

Developing Oracle EBS Custom Extensions: The Right Way

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Agenda

- Background
- Types of Oracle EBS Customizations
- Customization Considerations
- JHU-APL Custom Extensions
- Wrap-up
- Questions

Background

Johns Hopkins University Applied Physics Laboratory
(JHUAPL or just APL)

- One of world's premier university research labs (est. 1942)
- Home to ~4000 scientists, engineers and other staff
- Comprised of 11 separate business areas across 11 departments and actively involved with 400+ programs sponsored by US government & other international organizations
- Oracle Applications EBS customer since 1994 (Purchasing, AP, Fixed Assets, GL, Inventory, AR & Cash Mgt.)
- Over the years we have designed, developed and deployed many custom extensions to our Oracle EBS product
- Currently in process of migrating to Oracle EBS R12

General Reasons Why Oracle EBS Customers Customize

1. **Data** - Standard Oracle EBS product doesn't capture the specific data that are desired and required.
2. **Functionality** – Standard Oracle EBS product does not possess the desired processes and/or features that are desired and required.

Types of Oracle EBS Customizations

1. **Configuration** - The use of delivered functionality to capture and process custom organization data [e.g., Profile Options, Descriptive Flex Fields (DFF's) and EBS Security Setups (Function and Data)].
2. **Personalization** – The use of delivered functionality to modify the standard Oracle EBS visual, look & feel and data display characteristics [e.g., Forms Foldering and UI tailoring (color, display), etc.].
3. **Extensibility** – Developing and deploying custom or 3rd Party code to augment the delivered Oracle EBS product (e.g., Custom Forms, Reports, CUSTOM.PLL, 3rd Party Software integration, and other methods).

Oracle EBS Custom Extension Considerations – One (Don't)

If at all possible, do not develop custom extensions to your Oracle EBS product. This should be your last solution option.

Why?

1. Increased costs of EBS ownership.
2. Increased risk of EBS ownership.
3. Current Oracle EBS contains enhanced data capture and processing functionality for non-standard custom data.

Oracle EBS Custom Extension Considerations – One (Don't)

What are some specific Costs and Risks associated with developing custom extensions to your Oracle EBS/

1. Increased cost of ownership due to hiring, training and maintaining a competent IT staff who will have to develop, implement and maintain these customizations.
2. Increased cost of ownership since customizations need to be evaluated, tested, and possibly re-implemented in association with patch and upgrade activities.
3. Increased risk of ownership due to in-house developed customizations that break existing standard EBS product transaction and/or interface processes.
4. Increased risk of ownership due to Oracle patches that (when applied) break in-house custom developed transaction and/or interface processes.
5. Increased risk to your organization of Oracle not supporting your Oracle EBS investment due to your implementation of non-supported customizations.

Oracle EBS Custom Extension Considerations – Two (Change BP)

Instead of developing custom extensions, change your business process to fit the standard Oracle EBS process.

Why?

1. Decreased EBS ownership cost and risk.
2. Your Oracle EBS processes will be more in line with other organizations and industries.

Oracle EBS Custom Extension Considerations – Two (Change BP)

What are some specific realities that may not allow you to change your current business processes to fit the standard Oracle EBS?

1. No support from your upper management.
2. No support from your organization Subject Matter Experts (SME's) and/or functional super users.
3. The standard Oracle EBS process does not contain the vital and required data or functionality components that are critical to your organization.
4. The standard Oracle EBS process functionality is too burdensome to use or is just not usable.

Oracle EBS Custom Extension Considerations – Three (Configure)

Instead of developing custom extensions, customize/tailor your Oracle EBS product using Oracle's built-in configuration features and functionality.

Why?

1. Decreased EBS Ownership Cost and Risk.
2. Easy.

Oracle EBS Custom Extension Considerations – Three (Configure)

What are some specific ways of using the configuration method to customize your Oracle EBS/

1. DFF's.
2. Profile Options.
3. Data and Function Security Setups.

Oracle EBS Custom Extension Considerations – Four (Personalize)

Instead of developing custom extensions, personalize your Oracle EBS product's visual look and feel and data display functionality to fit your organizations needs and desires.

Why?

1. Decreased EBS Ownership Cost and Risk.
2. Enhanced data access.
3. Enhanced data accuracy.

Oracle EBS Custom Extension Considerations – Four (Personalize)

What are some specific ways of using the personalization method to customize your Oracle EBS?

1. Develop custom Folder Forms.
2. Tailoring/Individualizing forms queries.
3. Tailoring/Individualizing the UI (Color, Form textures, etc.).

Oracle EBS Custom Extension Considerations – Five (Custom Extend)

If your critical organization data and/or process is missing from the standard Oracle EBS product and:

1. You cannot change your business process
2. You cannot configure the Oracle EBS
3. You cannot personalize the Oracle EBS
4. You are willing and able to increase Oracle EBS cost and risk
5. You have buy-in and approval from upper management and key personnel (SME's and SU's)

Developing and deploying a custom extension to the Oracle EBS is the option to pursue.

Types of Oracle EBS Custom Extensions

1. **Overriding Standard Functionality** - The use of custom code to override the standard delivered functionality of the Oracle EBS product (e.g., CUSTOM.PLL, custom developed object code, etc.).
2. **Custom Object & Process Augmentation** – The development and deployment of custom software objects and processes to enhance and expand upon standard delivered Oracle EBS functionality [e.g., Custom developed Oracle Forms, (Reports, Oracle Discoverer, Oracle OBIEE objects), Workflow, Oracle JDeveloper objects, etc.].
3. **Integration of 3rd Party Software Product Solutions** – Utilizing and deploying 3rd-Party software to enhance and expand upon delivered Oracle EBS product functionality.

Types of Oracle EBS Custom Extensions: Override Std. Functionality

Using the built-in Oracle delivered CUSTOM.pll structure is the supported and best method for creating custom Oracle EBS forms functionality Overrides:

1. It is a component of your Oracle EBS forms library.
2. Consists of user exit and execution code associated with Oracle EBS forms.
3. Custom code that you incorporate into this library will not be overwritten or affected by subsequent/current Oracle version bug fixes and patches.
4. *Will still be a part of Oracle's R12 product, you just need to re-apply the custom extensions.

Types of Oracle EBS Custom Extensions: Override Using CUSTOM.pll

Enter Requisitions Form – Supplier Field Entry Override

Source **Supplier**

Supplier **microsoft**

Site Suppliers

Contact

Phone Find **microsoft %**

Supplier	Number
MICROSOFT CORPORATION	
MICROSOFT DEVELOPER NETWORK	
MICROSOFT EXCHANGE CONFERENCE '98	
MICROSOFT WEB-TECH 98	

Find OK Cancel

Types of Oracle EBS Custom Extensions: Override Using CUSTOM.pll

Enter Requisitions Form – Supplier Field Entry Override Code

```
IF In_Event = 'WHEN-NEW-FORM-INSTANCE'  
THEN  
  --  
  IF in_form = 'POXRQERQ'  
  THEN  
    --  
    set_item_property ('LINES.SUGGESTED_VENDOR_NAME', validate_from_list, property_true);  
    set_item_property ('LINES.SUGGESTED_VENDOR_LOCATION', validate_from_list, property_true);  
    --
```

Types of Oracle EBS Custom Extensions: Override Using CUSTOM.pll

Enter Requisitions Form – Tools Menu Item Dropdown List & Code



```
--  
app_special2.instantiate ('SPECIAL15', '&Print Requisition', 'POCRQERQ', TRUE, 'LINE' );  
app_special2.instantiate('SPECIAL4', '&Requisition Routing', 'APLCDISL', TRUE, 'LINE');  
app_special2.enable ('SPECIAL4', property_on);
```

Types of Oracle EBS Custom Extensions: Custom Object/Process Augmentation

Using Oracle tools and associated Oracle coding standards is the supported and best method for creating custom forms and processes to enhance your standard Oracle EBS product:

1. Oracle Forms and OAF.
2. Oracle JDeveloper.
3. Oracle Workflow.
4. Oracle (Reports, BI and OBIEE, Hyperion).

Types of Oracle EBS Custom Extensions: Custom Objects/Processes

Automated Requisition Routing – Oracle Forms

Requisition Routing Distribution List (APL)

List Name: End Date:

Description:

Preparer:

Seq No.	Name	Extension	Type	Bypass	Time (Days)
10	PANCHOLI,KEYUR J.	81116	Approver	Yes	3
20	CHANDRASEKHAR, S.	81119	Alternate	No	
30	MANNING,DOUGLAS W.	81145	Quality Rep	No	
40	HILL, WILLIAM K.	88117	Approver	No	

Clone Save

Open

Types of Oracle EBS Custom Extensions: Custom Objects/Processes

Automated Requisition Routing – Oracle Forms & MOD PL/SQL

Requisition Routing (277273)

Requisition Number: 277273

Final Status: Routing Incomplete

Details | Status

Seq No	Name	Ex
10	PANCHOLI,KEYUR J.	
20	GANDHI,THEJASWALA A.	
30	MANNING,DOUGLAS W.	
40	LEE,GERALD A.	

Comments

Attachments | Save Info. only | Submit Routing

Upload attachments for requisition 257260

File Title: Spreadsheet

File Description: SpreadsheetFile

File Name: P:\APS\Requisition Routing\Proj M | Browse...

Submit

Choose file

Look in: My Documents

File name: Req Routing Requirements Repository2.xls

Files of type: All Files (*.*)

Open | Cancel

Types of Oracle EBS Custom Extensions: Custom Objects/Processes

Automated Requisition Routing – MOD PL/SQL

From: APS_Automated_Msg@bitbucket.jhuapl.edu Sent: Mon 3/20/2006 10:05 AM
 To: Manning, Douglas W.
 Cc:
 Subject: APS TEST Requisition Routing for TEST requisition 257260, Req Description:OAug - NASH1

The APS Requisition number 257260 is available for your approval at
["https://mbsund0.jhuapl.edu/reqrout/"](https://mbsund0.jhuapl.edu/reqrout/).

Requisition Description: "OAug - NASH1"
 Requisition Amount: 10,000.00

NOTE: The above URL is not accessible outside of the Lab, except via VPN.

Please do not reply to this message, this message is automatically generated.
 Please refer all questions or comments to the APL Help Desk, "http://www.jhuapl.edu/aplhelpdesk/".

Requisition Reference Information:
<http://mbsund0.jhuapl.edu:8130/pls/apl/id/ReqRouting.ProcessReq?>

Requisition Number: **257260** Preparer: Pancholi,Keyur J.
 Requisition Total Amount: 10.00 Work Ext: 83318

Requisition Detail

Line Item	Description	Unit	Qty	Unit Price	Extended Amt	Charge Number	Charge Number End Date
1	MISCELLANEOUS FEES OR CHARGES NOT BUDGETED OR CLASSIFIED ELSEWHERE. IT DOES NOT INCLUDE GOODS OR SERVICES.	EACH	1	10.00	10.00	11-HQSCF-523-FA-2555-1-F2	30-SEP-2008

Attachments

Title	File Name	Description	Date Added
OAug File 1	OAug_08-1.doc	The first file to be attached	18-FEB-2008

Routing Status History

Status	Approver	Type	Notification Date	Action Date	Comments
Pending Notification	PANCHOLI,KEYUR J.	APV			
Pending Notification	CHINAPATHY,SRINIVASA	ALT			
Pending Notification	MANNING,DOUGLAS W.	QRP			

Types of Oracle EBS Custom Extensions: Custom Objects/Processes

Oracle JDeveloper – Supplier Rating

The screenshot displays the Oracle Supplier Rating Application interface. The main window shows the 'Supplier Rating Application' header with navigation links (Help, Contact Us, Log Off) and the user name 'LEFEVERE, THOMAS W.'. Below the header, there are tabs for 'Rate Supplier', 'View Supplier', and 'Reports'. The main content area is titled 'Rate [Supplier Name] for Goods' and includes a 'Submit Ratings' button. A summary bar shows the 'Overall Supplier Rating 97.94%' with sub-metrics: 'Ontime Delivery 96.0%', 'Receiving Inspection 100.0%', and 'Quality 97.81%'. A rating scale is provided: 90-100 Excellent (green), 80-89 Good (light green), 70-79 Fair (yellow), and Below 70 Unacceptable (red). Below this is a 'Comments (Max 2000 char)' text area and a 'History' button. A section for 'PO 936254 Rating 0.0%' contains a table with columns for PO Line, Description, Ontime Delivery %, Receiving Inspection %, and Quality %, along with a 'Replicate' button.

PO Line	Description	Ontime Delivery %	Receiving Inspection %	Quality %
1	MAX6510CAUT+ parts	100.0	100.0	100.0
2	MAX6510HAUT+ parts	100.0	100.0	100.0

Types of Oracle EBS Custom Extensions: Custom Objects/Processes

Oracle JDeveloper – Supplier Rating

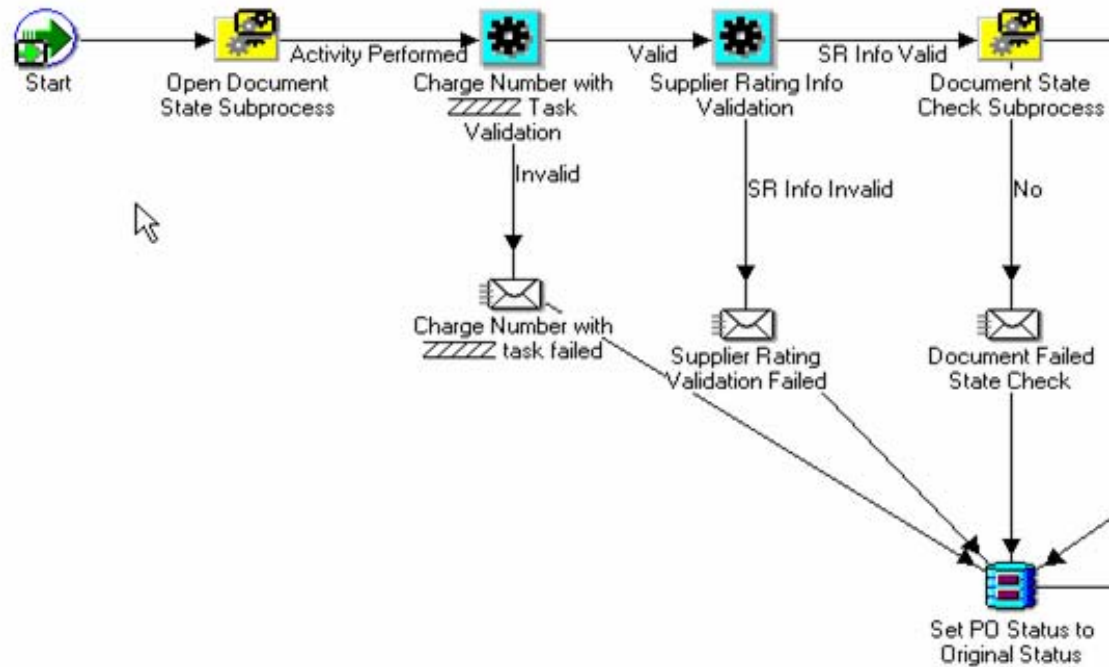
The screenshot displays the Oracle Supplier Rating Application interface. The main window shows a 'Rating Summary For' table with the following data:

Criteria	Percentage	Criteria	Percentage	Criteria	Percentage
Purchasing	0.0 %	Service Contracts	0.0 %	Sub Contracts	0.0 %
Number of Ratings : 387					
On-time Delivery	0.0 %	Management/Administration	0.0 %	Management/Administration	0.0 %
Receiving Inspection/ Non-Discrepancies	0.0 %	Technical	0.0 %	Technical	0.0 %
Quality	0.0 %	Schedule	0.0 %	Schedule	0.0 %
				Cost	0.0 %

The interface also includes a search criteria section on the left with options: By Supplier Name, By Item Description, By PO Number [Lookup PO Number](#), and By Reviewer. A key word search field contains 'PANCH%'. The user is identified as 'PANCHOLI,KEYUR J.' and the session is 'JHU/APL Administrative Restricted'.

Types of Oracle EBS Custom Extensions: Custom Objects/Processes

Oracle Workflow



Types of Oracle EBS Custom Extensions: 3rd Party SW Integration

Using Oracle certified 3rd Party software is an option that should be considered if the Oracle EBS is missing critical organization data and/or processes:

1. Data & processes that are missing are Organization critical.
2. Oracle Certified 3rd Party Software.

Types of Oracle EBS Custom Extensions: 3rd Party SW Integration

3rd Party Software – Parcel Tracking


2/19/2008 2:04:18 PM

Item/AssetID

Search Results For Item/Asset: 1Z03W49X0370453058

Item/Asset ID	1Z03W49X0370453058
Destination	SEATTLE, OREGON, USA - UNIVERSITY
Status	Delivered (Delivered)
Date/Time	10/29/2007 10:35:51 AM
Internal Carrier	rogerck1
Current ID	31-202 (31-202)

Item/Asset History

Date/Time	Status	Destination	CurrentID	Carrier	Parent ID	Note	Comments	More Comments	Signature	Snapshot
10/29/2007 10:35:51 AM	Delivered	SEATTLE, OREGON, USA - UNIVERSITY	31-202 (31-202)	rogerck1		N/A	N/A	N/A	Signature 	
10/29/2007 10:35:25 AM	Out for Delivery	SEATTLE, OREGON, USA - UNIVERSITY	DELIVERY4 (DELIVERY4)	rogerck1		N/A	N/A	N/A		
10/26/2007 4:08:05 PM	Building 31 Shelf	SEATTLE, OREGON, USA - UNIVERSITY	FLOOR (FLOOR)	willidc1		N/A	N/A	N/A		
10/25/2007 4:10:26 PM	On Receivers Desk	SEATTLE, OREGON, USA - UNIVERSITY	CHECKER6 (CHECKER6)	OracleFinancials		N/A	N/A	N/A		
10/25/2007 11:37:51 AM	On Receivers Desk	*Unknown* (unknown)	CHECKER6 (CHECKER6)	benneoe1		N/A	N/A	N/A		
10/24/2007 9:42:22 AM	Receive	*Unknown* (unknown)	*Unknown* (Unknown)	willidc1		N/A	N/A	N/A		

Types of Oracle EBS Custom Extensions: 3rd Party SW Integration

3rd Party Software – Oracle EBS Integration

Concurrent Programs

Program: **APL: Import Locations Information for...**

Short Name: **SP_IMPORTRECIPS_JH_LOCATIONS**

Application: **APL Custom**

Description: **Process to Import Locations Information**

Executable

Name: **SP_IMPORTRECIPS_JH_LOCATIONS**

Method: **PL/SQL Stored Procedure**

Request

Type: _____

Incrementor: _____

MLS Function: _____

Use In SRS Allow Disabled Values

Run Alone Restart on System Failure

Enable Trace NLS Compliant

Copy to... Session Control

```

CREATE OR REPLACE PROCEDURE
INTRASYSADMIN.SP_IMPORTRECIPS_JH_PEOPLE(ERRBUF OUT VARCHAR2,
RETCODE OUT VARCHAR2) AS
STOO_SELCNT INTEGER;
STOO_ERROR INTEGER;
STOO_ROWCNT INTEGER;
STOO_ERRMSG VARCHAR2(255);
--
-- 1) Pulls recipient information from recipients (view) into a temp
table (RecipImportTable)
-- 2) Inserts any records from RecipImportTable into the Recipient
table that does not already exist
-- 3) Updates any records in the Recipient table that have changed
-- 4) Tags records as Deleted (Status='Deleted') that are in the
Recipient Table but not in the RecipImportTable
--
--
BEGIN
APPS_FND.FND_FILE.PUT_LINE (APPS_FND.FND_FILE.OUTPUT ,
'>>> Process Started : ' ||
TO_CHAR(SYSDATE, 'DD-MON-YYYY HH:MI:SS'));
-- Delete records from temp import table.
--
. . . . .
--
COMMIT;
--
APPS_FND.FND_FILE.PUT_LINE (APPS_FND.FND_FILE.OUTPUT ,
'<<< Process Ended : ' ||
TO_CHAR(SYSDATE, 'DD-MON-YYYY HH:MI:SS'));

EXCEPTION
WHEN OTHERS THEN
STOO_ROWCNT := 0;
STOO_SELCNT := 0;
STOO_ERROR := SQLCODE;
STOO_ERRMSG := SQLERRM;
RAISE_APPLICATION_ERROR (SQLCODE, SQLERRM, TRUE);
ROLLBACK;

END;
```

Types of Oracle EBS Custom Extensions: 3rd Party SW Integration

3rd Party Software – Oracle EBS Integration



2/19/2008 2:04:18 PM

Item/AssetID Search Reset

Search Results For Item/Asset: 1Z03W49X0370453058

Item/Asset ID	1Z03W49X0370453058
Destination	...
Status	Delivered (Delivered)
Date/Time	10/29/2007 10:35:51 AM
Internal Carrier	rogerdk1
Current ID	31-202 (31-202)

Item/Asset History

Date/Time	Status	Destination	CurrentID	Carrier	Parent ID	Note	Comments	More Comments	Signature	Snapshot
10/29/2007 10:35:51 AM	Delivered	...	31-202 (31-202)	rogerdk1		N/A	N/A	N/A	Signature <i>Roger D. K...</i>	
10/29/2007 10:35:25 AM	Out for Delivery	...	DELIVERY4 (DELIVERY4)	rogerdk1		N/A	N/A	N/A		
10/26/2007 4:08:06 PM	Building 31 Shelf	...	FLOOR (FLOOR)	willidc1		N/A	N/A	N/A		
10/25/2007 4:10:26 PM	On Receivers Desk	...	CHECKER6 (CHECKER6)	OracleFinancials		N/A	N/A	N/A		
10/25/2007 11:37:51 AM	On Receivers Desk	"Unknown" (unknown)	CHECKER6 (CHECKER6)	benneoe1		N/A	N/A	N/A		
10/24/2007 9:42:22 AM	Receive	"Unknown" (unknown)	"Unknown" (Unknown)	willidc1		N/A	N/A	N/A		

Oracle EBS Custom Extensions that Should Never be Performed

A discussion of Oracle EBS custom extensions would not be complete without mentioning customizations that should Never be performed:

1. Directly changing the functionality of object elements in an Oracle EBS delivered form (e.g., add, modify, delete: fields, buttons, regions, tabs, menu items, etc.).
2. Directly changing the functionality of object elements in an Oracle EBS delivered report (e.g., add, modify, delete: data elements, columns, titles, headers, footers, etc.).
3. Directly changing other delivered Oracle EBS software objects (e.g., triggers, functions, procedures, html and java objects, etc.).

Why?

Extreme risk and high probability of data integrity & process errors.

Extreme risk and high probability of not being able to apply Oracle bug fixes and CPU's.

Inability to replicate custom functionality in future product releases.

Possibility of non-support from Oracle Corp.

R12 Custom Extension Considerations

- Expanded Configuration & Personalization
- CUSTOM.pll
- MOD PL/SQL (Available or Not?)

Wrap-up

Developing Oracle EBS custom extensions the right way not only involves the skill and know-how of performing the custom extension, but more importantly involves a methodology of progressive and comprehensive investigation to choose the correct solution for extending Oracle product functionality.

A custom extension checklist would include:

1. Before customizing your Oracle EBS, see if you can change your current business process to fit the Oracle EBS process.
2. Use Oracle EBS configuration and/or personalization functionality to capture and process unique data and procedures before writing custom extensions.
3. Custom extend the Oracle EBS (**The Right Way**) by using supported Oracle extensibility methods such as the CUSTOM.PLL, Oracle Tools (Forms, OAF, JDeveloper, Workflow, etc.) and 3rd Party software that is Oracle certified.

Questions?

