expanded Action View

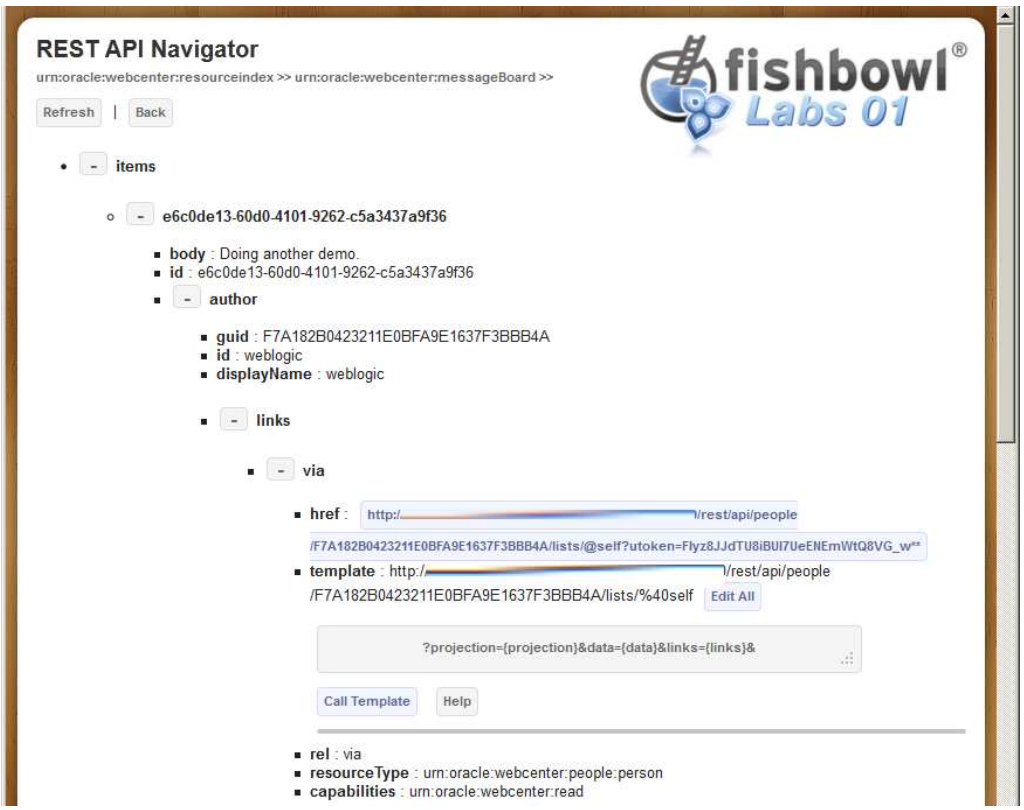

Figure 8: Expanded view of message

Within the expanded Action View you can see 10 items (Messages) startIndex of the resultset is 0 and itemsPerPage is 10.

Within the resourceType > Links > Self options you can see in the capabilities key the value to create/ post a new message on the wall.

Copy your href value into kHref var holder -

```
$.ajax({
      url: kHref,
      type: 'post',
      dataType: 'json',
      contentType: 'application/json',
      data:$.toJSON({body:'My First Message'}),

      success: function(data) {
            alert('New Message Created');
      }
});
```

When you run the ajax request you will be posting ‘My First Message’ onto your own message wall.
I use the toJSON Method to convert the object to JSON.

9 Conclusion

With just 18 lines of jQuery it has been possible to login and authenticate against the WebCenter REST API; access the message board service and post a message. The WebCenter REST API makes it easy to interact with WebCenter to Read, Create, Delete and update information because it is a Web based service you can then go on and create native mobile, Desktop applications with any language you are comfortable developing with – I have seen integration examples from Ruby to EXTJS to Adobe AIR all for WebCenter.