ADF Patterns for Forms Modernization

Rob Nocera, NEOS/Vgo Software
Outline

- Introduction
- Need for Modernization
- Nature of the Changes
- Mapping Forms to ADF
- Screen Flow Changes
- UI Component Changes
- Code Changes
- Summary
- Questions
Robert Nocera

- CTO – NEOS / Vgo Software
- Started as a OO/Java Developer
- Founded NEOS / Vgo Software
- Many Oracle Forms Modernizations
  - Upgrades
  - Conversions to Java
  - Conversions to ADF
Migrating to the Cloud Book

- Book Giveaway
- Authors:
  - Tom Laszewski
  - Prakash Nauduri
  - Vgo Contributed Chapter
Jet Lag May Cause Stupidity
By Laura Sanders, Science News  November 16, 2010 | 8:03 pm | Categories: Brains and Behavior
Need for Modernization

- Aging Oracle Forms applications
  - “if it ain’t broke, don’t fix it”

Platform expires
Hardware no longer supported
System must be upgraded
User Acceptance

- User acceptance of UI changes
- Familiarity with sites like Facebook, Ebay, Yahoo, and Orbitz
The Web and Beyond

Enterprise Applications
The Web and Beyond

- Don’t be restricted by the current process
- Think “out of the box”
Nature of the Changes

- Foundation change from Forms to a modern java-oriented ADF 11g framework
- UI Changes just the “tip of the iceberg”
Architecture Changes

Forms
- Forms Client

ADF
- ADF Swing
- ADF Mobile
- ADF Rich Faces
- ADF Controller
- ADF Controller
- ADF Controller
- ADF Bindings
- ADF Data Control
- ADF View Object
- ADF Entity

Database
Mapping Forms to ADF

- Form → Task Flow
- Window / Canvas → JSPX
- Block → ADF View
- Trigger → Java Method, Groovy Expression
Mapping Forms to ADF

**Forms**
- Table Based Block
  - Database Table

**ADF**
- Application Module Entry
  - ADF View
    - ADF Entity
      - Database Table
Mapping Forms to ADF

Forms

- Control Block

ADF

- JSPX
- Binding
- Application Module
- ADF View (Transient)

- Control Block
- JSPX
- Backing Bean / Managed Bean
Common Forms Functionality

- Data Manipulation
- Search Data
- CRUD
  - Create, Read, Update, and Delete

Diagram:
- Search
  - Insert
  - Update
  - Delete
Forms Table-based Search/Edit

<table>
<thead>
<tr>
<th>TM NUMBER</th>
<th>TM NO</th>
<th>TM NAME</th>
<th>TM DESCRIPTION</th>
<th>COUNTRY</th>
<th>CAT</th>
<th>TM CODE</th>
<th>CTL</th>
</tr>
</thead>
<tbody>
<tr>
<td>9-1425-602-12</td>
<td>12</td>
<td>SUG</td>
<td>SOFTWARE USER GUIDE</td>
<td>US</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9-1425-602-12-1</td>
<td>12-1</td>
<td>MSE SUG</td>
<td>SOFTWARE USER GUIDE MSE</td>
<td>US</td>
<td>3</td>
<td>N13-1</td>
<td></td>
</tr>
<tr>
<td>9-1425-602-12-2</td>
<td>12-2</td>
<td>MSE SUG</td>
<td>SOFTWARE USER GUIDE MSE</td>
<td>US</td>
<td>3</td>
<td>N13-2</td>
<td></td>
</tr>
<tr>
<td>9-1425-602-12-3</td>
<td>12-3</td>
<td>SUG</td>
<td>SOFTWARE USER GUIDE</td>
<td>US</td>
<td>3</td>
<td>N13-3</td>
<td></td>
</tr>
<tr>
<td>9-1425-602-12-4</td>
<td>12-4</td>
<td>MSE SUG</td>
<td>SOFTWARE USER GUIDE MSE</td>
<td>US</td>
<td>3</td>
<td>N13-4</td>
<td></td>
</tr>
<tr>
<td>9-1425-602-12-5</td>
<td>12-5</td>
<td>SUG</td>
<td>SOFTWARE USER GUIDE</td>
<td>US</td>
<td>3</td>
<td>N13-5</td>
<td></td>
</tr>
<tr>
<td>9-1425-602-34</td>
<td>34</td>
<td>SUG</td>
<td>SOFTWARE USER GUIDE</td>
<td>US</td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9-1425-602-34-1</td>
<td>34-1</td>
<td>SUG</td>
<td>SOFTWARE USER GUIDE</td>
<td>US</td>
<td>7</td>
<td>7-1</td>
<td></td>
</tr>
<tr>
<td>9-1425-602-34-2</td>
<td>34-2</td>
<td>MSE SUG</td>
<td>SOFTWARE USER GUIDE MSE</td>
<td>US</td>
<td>7</td>
<td>7-2</td>
<td></td>
</tr>
<tr>
<td>9-1425-602-34-2</td>
<td>34-2</td>
<td>SUG</td>
<td>SOFTWARE USER GUIDE</td>
<td>US</td>
<td>7</td>
<td>7-2</td>
<td></td>
</tr>
</tbody>
</table>
# ADF Search/Edit

The ADF Search/Edit page allows users to search and edit information about patents and trademarks. The interface includes a search bar with options to match either all or any of the criteria. The search results are displayed in a table format, with columns for **TM NUMBER**, **TM NO**, **TM NAME**, **TM DESCRIPTION**, **COUNTRY**, **CAT**, **TM CODE**, and **CTL**.

### Results Table

<table>
<thead>
<tr>
<th>TM NUMBER</th>
<th>TM NO</th>
<th>TM NAME</th>
<th>TM DESCRIPTION</th>
<th>COUNTRY</th>
<th>CAT</th>
<th>TM CODE</th>
<th>CTL</th>
</tr>
</thead>
<tbody>
<tr>
<td>9-1425-2602-12-1</td>
<td>12-1</td>
<td>MSE SUG</td>
<td>SOFTWARE USER G</td>
<td>UNITED STATES</td>
<td>3</td>
<td></td>
<td>Pal</td>
</tr>
<tr>
<td>9-1425-2602-12-2</td>
<td>12-2</td>
<td>MSE SUG</td>
<td>SOFTWARE USER G</td>
<td>UNITED STATES</td>
<td>3</td>
<td></td>
<td>Pal</td>
</tr>
<tr>
<td>9-1425-2602-12-4</td>
<td>12-4</td>
<td>MSE SUG</td>
<td>SOFTWARE USER G</td>
<td>UNITED STATES</td>
<td>3</td>
<td></td>
<td>Pal</td>
</tr>
<tr>
<td>9-1425-2602-34-2</td>
<td>34-2</td>
<td>MSE SUG</td>
<td>SOFTWARE USER G</td>
<td>UNITED STATES</td>
<td>7</td>
<td></td>
<td>Pal</td>
</tr>
<tr>
<td>9-1425-602-12</td>
<td>12</td>
<td>SUG</td>
<td>SOFTWARE USER G</td>
<td>UNITED STATES</td>
<td>3</td>
<td></td>
<td>Pal</td>
</tr>
<tr>
<td>9-1425-602-12-1</td>
<td>12-1</td>
<td>SUG</td>
<td>SOFTWARE USER G</td>
<td>UNITED STATES</td>
<td>3</td>
<td>N13-1</td>
<td>Pal</td>
</tr>
<tr>
<td>9-1425-602-12-2</td>
<td>12-2</td>
<td>SUG</td>
<td>SOFTWARE USER G</td>
<td>UNITED STATES</td>
<td>3</td>
<td>N13-2</td>
<td>Pal</td>
</tr>
<tr>
<td>9-1425-602-12-3</td>
<td>12-3</td>
<td>SUG</td>
<td>SOFTWARE USER G</td>
<td>UNITED STATES</td>
<td>3</td>
<td>N13-3</td>
<td>Pal</td>
</tr>
<tr>
<td>9-1425-602-12-4</td>
<td>12-4</td>
<td>SUG</td>
<td>SOFTWARE USER G</td>
<td>UNITED STATES</td>
<td>3</td>
<td>N13-4</td>
<td>Pal</td>
</tr>
<tr>
<td>9-1425-602-12-5</td>
<td>12-5</td>
<td>SUG</td>
<td>SOFTWARE USER G</td>
<td>UNITED STATES</td>
<td>3</td>
<td>N13-5</td>
<td>Pal</td>
</tr>
<tr>
<td>9-1425-602-34</td>
<td>34</td>
<td>SUG</td>
<td>SOFTWARE USER G</td>
<td>UNITED STATES</td>
<td>7</td>
<td>I7</td>
<td>Pal</td>
</tr>
<tr>
<td>9-1425-602-34-1</td>
<td>34-1</td>
<td>SUG</td>
<td>SOFTWARE USER G</td>
<td>UNITED STATES</td>
<td>7</td>
<td>I7-1</td>
<td>Pal</td>
</tr>
<tr>
<td>9-1425-602-34-2</td>
<td>34-2</td>
<td>SUG</td>
<td>SOFTWARE USER G</td>
<td>UNITED STATES</td>
<td>7</td>
<td>I7-2</td>
<td>Pal</td>
</tr>
</tbody>
</table>
ADF Search Screen

No data to display.
# ADF Search and Edit

## Output Form

<table>
<thead>
<tr>
<th>EI</th>
<th>Effectivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>R3</td>
<td>880001</td>
</tr>
<tr>
<td>R5</td>
<td>870191</td>
</tr>
</tbody>
</table>

**Description**: [Redacted]

**Remarks**: [Redacted]

## Estimate C27

<table>
<thead>
<tr>
<th>TM Num</th>
<th>TM Name</th>
<th>Cat.</th>
<th>New</th>
<th>Chg</th>
<th>Blkup</th>
<th>Approval</th>
<th>Year/Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>10-1</td>
<td>[Redacted]</td>
<td>3</td>
<td>14</td>
<td>20</td>
<td>10</td>
<td>[Redacted]</td>
<td>1994</td>
</tr>
<tr>
<td>20-2</td>
<td>[Redacted]</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td>[Redacted]</td>
<td>2000</td>
</tr>
<tr>
<td>20-3</td>
<td>[Redacted]</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td>[Redacted]</td>
<td>1999</td>
</tr>
</tbody>
</table>

## Actual C29

<table>
<thead>
<tr>
<th>TmNo</th>
<th>TmName</th>
<th>ChgNo</th>
<th>Total</th>
<th>HltLstMemoNo</th>
<th>ToMicomDate</th>
<th>VaVer</th>
</tr>
</thead>
<tbody>
<tr>
<td>10-1</td>
<td>[Redacted]</td>
<td>RBB000</td>
<td>0</td>
<td>TWB:00:040A</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>10-1</td>
<td>[Redacted]</td>
<td>OBSOLETE</td>
<td>0</td>
<td></td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>20-2</td>
<td>[Redacted]</td>
<td>3/C</td>
<td>0</td>
<td>IM:00:100A</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>20-3</td>
<td>[Redacted]</td>
<td>OBSOLETE</td>
<td>0</td>
<td></td>
<td>N</td>
<td></td>
</tr>
</tbody>
</table>
Search/Edit ADF Taskflow
Tabs vs. Scrollbar

- Insufficient screen space in Forms
  - Tabs solution
- Modern users expect scrolling
- Tabs can still be useful
### Change Control

#### Main Menu
- **Doc Number**
- **Class**
- **Type**
- **Title**
- **Program Driver**
- **Sweep El**
- **Date To CM**
- **Driver Date**
- **Configuration**
- **Planned Customer Appro**
- **To Customer**
- **Customer Appro**
- **Comments**

#### Support Availability
- **Log Impact**
- **Log Problem**
- **Log Book #**
- **RR**
- **Complete**

#### Details
- **Number**
- **Manager Sign**
- **Start**
- **Signoff**

#### Details Table
- **IE**: Effectivity
- **P/S**: HWI Delivery
- **SW Delivery**:  
- **Number**
Example: Forms
Use of Tabs in ADF

<table>
<thead>
<tr>
<th>Part Number</th>
<th>N</th>
<th>Y</th>
<th>N</th>
<th>N</th>
<th>N</th>
<th>Signature</th>
<th>Sun Part Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>N</td>
<td>Y</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>Y</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>Y</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>Y</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>Y</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Management System
LOVs vs. Dropdowns

- Lists of Values
- Dropdown Lists
- Same LOV Functionality Available
Good idea to make static lists dynamic as above, but static lists are possible in ADF.
Block Triggers

- Handle with care!
Post-Query Trigger VS View

Looking up a description is best implemented using an LOV.

[Diagram showing an Edit List of Values window with the following configuration:
- List of Values Name: LOV_DepartmentId
- List Data Source: DepartmentsView1
- List Attribute: DepartmentId
- List Return Values:
  - View Attribute: DepartmentId
  - List Attribute: DepartmentId
  - DepartmentName
]
More Advanced Post-Query Triggers

- Methods that can be run declaratively in task flow
- Reoccurring patterns for reuse
Post-Query Triggers

```java
public void populateRelatedQueries() {
    // Check Record A Signatures
    populateNoDataMessage("RecordAView1", "Record A has not been signed off.");

    // Check Record B Signatures
    populateNoDataMessage("RecordBView1", "Record B has not been signed off.");
}

/**
 * Method to create a row and populate the Msg attribute of the row with
 * the given message if no row currently exists.
 */
private void populateNoDataMessage(String viewName, String msg) {
    ViewObject vo = this.findViewObject(viewName);
    Row row = vo.first();
    if (row == null) {
        row = vo.createRow();
        row.setAttribute("Msg", msg);
        vo.insertRow(row);
    }
}
```
Stored Procs and View Objects

- **Stored Procedure Based Blocks**
  - Can build Entity and View Objects on them
  - More complex than normal Entity Object

- **Consider replacing with DB View**
  - If no updates required, less complex solution
Keystrokes/Menu vs. Buttons

Keystrokes & Menu Items

Forms

Buttons

ADF
(Better usability)
Bounded Task Flows
Modifying Collection Queries

```java
package com.*****.model;

import oracle.adf.share.ADFContext;
import oracle.jbo.server.ViewObjectImpl;

public class DepartmentLimitedViewObjectImpl extends ViewObjectImpl {

    public DepartmentLimitedViewObjectImpl() {
        super();
    }

    /**
     * executeQueryForCollection - overridden for custom java data source support.
     */
    protected void executeQueryForCollection(Object qc, Object[] params,
        int noUserParams) {
        ADFContext context = ADFContext.getCurrent();
        String department = (String) context.getSessionScope().get("DEPARTMENT");
        this.setWhereClause("DEPARTMENT = "+department+"!");
        super.executeQueryForCollection(qc, params, noUserParams);
    }
```
Design Considerations

- Keyboard Shortcuts
- Basic Search/Edit Patterns
- Transaction Handling
  - Dirty Data Notifications
  - User Closing Window
- List of Values Implementations
  - Dropdown / Popup
- Mixed Case Data Entry
Take the Opportunity

- **It's a Modernization not a Conversion**
  - Should not be one to one
  - Some things need to change

- **Look for Opportunity**
  - Take advantage of ADF features
  - Consolidate and Re-use
Outline Summary

- Need for Modernization
- Nature of the Changes
  - Screen Design
  - UI Elements
  - Code Changes
- Design Considerations
Questions

- Questions?
- For follow-up questions:
  - Rob Nocera
  - rnocera@vgoswotware.com
  - Blog: http://www.java-hair.com