



COLLABORATE 12

TECHNOLOGY AND APPLICATIONS FORUM
FOR THE ORACLE COMMUNITY



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Adding Data Elements to BI Publisher Documents

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Session #9842

Introduction

- John Peters, JRPJR, Inc john.peters@jrpjr.com
- Independent Consulting in the San Francisco Bay Area
- I have been working with Oracle E-Business Suite since 1992, early days of Release 10 character mode
- I have presented many technical papers at numerous OUAG, IOUG and OpenWorld conferences
- Founding member of the Northern California OAUG GEO
- Current Coordinator for the Workflow SIG

Oracle E-Business Suite and R12

- This presentation is focused on the use of BI Publisher with Oracle E-Business Suite
- It is predominately focused on R12
- This is also based on standard EBS BI Publisher, not Standalone BI Publisher
- I will dive into some technical details from time to time, so if you are functional hang tight we will pop back up for air after these excursions into code land
- I will reference many Metalink Notes, but don't worry about writing them all down, this presentation is on the OAUG web site, as well as my web site: <http://jrpjr.com>
In fact that is what I am using here for this presentation

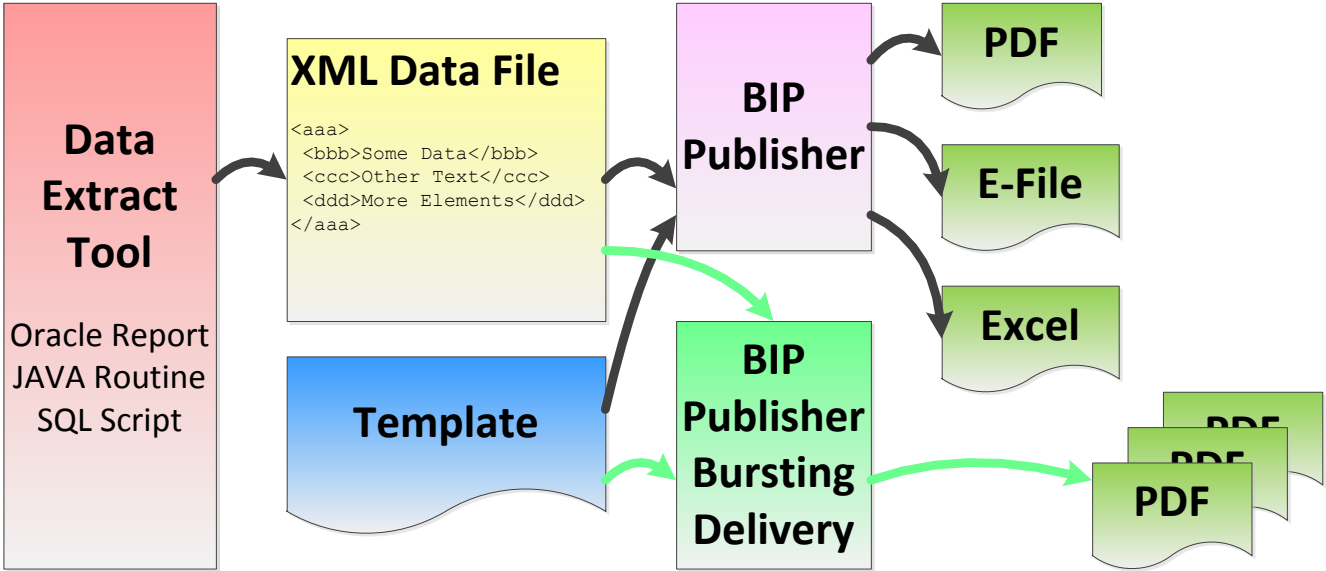
Agenda

- Introduction
- Overview and general BI Publisher Suggestions
- Common Data Element Additions
- Data Element Addition Capabilities Provided by Oracle
- Modifying Oracle's Reports
- Modifying by Porting to Oracle's BI Publisher XML Data Extract Engine
- Wrap Up

Overview and Suggestions

Quick Intro of BI Publisher, What We Will Cover

- Separated the data extract from the data formatting.



There are many presentations on BI Publisher Templates, Output Examples, Bursting and Delivery. Check out this conference and the OAUG web site for these.

We will be concentrating on how to add elements to the XML data file for Oracle E-Business Suite.

However, I will make a few quick suggestions in general about BI Publisher.

Data Extract

- Oracle E-Business Suite supports a variety of methods to extract XML data as a concurrent program
 - Oracle Reports
 - SQL Scripts
 - JAVA
 - BI Publisher Extract Engine
(more on this one later)

XML Data

- I would suggest you prefix your new custom XML tags with XXCUST
 - Follows Oracle customization standards
 - Easier to find what you have done when looking at it again later
 - Tags won't be duplicated by Oracle seeded tags

Layout Template

- Bursting/Delivery calls the template a 2nd time dynamically based on your data
- Your bursting control file should pull the Custom BI Publisher Template from the database not the file system (this reduces the number of copies to maintain)

```
<?xml version="1.0" encoding="UTF-8"?>
<xapi:requestset xmlns:xapi="http://xmlns.oracle.com/oxp/xapi" listener="oracle.apps.xdo.batch.SampleListener">
  <xapi:request select="/XXCUST_RAXINV/LIST_G_ORDER_BY/G_ORDER_BY/LIST_G_INVOICE/G_INVOICE">
    <xapi:delivery>
      <xapi:filesystem id="ARI" output="/interface/${DB_NAME}/DOCUMENTS/IN/ARI_${CUSTOMER_NUMBER}_${TRX_NUMBER}.pdf">
      </xapi:filesystem>
    </xapi:delivery>
    <xapi:document key="${TRX_NUMBER}" output-type="pdf" delivery="ARI">
      <xapi:template type="RTF" location="xdo://XXCUST.XXCUST_RAXINV.en.US/?getSource=true" translation="" filter="">
      </xapi:template>
    </xapi:document>
  </xapi:request>
</xapi:requestset>
```

<app_code>.<template_code>.<language_code>.<country_code>

Handling Letter and A4 Paper Sizes

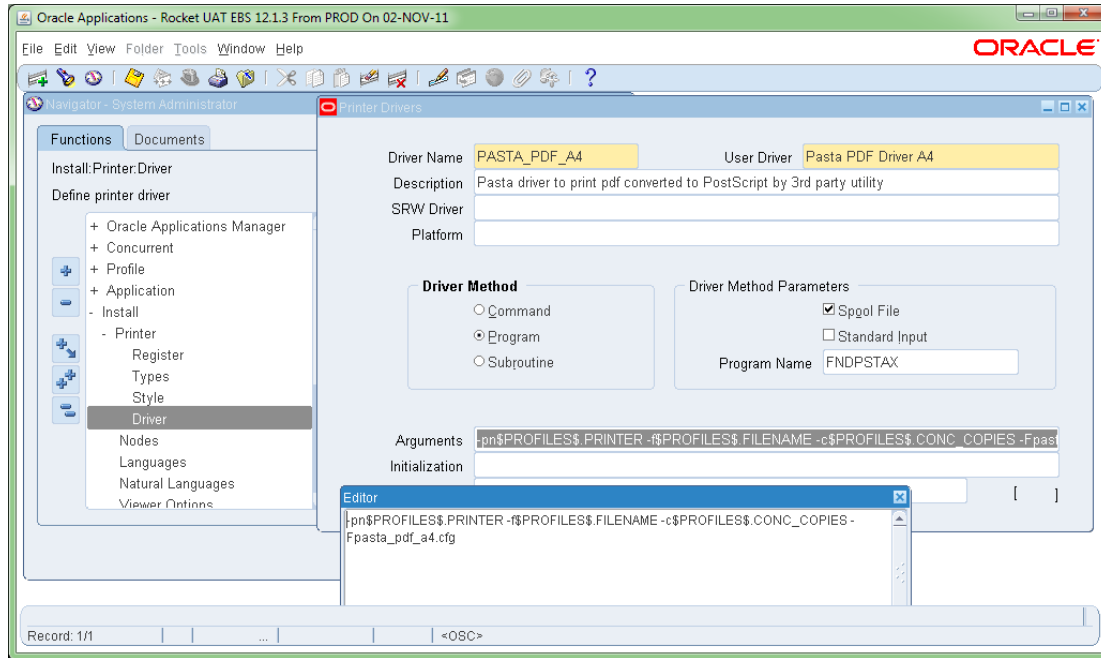
- Don't create separate Layout Templates
- Scale your output printing using PASTA printing

Handling Letter and A4 Paper Sizes (cont)

1) Create Printer Driver PASTA_PDF_A4

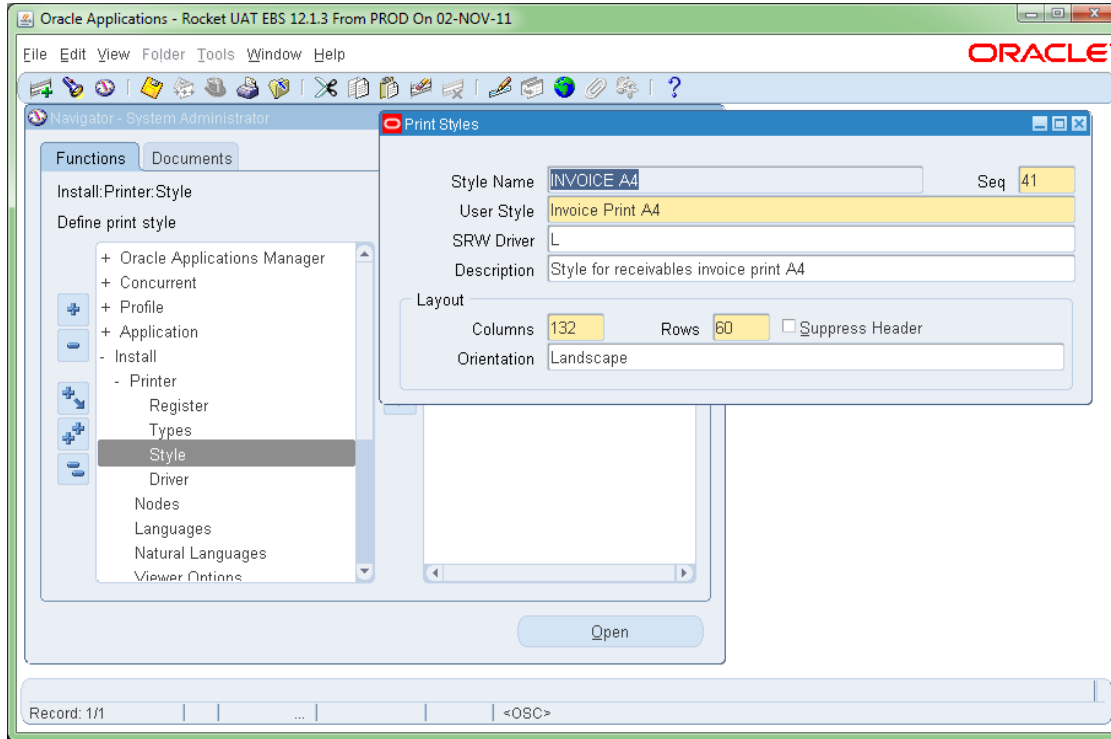
Arguments line:

```
-pn$PROFILES$.PRINTER -f$PROFILES$.FILENAME -c$PROFILES$.CONC_COPIES -Fpasta_pdf_a4.cfg
```



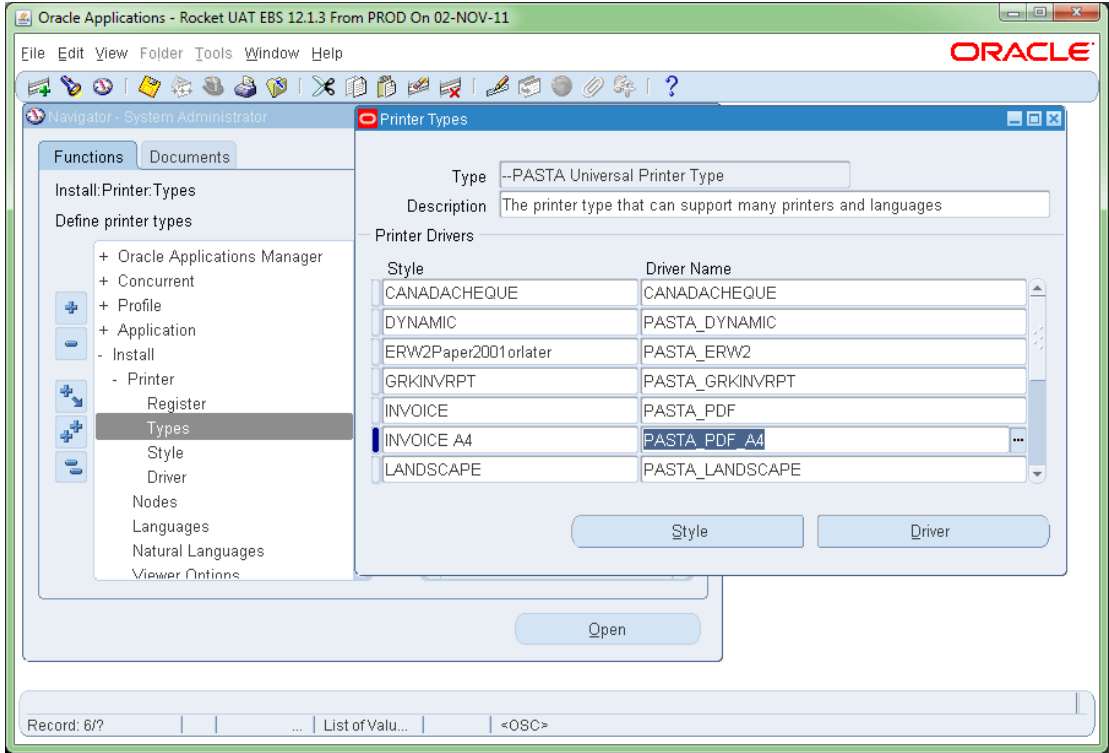
Handling Letter and A4 Paper Sizes (cont)

2) Create Print Style (something like INVOICE A4)



Handling Letter and A4 Paper Sizes (cont)

3) Add Print Style and Print Driver to Printer Type



Handling Letter and A4 Paper Sizes (cont)

4) Create Pasta Config File pasta_pdf_a4.cfg

```
cp $FND_TOP/resource/pasta_pdf.cfg $FND_TOP/resource/pasta_pdf_a4.cfg
```

Edit following line:

```
preprocess=pdftops -paper A4 -expand {infile} {outfile}
```



```
nwt-devmt.rocketsoftware.com - PuTTY

% preprocessing command. {outfile} is the output file generated
% by the preprocessing command. Pasta names it temporarily and
% it will be deleted after being passed to the printing command.
% If you want to keep it, you can name it by using the '-o'
% command line option. Pasta will copy {outfile} to the file you
% specify.

% Preprocess for PDF output
% This is an example for PDF output to print.
; Xpdf
preprocess=pdftops -paper A4 -expand {infile} {outfile}
; Ghost Script
; preprocess=pdf2ps {infile} {outfile}
; Acrobat
; preprocess=acroread -toPostScript -pairs {infile} {outfile}

%% ===== Printing Command ===== %%
%% You can specify the printing command and options you want
%% to use to print your report. Pasta will pass the final output
%% to this command. {printername} will be replaced by the

133,1 85%
```


BI Publisher makes it fairly easy to get a nicely formatted output from already provided XML Data Streams. However, you often need to add data element to these XML Data Streams.

Common Data Element Additions

Common Additions – User Data Elements

- Descriptive Flex Field Data
- Legal Entity Address Data
- Data from a foreign keyed record
 - On the AR Invoice you want something that is stored in the Customer Master
 - AR Invoice must reference something from the Sales Order
- Make sure you are using Oracle's standard functionality properly.
 - You should always ask,
“Isn't this a common data requirement? Why are we different?”

Common Additions – For Bursting/Delivery

Instance Name

- You don't want to burst/deliver the same in PROD and non-PROD instances

Date/Time Stamp for filenames

Delivery Details

- Email Addresses
- Userid/passwords for file transfers

Common Additions – Language Requirements

- Oracle out of the box supports multiple languages
- However, you end up with dozens of templates that hold boiler plate text
 - You can use Sub-Templates
 - But in general the templates get complicated
- Instead pull template boiler plate text from a custom table or %_TL tables
 - Take a look at ML Note 1077709.1:
‘Using Lightweight MLS With Oracle E-Business Suite Release 12.1.3’

Boiler Plate Text From Table



My Software (US) LLC
 275 Main St
 Newton, MA 02466
 United States
 Phone: 617.111.2222
 Fax: 617.333.4444
 Tax ID: 12-34567890

www.norcaloaug.org

Bill To:

Monolith Corporation
 Attn: Accounts Payable
 123 Main Street
 Wake Forest NC 27587

Ship To:

Monolith Corporation
 123 Main Street
 Wake Forest NC 27587

INVOICE

Page 1 of 1

Invoice Number	2118100063
Invoice Date	23-FEB-12
Purchase Order Number	TS6876467
Customer Number	104412
Payment Terms	NET 30
Due Date	24-MAR-12
Customer Tax ID	

Payment Instructions:

Mail Checks To:
 My Software LLC
 PO Box 12345
 Boston, MA 02284-12345
 United States

Overnight Checks To:
 My Software LLC
 20 Main Street
 Woburn, MA 01801
 United States

**This invoice must be paid in the currency of the invoice.
 Please refer to invoice number when remitting payment.**

Salesperson	Order Number	Quote Number	End Customer Name	Delivered Via	Currency
Mouse, Mickey	5118100045		Monolith Corporation	Electronic Delivery	USD

FACTURE

Page 1 / 1

Facture No.	2370100018
Date de Facture	21-FEB-12
Commande No.	test test
Client No.	105786
Conditions de paiement	NET 30
Date limite	22-MAR-12
Identifiant TVA	FR 22444338347

Instructions de paiement

Virement à:
 Deutsche Bank Dordrecht
 IBAN: NL 12 ABNA 0 34 56 78 90
 Acct: 12 34 56 789
 BIC: ABCDEFGHIJ

**Cette facture est payable dans la devise indiquée.
 Veuillez référencer le numéro de la facture au paiement**

Commercial	Service Contract Number	Devis
	3370000028	EUR

RECHNUNG

Seite 1 von 1

Rechnungsnummer	2370100017
Rechnungsdatum	21-FEB-12
Kundenbestellnummer	PO blaba
Kundennummer	103644
Zahlungsbedingungen	NET 30
Zahlungsziel	22-MAR-12
Ust. - IdNr.	Temp Tax ID

Zahlungsanweisungen

Zahlungsempfänger
 Deutsche Bank Dordrecht
 IBAN: NL 12 ABNA 0 34 56 78 90
 Acct: 12 34 56 789
 BIC: ABCDEFGHIJ

Bitte zahlen Sie in der Währung der Rechnung und geben Sie die Rechnungsnummer an.

Sales-Kontakt	Service Contract Number	Währung
	3370000024-21-FEB-12 07.01.20	EUR

Boiler Plate Text From Table (cont)

Custom PL/SQL Function

```
FUNCTION GET_MEANING (p_lookup_code    varchar2,  
                    p_language_code  varchar2 default 'US',  
                    p_org_id         number default 0  
                    )  
    return varchar2;
```

Pulls from Custom Table

LOOKUP_CODE	LANGUAGE_CODE	ORG_ID	LOOKUP_MEANING
LBL_TITLE_INVOICE	DE	0	RECHNUNG
LBL_TITLE_INVOICE	FR	0	FACTURE
LBL_TITLE_INVOICE	US	0	INVOICE

How to Add Data Elements:

Capabilities Provided by Oracle Development

Data Element Addition Capabilities Provided by Oracle

- R12 Payments
- R12 PO Documents

R12 Payment Documents: AP Checks, Postive Pay, ACH

- Some Payment DFF's will auto display in the XML once registered
- PL/SQL package IBY_FD_EXTRACT_EXT_PUB
 - ML Note: 457539.1
 - R12: Can Users Customize XML Extract?
 - ML Note: 787467.1
 - Format Customization in Oracle Payments for Oracle Applications Release 12

IBY_FD_EXTRACT_EXT_PUB Capabilities

- You are modifying a seeded PL/SQL package body, and can add elements to:
 - Instruction => Get_Ins_Ext_Agg p_payment_instruction_id
 - Payment => Get_Pmt_Ext_Agg p_payment_id
 - Document Payable => Get_Doc_Ext_Agg p_document_payable_id
 - Document Payable Line => Get_Doctrine_Ext_Agg p_document_payable_id
 - Payment Process Request => Get_Ppr_Ext_Agg p_payment_service_request_id
- Create a custom cursor that uses the parameter from the outer function (in red above)
- Changes to this package body may have to be reported after patching.

IBY_FD_EXTRACT_EXT_PUB Example

```
FUNCTION get_pmt_ext_agg (p_payment_id IN NUMBER)
  RETURN XMLTYPE
IS
  l_pmt_ext_agg XMLTYPE;
  CURSOR l_pmt_ext_csr (p_payment_id IN NUMBER)
  IS
    SELECT XMLCONCAT (XMLELEMENT ("XXCUST_EXT_AGG",
                                XMLELEMENT ("XXCUST_FileID", cba.attribute1),
                                XMLELEMENT ("XXCUST_CompanyID", cba.attribute2)
                                )
                  )
    FROM IBY_PAYMENTS_ALL ipa,
         CE_BANK_ACCOUNTS cba
    WHERE ipa.internal_bank_account_id = cba.bank_account_id
          AND ipa.payment_id = p_payment_id;
BEGIN
  OPEN l_pmt_ext_csr (p_payment_id);
  FETCH l_pmt_ext_csr
  INTO l_pmt_ext_agg;
  CLOSE l_pmt_ext_csr;
  RETURN l_pmt_ext_agg;
END get_pmt_ext_agg;
```

R12 PO Documents

- The following is **not** supported by Oracle, but I have used in the past and there are several references on OTN of others doing the same
- The JAVA program that builds the Printed PO is difficult to modify
- However, the following views are the basis for what is output in the XML Data Stream:
 - PO_HEADERS_XML
 - PO_LINES_XML
- The following I have also seen reference from others to have changed
 - PO_LINE_LOCATIONS_XML
 - PO_DISTRIBUTION_XML
 - PO_RELEASE_XML
- Changes to these views may need to be reported after patching

Are there others?

These are ways I have added Data Elements using functionality provided by Oracle Development.

Does anyone know of other hooks provided by Oracle Development?

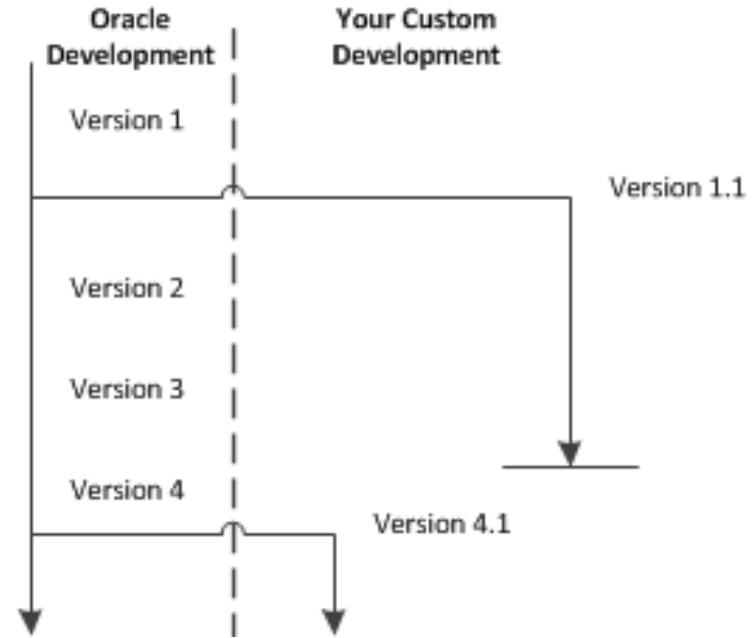
Modifying Oracle's Reports

Modifying Oracle's RDFs

- This is the most common method I have seen used to add Data Elements to and XML Data Stream
- Fairly easy to implement a simple addition
- Copy the RDF to your custom top directory
- Copy the concurrent program definition to your custom application

Drawbacks to this Oracle's RDFs

- You have branched Oracle's development
- You are responsible for porting all future patches, upgrades to your code tree
 - Often you can skip some versions
 - Depends upon the expanse of your implementation
- You need an Oracle Reports Developer



Steps you can take to minimize Drawbacks

- Always copy Oracle's code
- Keep track of Oracle's changes, verify if you need to uptake them
- If you are just adding something from the same table, just add the column in the select statement
- I would strongly suggest that if you are joining to other tables not already in the query to add them as PL/SQL functions
 - This makes it much easier to report the changes in the future
- You will need an Oracle Reports Developer
 - Either hire one
 - Train one
 - Or align yourself with an outside firm

Modifying by Porting to Oracle's BI Publisher XML Data Extract Engine

Only option with Oracle JAVA Concurrent Programs

- You can't get access to the source code
- JAVA de-compilers produce code that is difficult to work with
- An example of this is the Service Contract Quote, which can be run as a Concurrent Program or called from the Contracts Launchpad

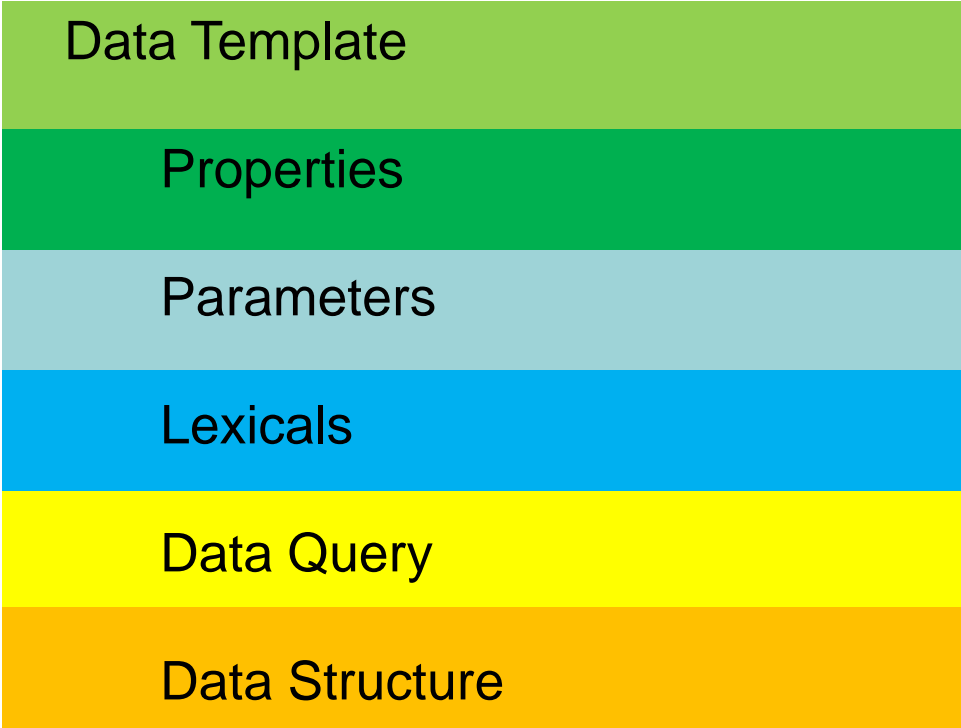
Step 1 – Write the SQL Query

- Get Oracle's primary cursors from the Concurrent Program
 - Open an RDF and extract them
 - Trace the Concurrent Program, dig through TKPROF output
 - This requires both functional and technical knowledge
- Oracle BI Publisher Release 10.1.3.3 has a conversion utility to take an Oracle Report and convert it to a BI Publisher report. The queries are converted to a PL/SQL Package. I have not used this but it is available.
Oracle Business Intelligence New Features Guide, Release 10.1.3.4.2
Part Number E10416-07
- Same drawbacks as modifying the Oracle RDF
 - Except you can sometimes simplify the query for your specific case

Step 2 – Put Query into XML Data Template

- XML Data Templates have the query embedded in a XML formatted file
- The XML Data Template is read by the BI Publisher Data Extract Engine
- With XML Data Templates you have similar functions to Oracle Reports
 - Multiple Queries and Joins
 - Pre/Post Event Triggers
 - Even Distributed Queries

Step 2 – XML Data Template Structure



```
<dataTemplate name="HELLOWORLD" defaultPackage="" description="Hello World DT">
  <properties>
    <property name="include_parameters" value="true"/>
    <property name="include_null_Element" value="true"/>
    <property name="xml_tag_case" value="upper"/>
    <property name="db_fetch_size" value="500"/>
    <property name="scalable_mode" value="off"/>
    <property name="include_rowsettag" value="false"/>
    <property name="debug_mode" value="off"/>
  </properties>
</parameters/>
</lexicals/>
<dataQuery>
  <sqlStatement name="Q1" dataSourceRef="">
    <![CDATA[
      select 'Hello World!' WELCOME from dual
    ]]>
  </sqlStatement>
</dataQuery>
<dataStructure>
  <group name="HELLO" source="Q1">
    <element name="WELCOME" value="WELCOME"/>
  </group>
</dataStructure>
</dataTemplate>
```


Step 3 – Layout Template

- Just like other BI Publisher projects you will need create a Layout Template

Pre Event Triggers

- If using the Oracle EBS executable XDODTEXE you don't need to do this
- If using the Java API or BIP Publisher Standalone
Use this to set your Multi Org Context if

Post Event Triggers

- Essential if you want to call the BI Publisher Bursting Engine
- You need to register a default package on your dataTemplate line

```
<dataTemplate name="XXCUST_OKSDATA"  
  description="XXCUST Service Contract Quote"  
  defaultPackage="XXCUST_OKS_QUOTE_CP" version="1.0"
```

>

- Between the </dataStructure> and </dataTemplate>

```
<element name="OKS_COUNT" function="count" dataType="number" value="G_HEADER.H_Contract_ID"/>  
</dataStructure>
```

```
<dataTrigger name="afterReportTrigger"  
  source="XXCUST_OKS_QUOTE_CP.afterreport(:OKS_COUNT)"
```

/>

Questions and Answers

My Contact Information

This was session # 9842, please complete the surveys

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