
ORACLE®

Oracle Business Intelligence Publisher Overview & Best Practices

Pradeep Sharma
Senior Principal Product Manager
Business Intelligence

Kevin McDermott
Senior Principal Technical Support Engineer
Oracle

Oct 02, 2014

September 28–
October 2, 2014
San Francisco

ORACLE OPEN WORLD

ORACLE

Safe Harbor Statement

The following is intended to outline our general product direction. It is intended for information purposes only, and may not be incorporated into any contract. It is not a commitment to deliver any material, code, or functionality, and should not be relied upon in making purchasing decisions. The development, release, and timing of any features or functionality described for Oracle's products remains at the sole discretion of Oracle.

Program Agenda

1. Oracle BI Publisher Overview
2. Easier, Better Managed & Faster
3. BI Publisher Best Practices
4. Data Model Design Best Practices
5. Layout Design Best Practices

Program Agenda

1. Oracle BI Publisher Overview
2. Easier, Better Managed & Faster
3. BI Publisher Best Practices
4. Data Model Design Best Practices
5. Layout Design Best Practices

Oracle BI Publisher Overview

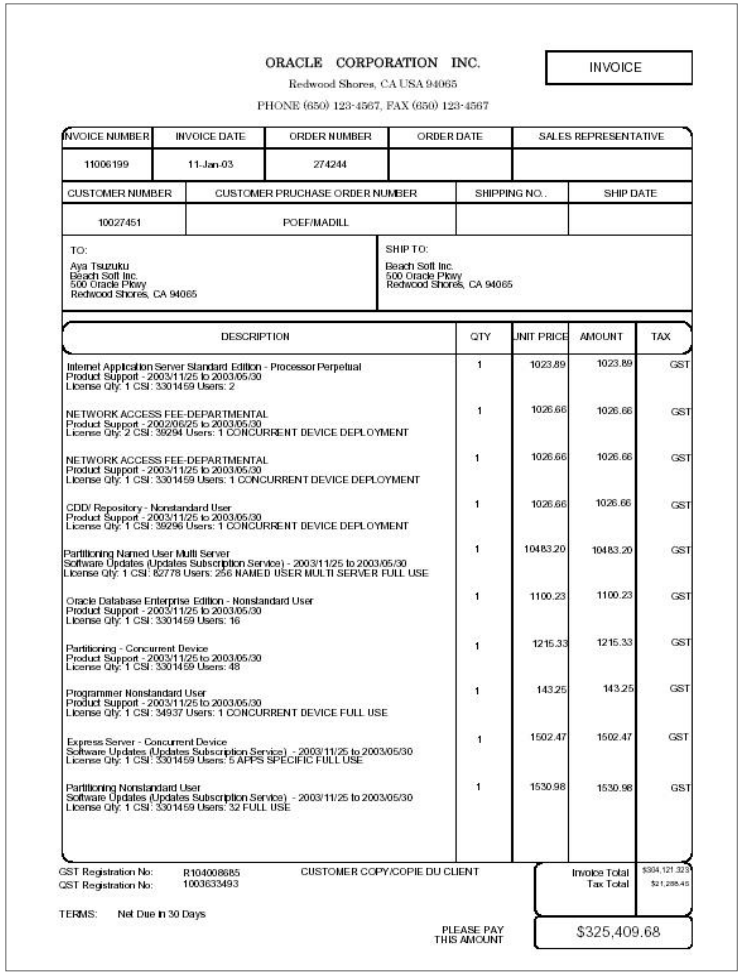
Oracle BI Publisher Enterprise

Single Solution Environment

- One Environment
  - Author
  - Generate
  - Deliver
- Benefits
  - Eliminate complexity
  - Simplify report development & maintenance
  - Reduce costs

BI Publisher … For All Your Reports

Invoices



ORACLE CORPORATION INC.
Redwood Shores, CA USA 94065
PHONE (650) 123-4567, FAX (650) 123-4567

INVOICE

INVOICE NUMBER	INVOICE DATE	ORDER NUMBER	ORDER DATE	SALES REPRESENTATIVE
11006199	11-Jan-03	274244		

CUSTOMER NUMBER	CUSTOMER PRUCHASE ORDER NUMBER	SHIPPING NO.	SHIP DATE
10027451	POEF/MADILL		

TO:
Aya Tsuzuku
Beach Soft Inc.
500 Oracle Pkwy
Redwood Shores, CA 94065

SHIP TO:
Beach Soft Inc.
500 Oracle Pkwy
Redwood Shores, CA 94065

DESCRIPTION	QTY	UNIT PRICE	AMOUNT	TAX
Internet Application Server Standard Edition - Processor Perpetual Product Support - 2003/11/25 to 2003/05/30 License Qty: 1 CSI: 3301459 Users: 2	1	1023.89	1023.89	GST
NETWORK ACCESS FEE-DEPARTMENTAL Product Support - 2002/06/25 to 2003/05/30 License Qty: 2 CSI: 39294 Users: 1 CONCURRENT DEVICE DEPLOYMENT	1	1026.66	1026.66	GST
NETWORK ACCESS FEE-DEPARTMENTAL Product Support - 2003/11/25 to 2003/05/30 License Qty: 1 CSI: 3301459 Users: 1 CONCURRENT DEVICE DEPLOYMENT	1	1026.66	1026.66	GST
CDD/ Repository - Nonstandard User Product Support - 2003/11/25 to 2003/05/30 License Qty: 1 CSI: 39296 Users: 1 CONCURRENT DEVICE DEPLOYMENT	1	1026.66	1026.66	GST
Partitioning Named User Multi Server Software Updates (Updates Subscription Service) - 2003/11/25 to 2003/05/30 License Qty: 1 CSI: 62778 Users: 256 NAMED USER MULTI SERVER FULL USE	1	10483.20	10483.20	GST
Oracle Database Enterprise Edition - Nonstandard User Product Support - 2003/11/25 to 2003/05/30 License Qty: 1 CSI: 3301459 Users: 16	1	1100.23	1100.23	GST
Partitioning - Concurrent Device Product Support - 2003/11/25 to 2003/05/30 License Qty: 1 CSI: 3301459 Users: 48	1	1215.33	1215.33	GST
Programmer Nonstandard User Product Support - 2003/11/25 to 2003/05/30 License Qty: 1 CSI: 34937 Users: 1 CONCURRENT DEVICE FULL USE	1	143.25	143.25	GST
Express Server - Concurrent Device Software Updates (Updates Subscription Service) - 2003/11/25 to 2003/05/30 License Qty: 1 CSI: 3301459 Users: 5 APPS SPECIFIC FULL USE	1	1502.47	1502.47	GST
Partitioning Nonstandard User Software Updates (Updates Subscription Service) - 2003/11/25 to 2003/05/30 License Qty: 1 CSI: 3301459 Users: 32 FULL USE	1	1530.98	1530.98	GST

GST Registration No: R104008685
GST Registration No: 1003633493

CUSTOMER COPY/COPIE DU CLIENT

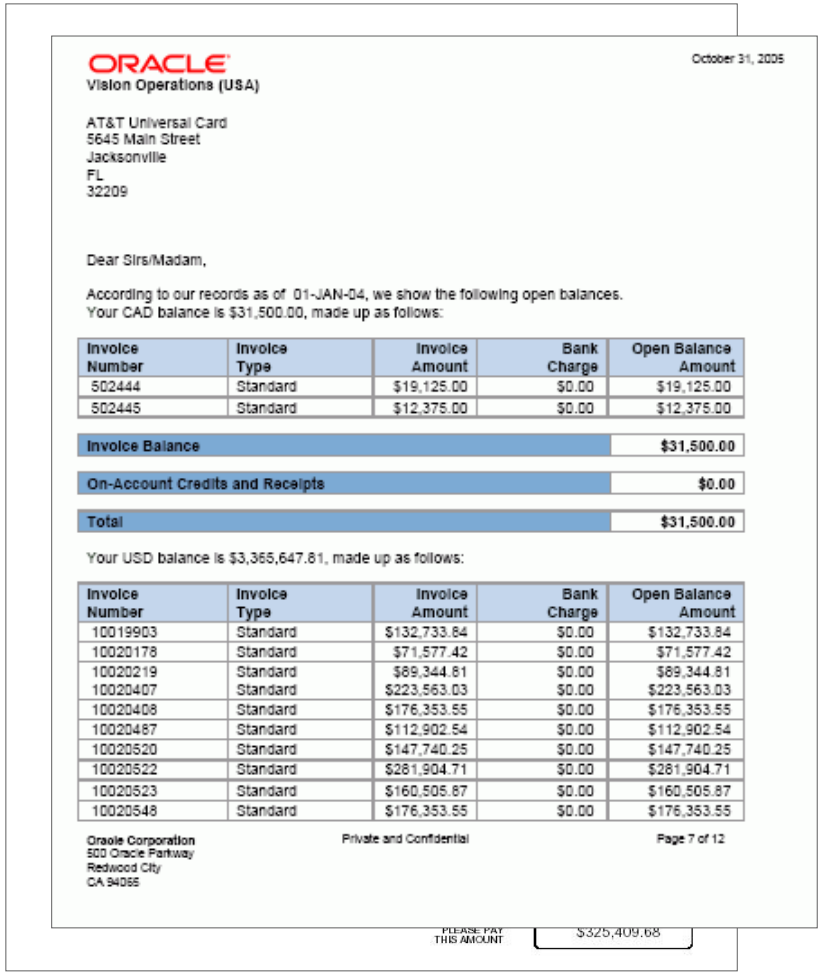
Invoice Total $304,121.32$
Tax Total $21,288.45$

TERMS: Net Due in 30 Days

PLEASE PAY THIS AMOUNT $325,409.68

BI Publisher … For All Your Reports

- Invoices
- Correspondence



ORACLE
Vision Operations (USA)

October 31, 2005

AT&T Universal Card
5645 Main Street
Jacksonville
FL
32209

Dear Sirs/Madam,

According to our records as of 01-JAN-04, we show the following open balances.
Your CAD balance is $31,500.00, made up as follows:

Invoice Number	Invoice Type	Invoice Amount	Bank Charge	Open Balance Amount
502444	Standard	$19,125.00	$0.00	$19,125.00
502445	Standard	$12,375.00	$0.00	$12,375.00

Invoice Balance	$31,500.00
On-Account Credits and Receipts	$0.00
Total	$31,500.00

Your USD balance is $3,365,647.81, made up as follows:

Invoice Number	Invoice Type	Invoice Amount	Bank Charge	Open Balance Amount
10019903	Standard	$132,733.84	$0.00	$132,733.84
10020178	Standard	$71,577.42	$0.00	$71,577.42
10020219	Standard	$89,344.81	$0.00	$89,344.81
10020407	Standard	$223,563.03	$0.00	$223,563.03
10020408	Standard	$176,353.55	$0.00	$176,353.55
10020487	Standard	$112,902.54	$0.00	$112,902.54
10020520	Standard	$147,740.25	$0.00	$147,740.25
10020522	Standard	$281,904.71	$0.00	$281,904.71
10020523	Standard	$160,505.87	$0.00	$160,505.87
10020548	Standard	$176,353.55	$0.00	$176,353.55

Oracle Corporation
500 Oracle Parkway
Redwood City
CA 94065

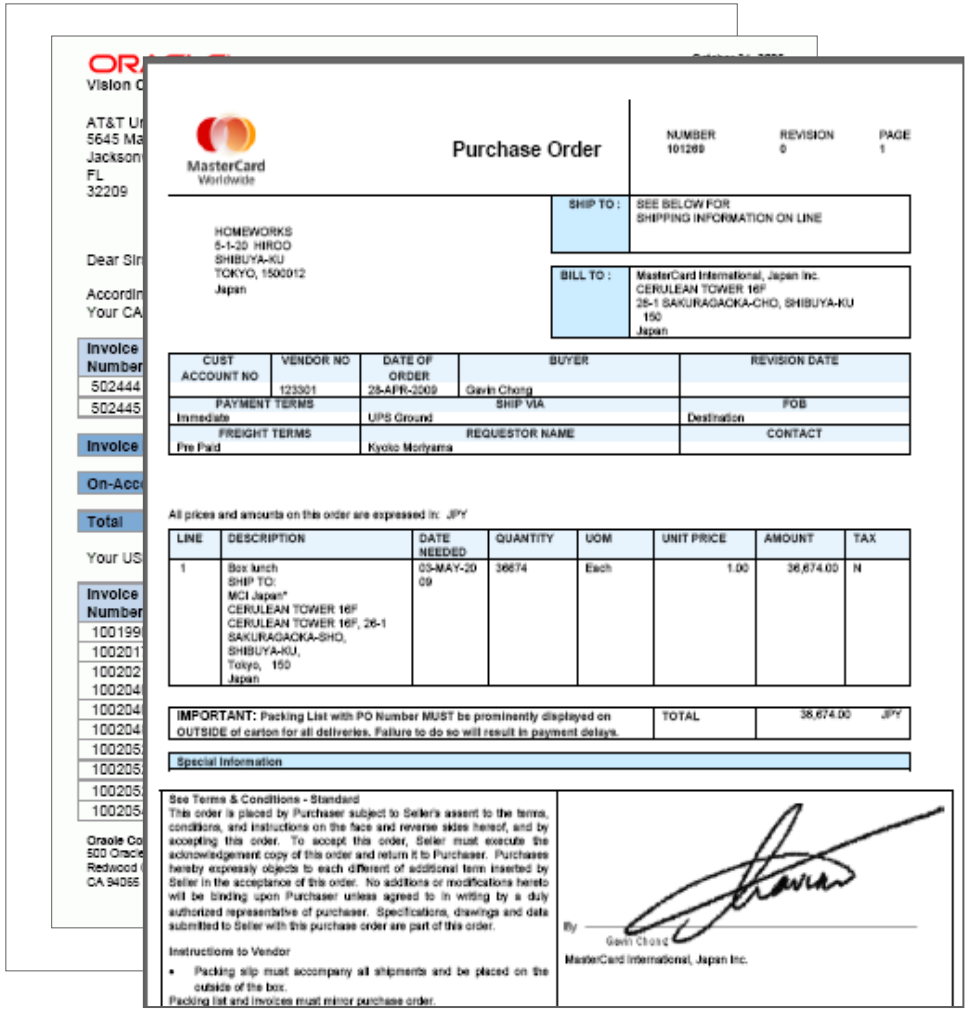
Private and Confidential

Page 7 of 12

PLEASE PAY THIS AMOUNT $325,409.68

BI Publisher … For All Your Reports

- Invoices
- Correspondence
- Purchase Orders



MasterCard Worldwide

Purchase Order

NUMBER	REVISION	PAGE
101289	0	1

HOMEWORKS
5-1-20 HIROO
SHIBUYA-KU
TOKYO, 1500012
Japan

SHIP TO :	SEE BELOW FOR SHIPPING INFORMATION ON LINE
BILL TO :	MasterCard International, Japan Inc. CERULEAN TOWER 16F 26-1 SAKURAGAOKA-CHO, SHIBUYA-KU 150 Japan

CUST ACCOUNT NO	VENDOR NO	DATE OF ORDER	BUYER	REVISION DATE
	123301	28-APR-2009	Gavin Chong	
PAYMENT TERMS		SHIP VIA		FOB
Immediate		UPS Ground		Destination
FREIGHT TERMS		REQUESTOR NAME		CONTACT
Pre Paid		Kyoko Moriyama		

All prices and amounts on this order are expressed in: JPY

LINE	DESCRIPTION	DATE NEEDED	QUANTITY	UOM	UNIT PRICE	AMOUNT	TAX
1	Box lunch SHIP TO: MCI Japan* CERULEAN TOWER 16F CERULEAN TOWER 16F, 26-1 SAKURAGAOKA-SHO, SHIBUYA-KU, Tokyo, 150 Japan	03-MAY-2009	36674	Each	1.00	36,674.00	N

IMPORTANT: Packing List with PO Number MUST be prominently displayed on OUTSIDE of carton for all deliveries. Failure to do so will result in payment delays.

TOTAL 36,674.00 JPY

Special Information

See Terms & Conditions - Standard
This order is placed by Purchaser subject to Seller's assent to the terms, conditions, and instructions on the face and reverse sides hereof, and by accepting this order. To accept this order, Seller must execute the acknowledgement copy of this order and return it to Purchaser. Purchaser hereby expressly objects to each different of additional term inserted by Seller in the acceptance of this order. No additions or modifications hereto will be binding upon Purchaser unless agreed to in writing by a duly authorized representative of purchaser. Specifications, drawings and data submitted to Seller with this purchase order are part of this order.

Instructions to Vendor

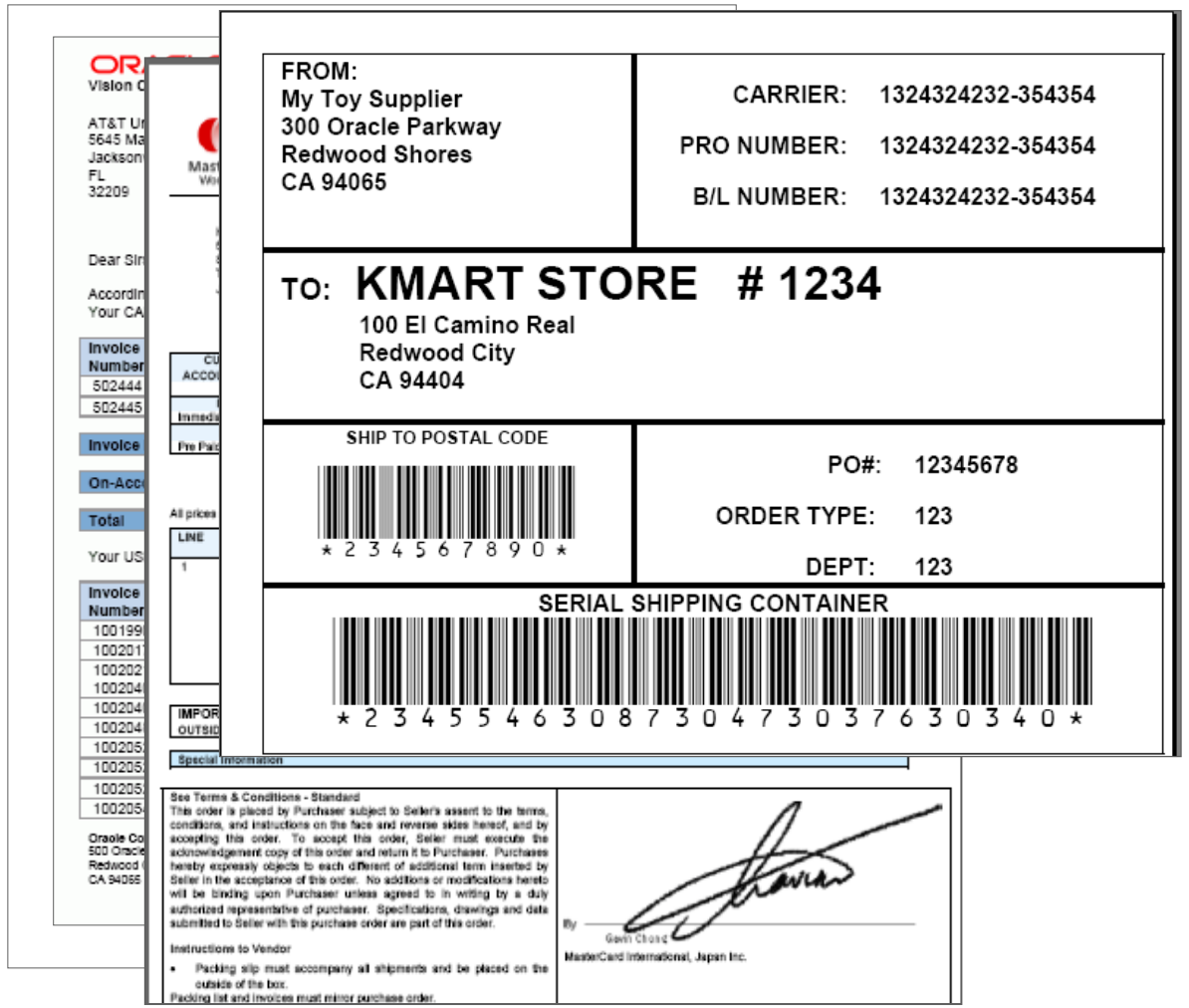
- Packing slip must accompany all shipments and be placed on the outside of the box.

Packing list and invoices must mirror purchase order.

By Gavin Chong
MasterCard International, Japan Inc.

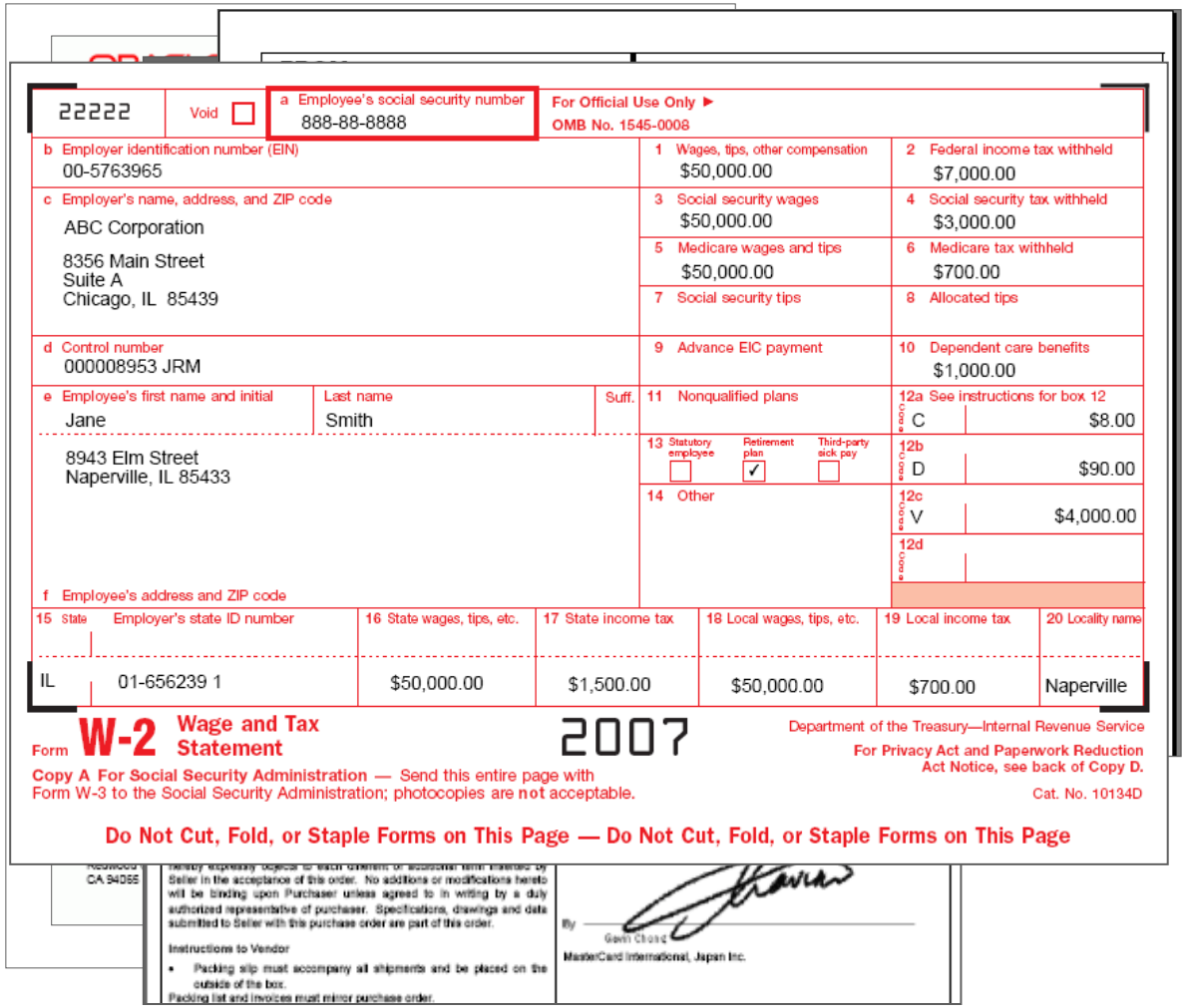
BI Publisher … For All Your Reports

- Invoices
- Correspondence
- Purchase Orders
- Shipping Labels



BI Publisher … For All Your Reports

- Invoices
- Correspondence
- Purchase Orders
- Shipping Labels
- Govt. Forms



22222 Void

a Employee's social security number 888-88-8888

For Official Use Only ▶ OMB No. 1545-0008

b Employer identification number (EIN) 00-5763965

c Employer's name, address, and ZIP code
ABC Corporation
8356 Main Street
Suite A
Chicago, IL 85439

d Control number 000008953 JRM

e Employee's first name and initial: Jane | Last name: Smith | Suff.

8943 Elm Street
Naperville, IL 85433

f Employee's address and ZIP code

1 Wages, tips, other compensation	2 Federal income tax withheld
$50,000.00	$7,000.00
3 Social security wages	4 Social security tax withheld
$50,000.00	$3,000.00
5 Medicare wages and tips	6 Medicare tax withheld
$50,000.00	$700.00
7 Social security tips	8 Allocated tips
9 Advance EIC payment	10 Dependent care benefits
	$1,000.00
11 Nonqualified plans	12a See instructions for box 12 C $8.00
13 Statutory employee ☐ Retirement plan ☑ Third-party sick pay ☐	12b D $90.00
14 Other	12c V $4,000.00
	12d

15 State	Employer's state ID number	16 State wages, tips, etc.	17 State income tax	18 Local wages, tips, etc.	19 Local income tax	20 Locality name
IL	01-656239 1	$50,000.00	$1,500.00	$50,000.00	$700.00	Naperville

Form **W-2** Wage and Tax Statement 2007

Department of the Treasury—Internal Revenue Service

Copy A For Social Security Administration — Send this entire page with Form W-3 to the Social Security Administration; photocopies are not acceptable.

For Privacy Act and Paperwork Reduction Act Notice, see back of Copy D.

Cat. No. 10134D

Do Not Cut, Fold, or Staple Forms on This Page — Do Not Cut, Fold, or Staple Forms on This Page

Seller in the acceptance of this order. No additions or modifications hereto will be binding upon Purchaser unless agreed to in writing by a duly authorized representative of purchaser. Specifications, drawings and data submitted to Seller with this purchase order are part of this order.

Instructions to Vendor

- Packing slip must accompany all shipments and be placed on the outside of the box.

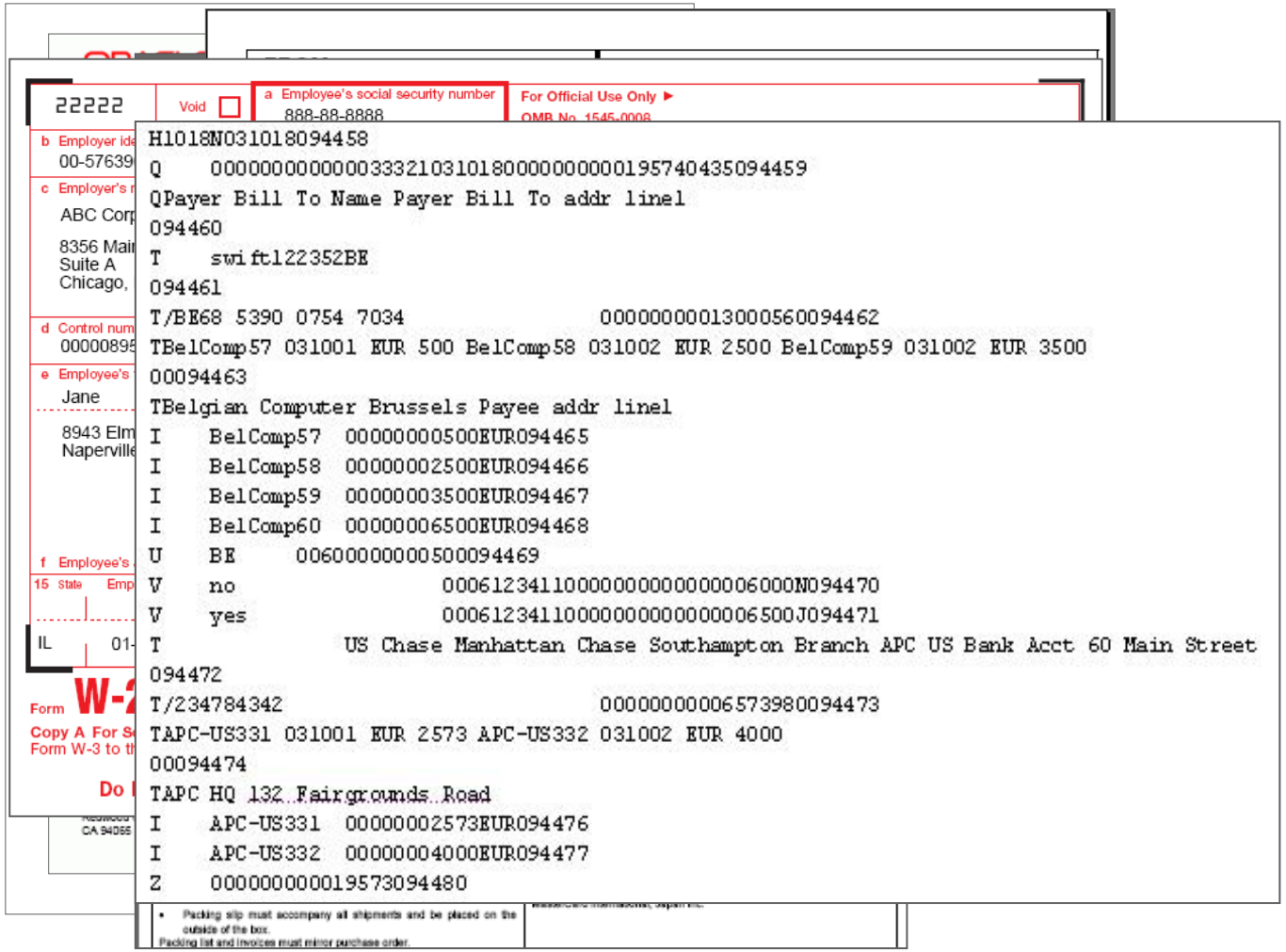
Packing list and invoices must mirror purchase order.

By Gwen Chand

MasterCard International, Japan Inc.

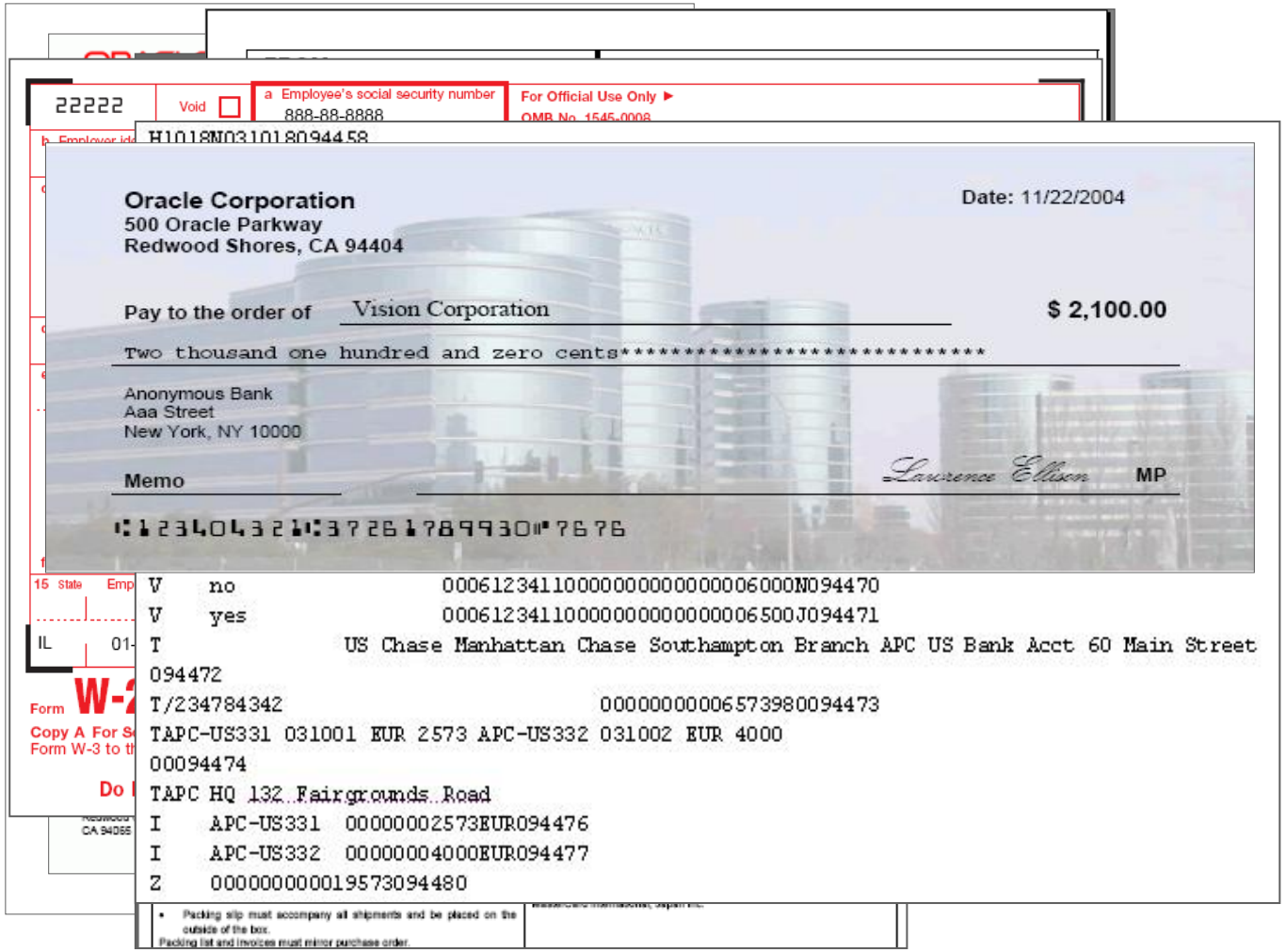
BI Publisher … For All Your Reports

- Invoices
- Correspondence
- Purchase Orders
- Shipping Labels
- Govt. Forms
- EFT & EDI



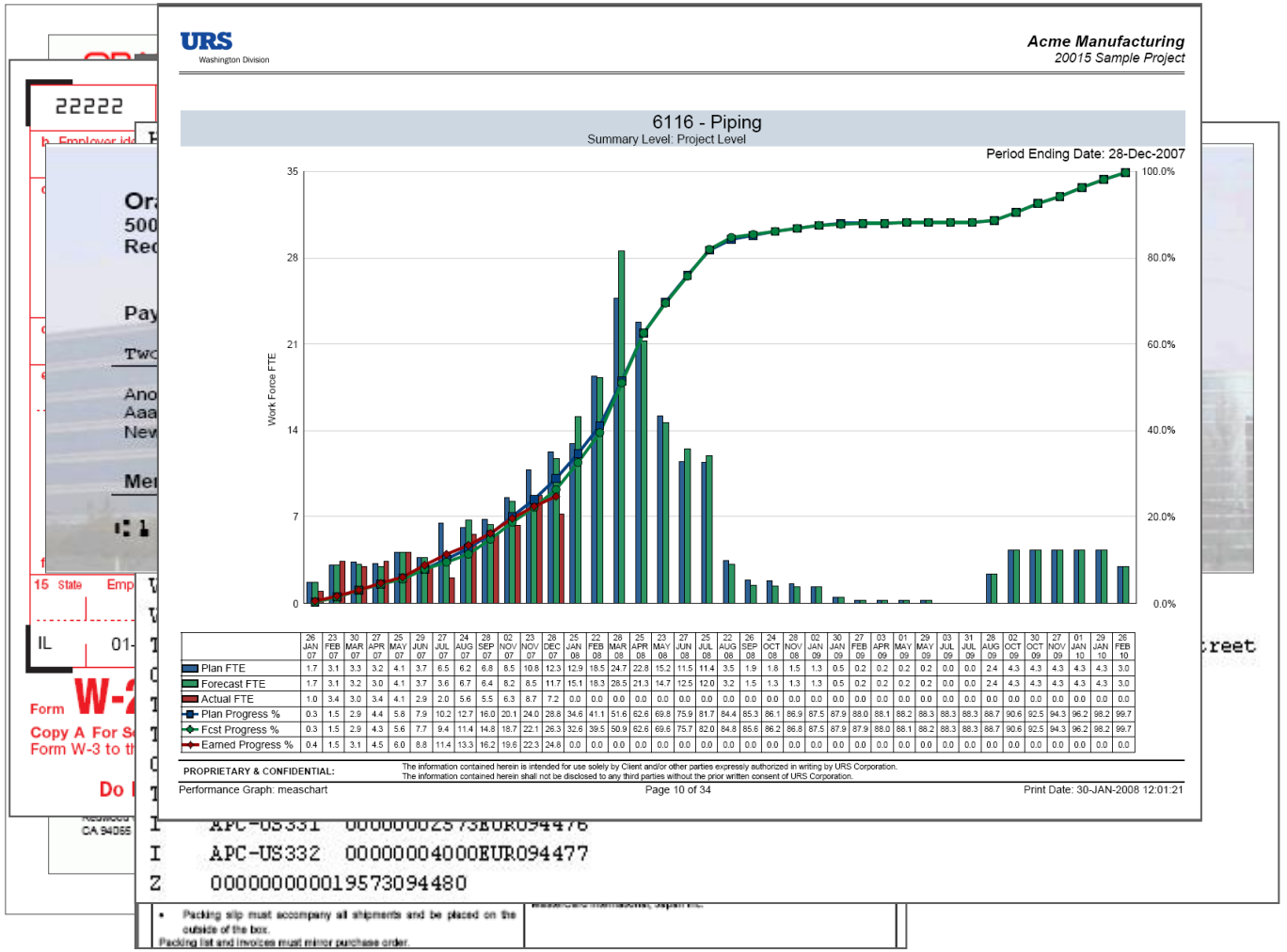
BI Publisher … For All Your Reports

- Invoices
- Correspondence
- Purchase Orders
- Shipping Labels
- Govt. Forms
- EFT & EDI
- Checks



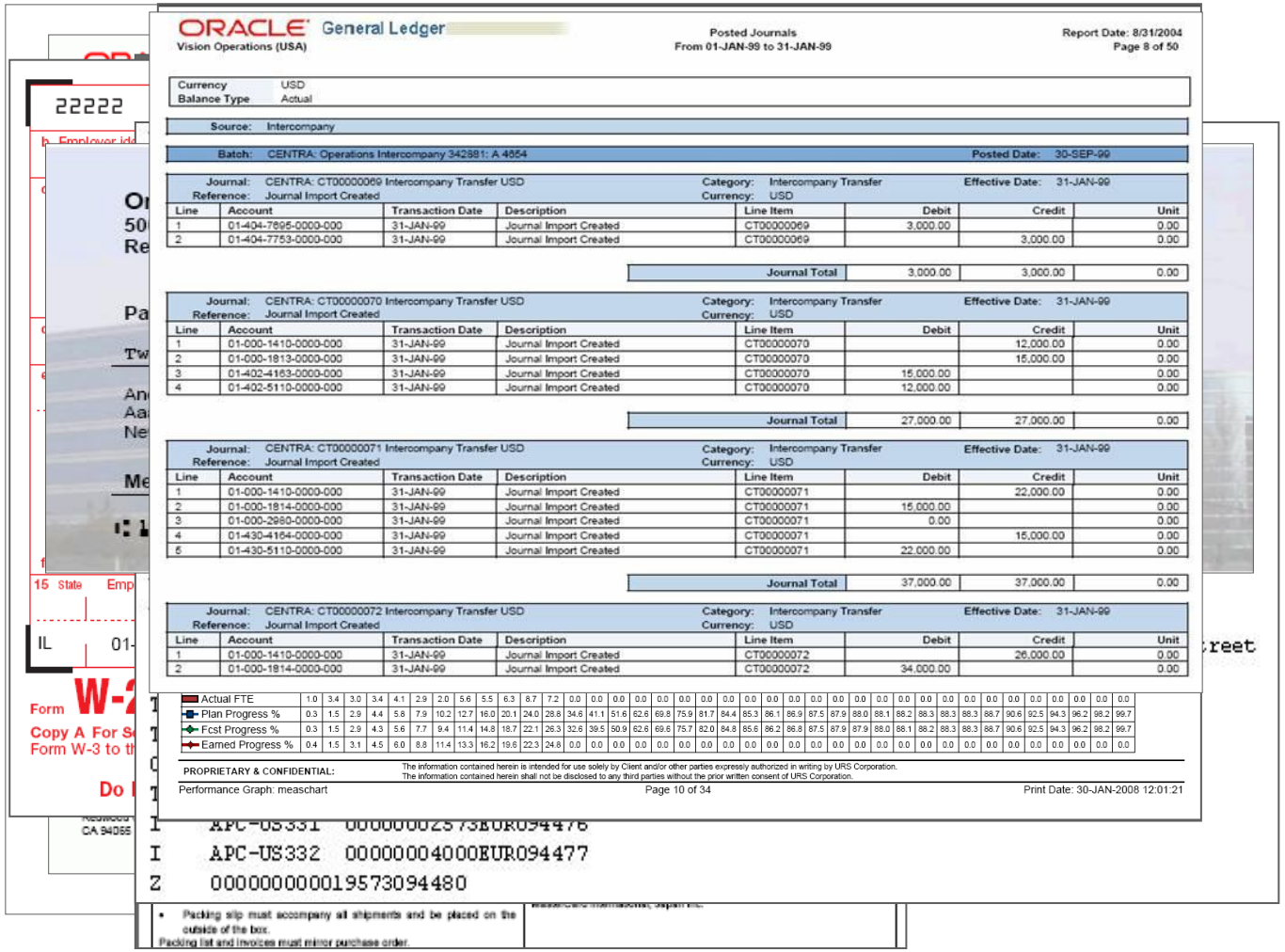
BI Publisher … For All Your Reports

- Invoices
- Correspondence
- Purchase Orders
- Shipping Labels
- Govt. Forms
- EFT & EDI
- Checks
- Operational Reports



BI Publisher … For All Your Reports

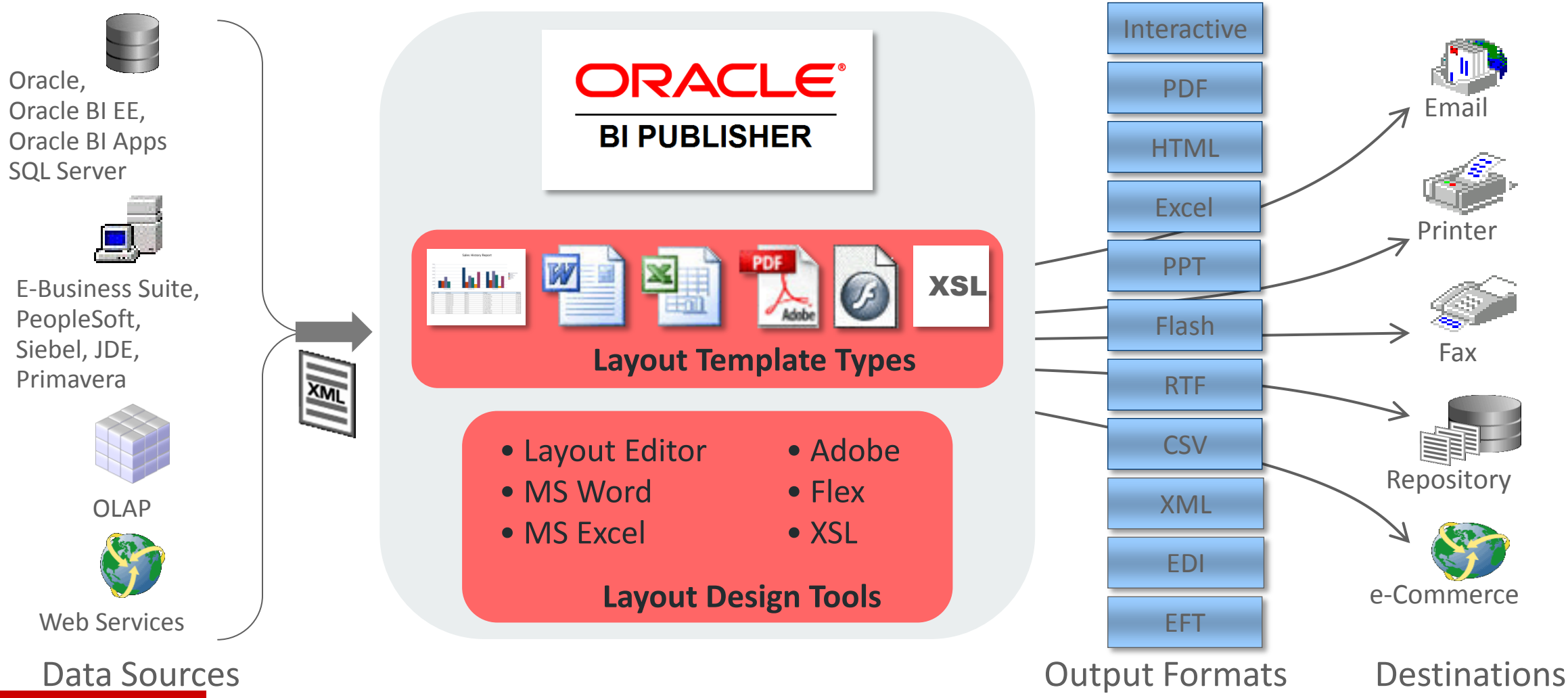
- Invoices
- Correspondence
- Purchase Orders
- Shipping Labels
- Govt. Forms
- EFT & EDI
- Checks
- Operational Reports
- Financial Statements



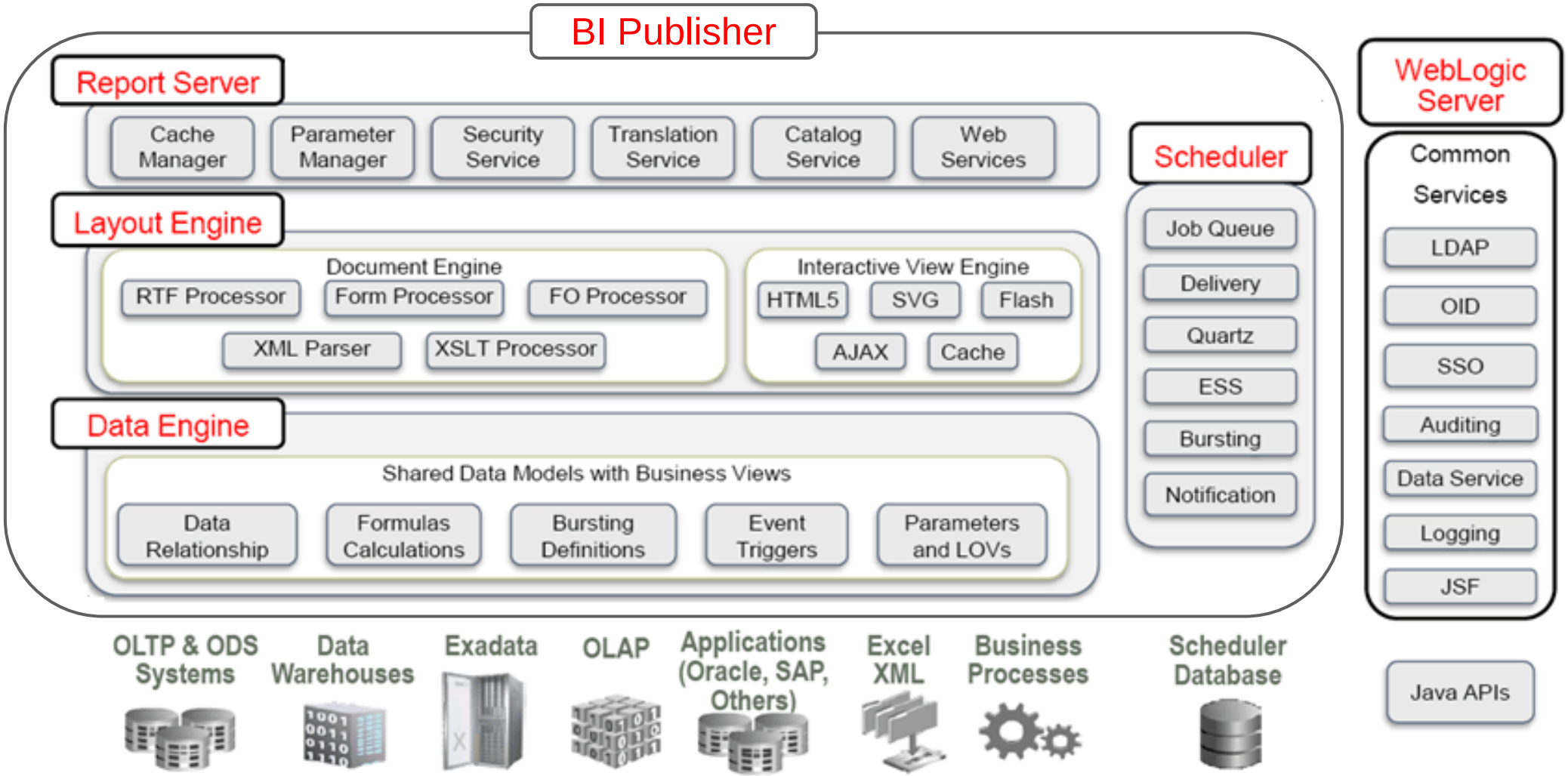
BI Publisher … For All Your Reports

- Invoices
- Correspondence
- Purchase Orders
- Shipping Labels
- Govt. Forms
- EFT & EDI
- Checks
- Operational Reports
- Financial Statements
- Interactive Reports

Oracle BI Publisher Enterprise



Oracle BI Publisher Enterprise



Program Agenda

1. Oracle BI Publisher Overview
2. Easier, Better Managed & Faster
3. BI Publisher Best Practices
4. Data Model Design Best Practices
5. Layout Design Best Practices

ORACLE

BI Publisher: Easier to Implement

MasterCard Worldwide

Easier

Challenge

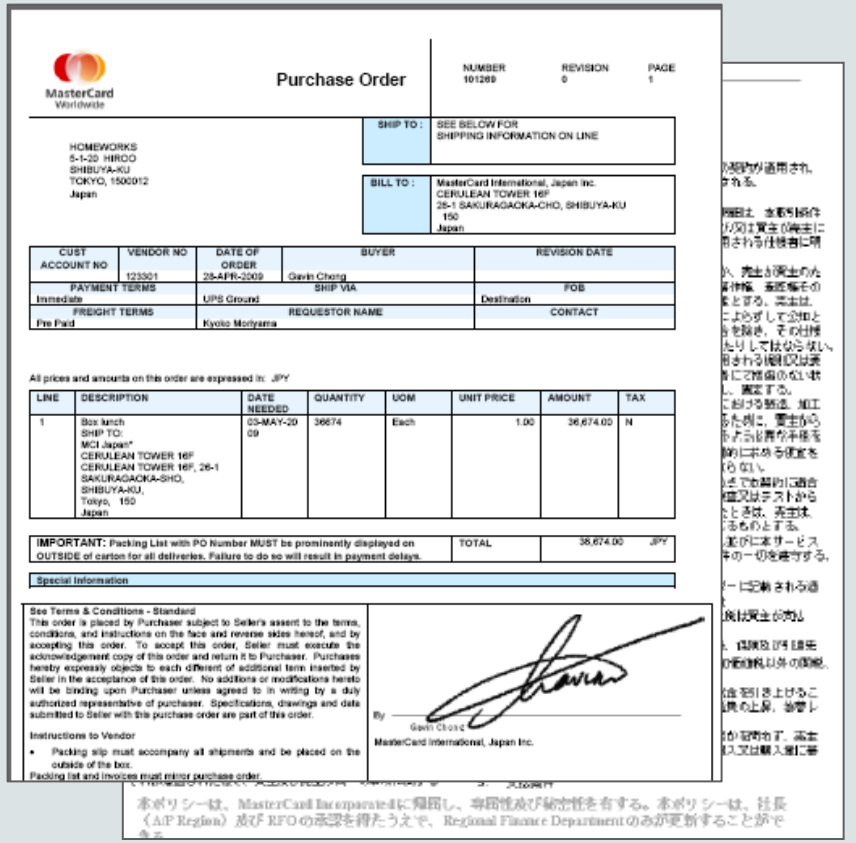
- Purchase Orders for 50 Operating Units across the globe
- Vendor Country Terms & Conditions
- 90 days and 3 people (incl. 3rd party vendor) to implement POs

Solution

- BI Publisher' ease of development
- 3 days and 1 person to implement POs

Benefits

- 12x faster implementation w/ 1/3 fewer people
- Over 90% reduction in turn around time
- End-to-End process using out of the box functionality



MasterCard Worldwide

Purchase Order

NUMBER	REVISION	PAGE
101269	0	1

HOMEWORKS
5-1-20 HIROO
SHIBUYA-KU
TOKYO, 1500012
Japan

SHIP TO : SEE BELOW FOR SHIPPING INFORMATION ON LINE

BILL TO : MasterCard International, Japan Inc.
CERULEAN TOWER 16F
26-1 SAKURAGAOKA-CHO, SHIBUYA-KU
150
Japan

CUST ACCOUNT NO	VENDOR NO	DATE OF ORDER	BUYER	REVISION DATE
	123301	28-APR-2009	Gavin Chong	
PAYMENT TERMS		SHIP VIA		FOB
Immediate		UPS Ground		Destination
FREIGHT TERMS		REQUESTOR NAME		CONTACT
Pre Paid		Kyoko Moriyama		

All prices and amounts on this order are expressed in: JPY

LINE	DESCRIPTION	DATE NEEDED	QUANTITY	UOM	UNIT PRICE	AMOUNT	TAX
1	Box lunch SHIP TO: MCI Japan* CERULEAN TOWER 16F CERULEAN TOWER 16F, 26-1 SAKURAGAOKA-SHO, SHIBUYA-KU, Tokyo, 150 Japan	03-MAY-2009	36674	Each	1.00	36,674.00	N

IMPORTANT: Packing List with PO Number MUST be prominently displayed on OUTSIDE of carton for all deliveries. Failure to do so will result in payment delays.

TOTAL 36,674.00 JPY

Special Information

See Terms & Conditions - Standard
This order is placed by Purchaser subject to Seller's assent to the terms, conditions, and instructions on the face and reverse sides hereof, and by accepting this order. To accept this order, Seller must execute the acknowledgement copy of this order and return it to Purchaser. Purchaser hereby expressly objects to each different or additional term inserted by Seller in the acceptance of this order. No additions or modifications hereto will be binding upon Purchaser unless agreed to in writing by a duly authorized representative of purchaser. Specifications, drawings and data submitted to Seller with this purchase order are part of this order.

Instructions to Vendor
- Packing slip must accompany all shipments and be placed on the outside of the box.

Packing list and invoices must mirror purchase order.

By
Gavin Chong
MasterCard International, Japan Inc.

BI Publisher: Better Managed

GALLUP®

Challenge

- Over 200 Crystal Reports
- Cumbersome report repository frustrated users and IT staff
- Duplicate reports with minor layout changes and to support multi-language

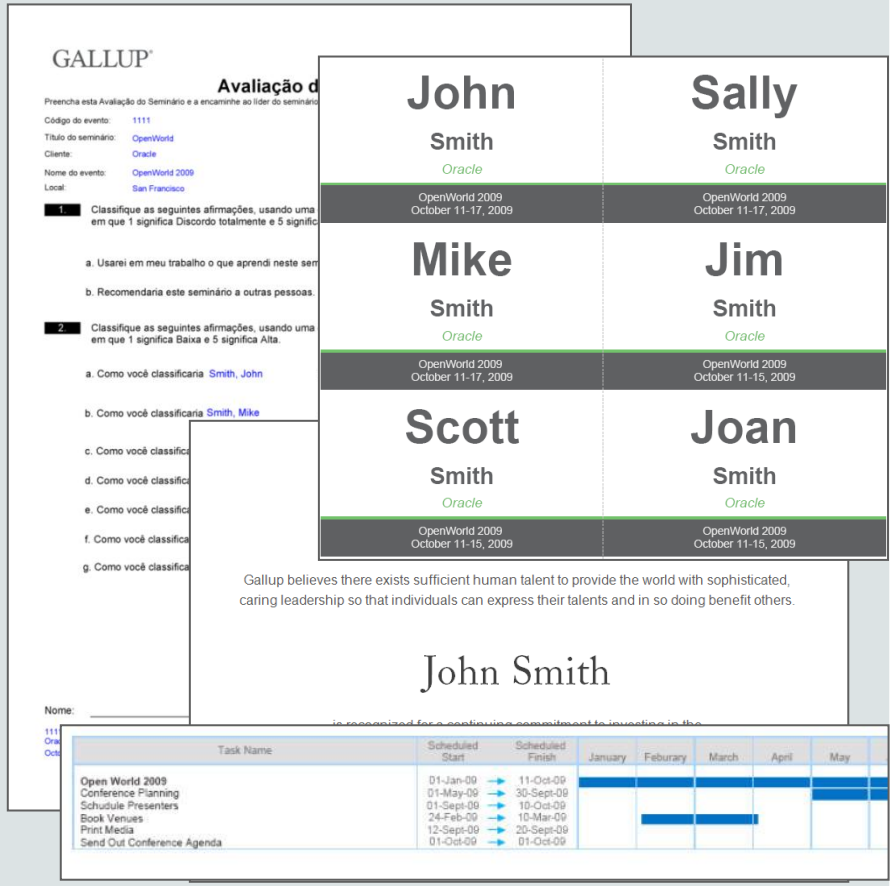
Solution

- BI Publisher's separation of 3 Layers (Data, Layout & Translation)
- 3 days and 1 person to implement POs

Benefits

- Now only 30 Publisher reports (85% reduction)
- 3 months w/ one f/t report developer
- End Users and IT staff very happy

Better Managed



ORACLE

BI Publisher: Faster

ConsolidatedGraphics

Challenge

- Generates 100,000 Enrollment Forms in 48 hours
- .NET server taking 24 hrs to generate 4,000 Forms
- 24 .NET servers & 15 people to monitor and resubmit failures

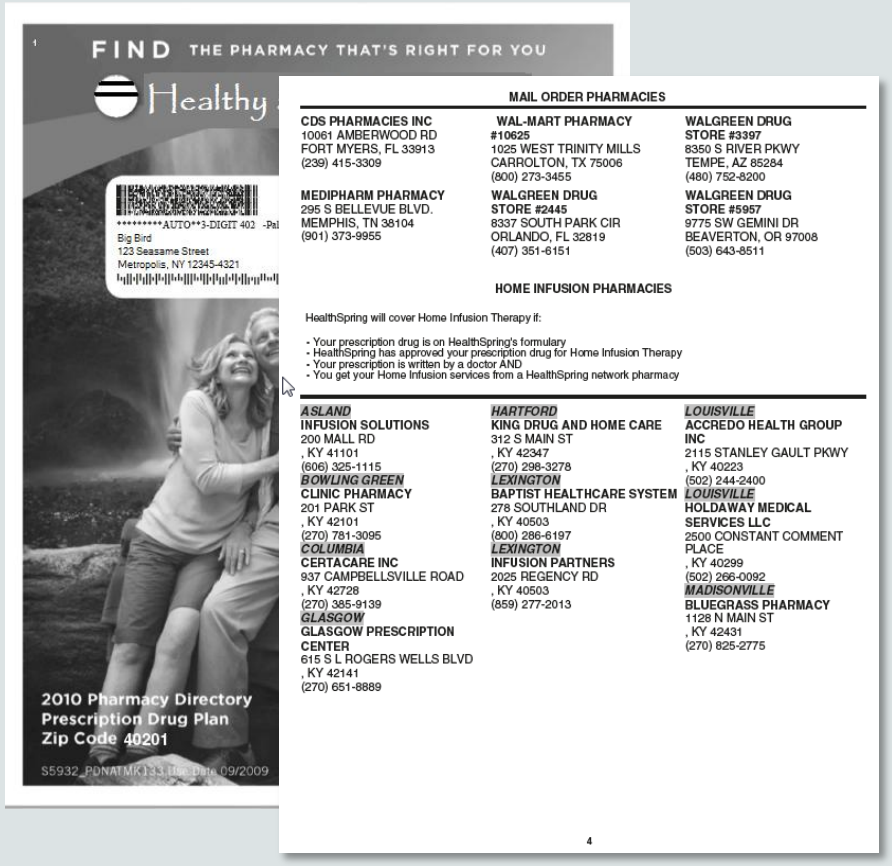
Solution

- High performance of BI Publisher reports
- Scalable Enterprise Server Architecture

Benefits

- Now generates 100,000 Forms in 3 hours
- 1 BI Publisher Server, 2 .NET
- 8 X Faster
- 1 / 8 Fewer no. of Servers

Faster



ORACLE

Program Agenda

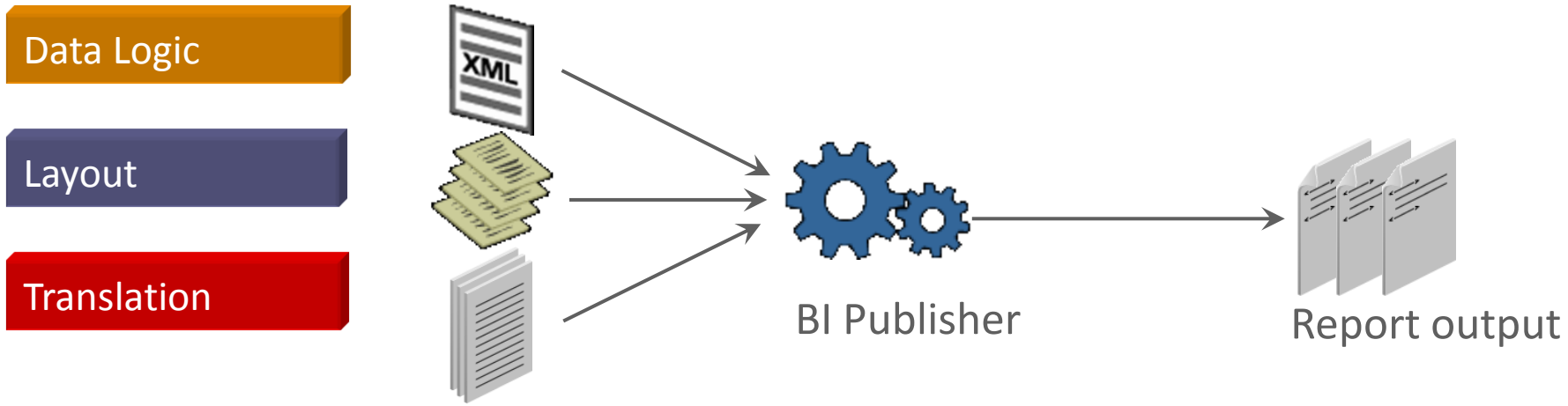
1. Oracle BI Publisher Overview
2. Easier, Better Managed & Faster
3. BI Publisher Best Practices
4. Data Model Design Best Practices
5. Layout Design Best Practices

BI Publisher Best Practices

BI Publisher Best Practices

Separate data logic, layout & translation benefits

- Benefits
  - Greater flexibility and reuse
  - Fewer reports and better report maintenance
  - Optimize data extraction and document generation process



BI Publisher Best Practices

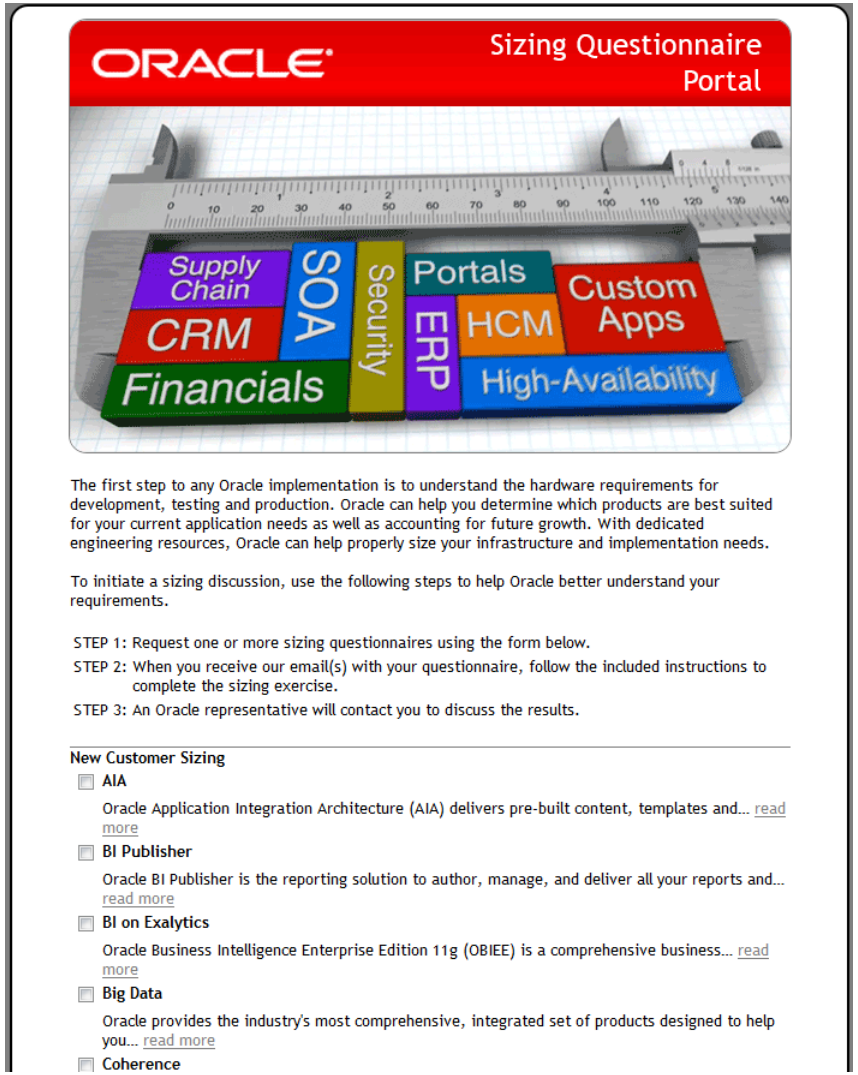
BI Publisher Sizing

Sizing Questionnaire Portal

- Log on to Sizing Questionnaire Portal using URL:

https://apex.oracle.com/pls/apex/f?p=ORACLESIZINGTOOL_WW:UPD

- Follow the steps:
  - STEP 1:Request one or more sizing questionnaires using the form.
  - STEP 2:When you receive our email(s) with your questionnaire, follow the included instructions to complete the sizing exercise.
  - STEP 3:An Oracle representative will contact you to discuss the results.

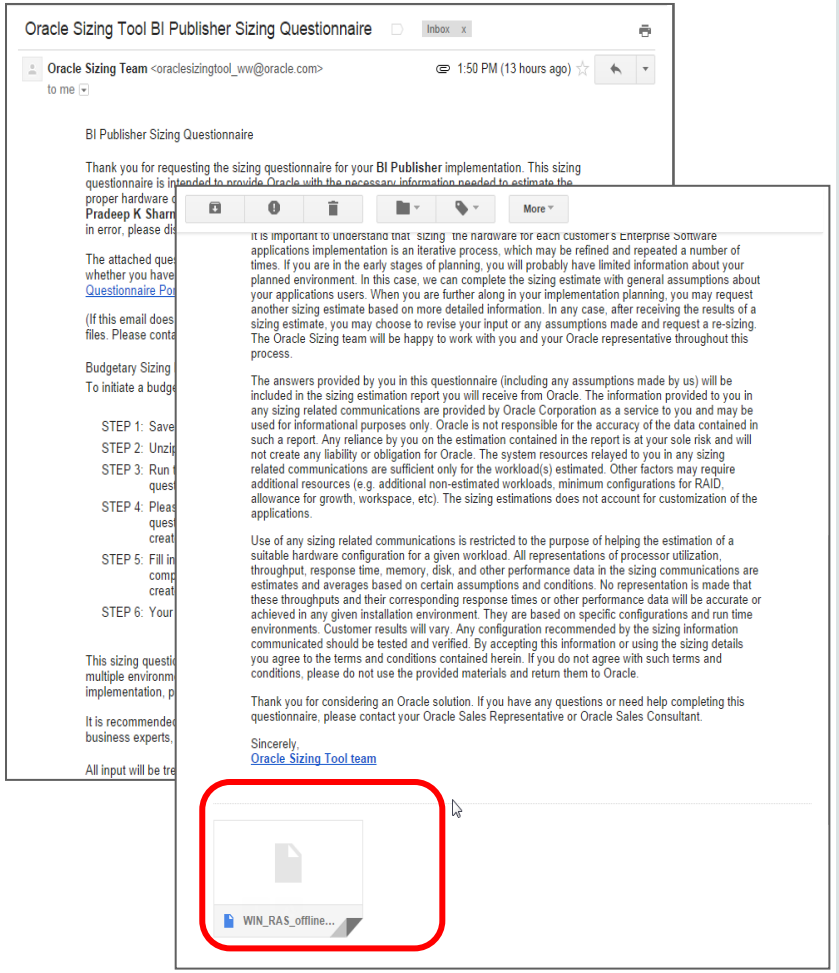


BI Publisher Best Practices

BI Publisher Sizing

Sizing Email with Attachment

- STEP 1:Save the attachment to your hard drive and rename the extension from ".zippy" to ".zip".
- STEP 2:Unzip the file. It will create a new directory with the questionnaire.
- STEP 3:Run the flash client executable (.exe for Windows or .app for Mac) to open up the sizing questionnaire client.
- STEP 4:Fill out this questionnaire as completely as possible.

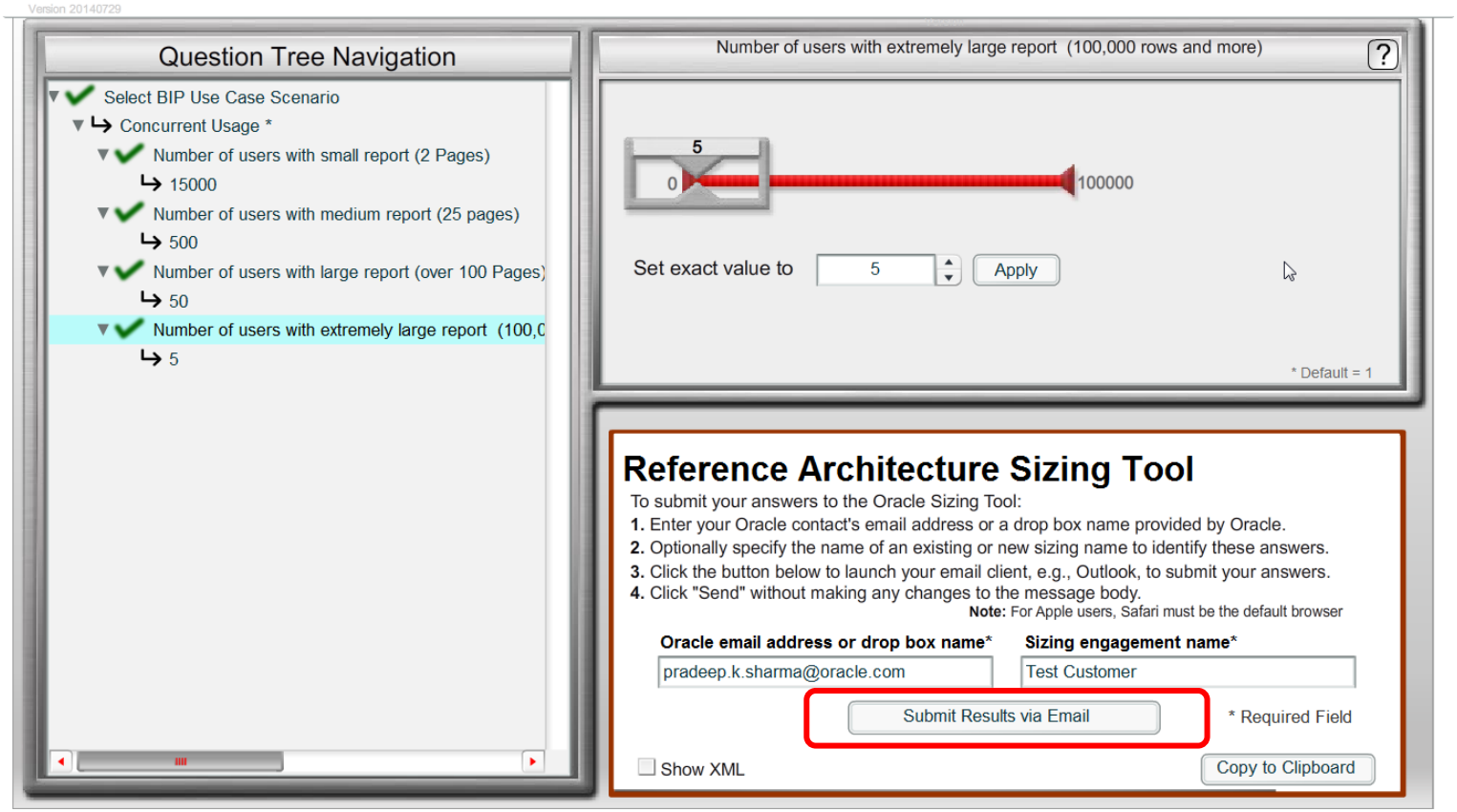


BI Publisher Best Practices

BI Publisher Sizing

Send Email

- STEP 5:Fill in your Oracle Sales representative (with correct email address) and click the Email button. A completed email will be created in your default email client, simply send the email as created.
- STEP 6:Your Oracle representative will contact you to discuss the results.



BI Publisher Best Practices

BI Publisher Sizing

Concurrent Usage

1. Description
   - Users viewing reports online
   - Scheduled Jobs running at the same time
2. Factors to Consider
   - Number of users viewing Small, Medium, Large, XLarge reports
   - Number of CPUs /server

Bursting Usage

1. Description
   - Bursting reports
2. Factors to Consider
   - Total Number of reports
   - Time window
   - % of Small, Medium, Large reports
   - Number of CPUs/Server

BI Publisher Best Practices

BI Publisher Sizing

- My Oracle Support – Note **948841.1**

Oracle BI Publisher Sizing Guide

Please Refer to Instruction Sheet for more Information

SIZING BASED ON CONCURRENT USAGE	
Sizing Data Input	
Number of users viewing small report (~ 2 Pages)	1500
Number of users viewing medium report (~ 25 pages)	200
Number of users viewing large report (> 100 pages)	Not Available
Number of users viewing extremely large report (> 10,000 rows)*	1
Total % CPU	283.25
Total Number of CPUs/Server	2
Estimated % of CPU Usage (Production Machine)	**354.06**
Recommended Number of CPU	**4**
Total Number of CPUs/Server	
Recommended Number of Servers	**2**
Server(s) Utilization	**88.51**

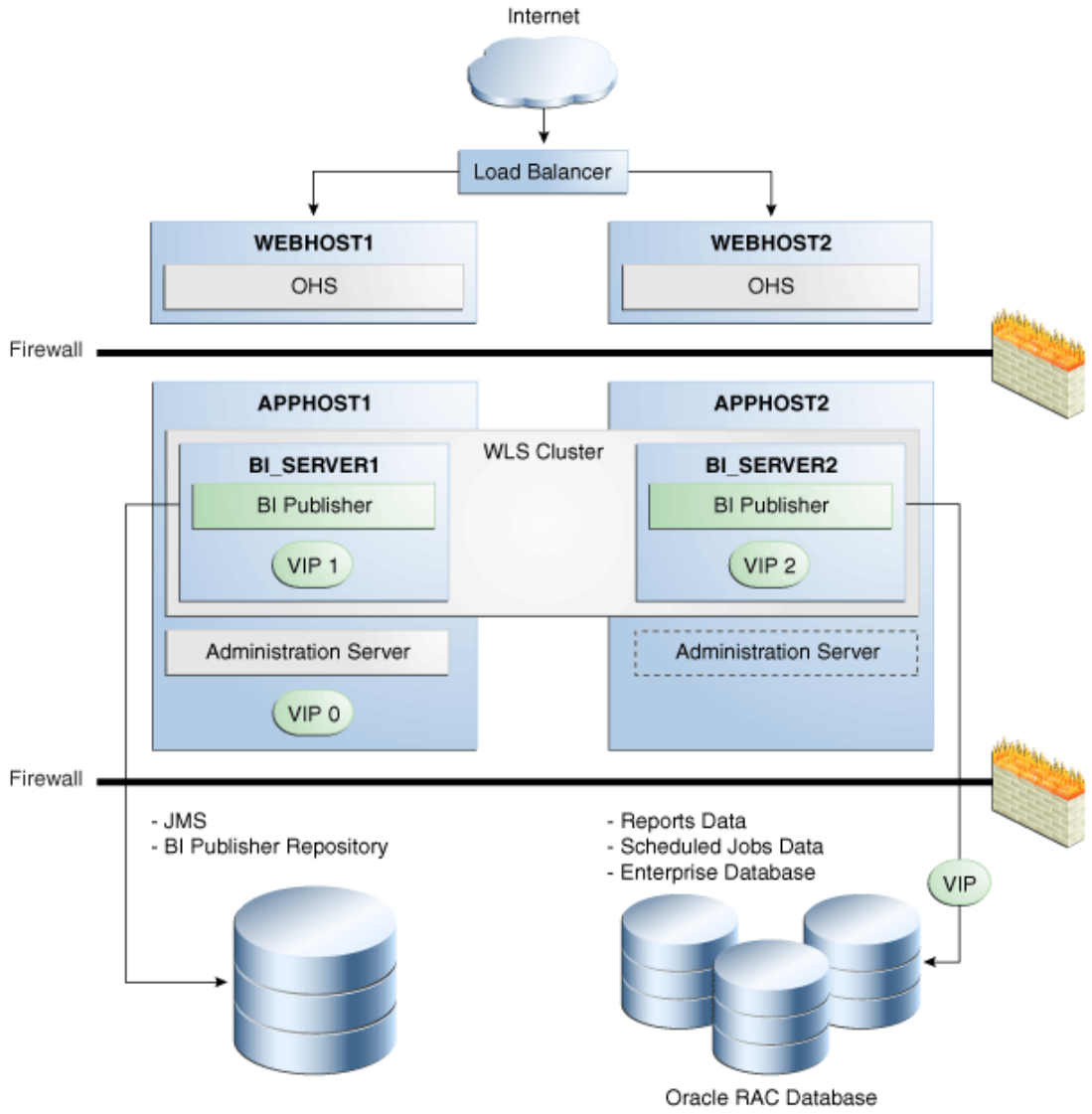
SIZING BASED ON BURSTING USAGE		
Sizing Data Input		
Total Number of Reports	1000	
Time to Generate Reports	30	Minutes
Report Distribution By Size	**Distribution(%)**	
Small reports (~ 10 pages)	30%	
Medium reports (~50 pages)	40%	
Large reports (> 100 pages)	30%	
Total % CPU	79.74	
	2	
Estimated % of CPU Usage (Production Machine)	**99.68**	
Recommended Number of CPU	**1**	
Recommended Number of Servers	**1**	
Server(s) Utilization	**49.84**	

BI Publisher Best Practices

High Availability Architecture

- When BI Publisher Enterprise is Deployed as Standalone
  - Oracle BI Publisher supports an active-active high availability configuration.
  - Each node acts as an independent server that shares a common repository and the scheduler database with the other Oracle BI Publisher nodes.

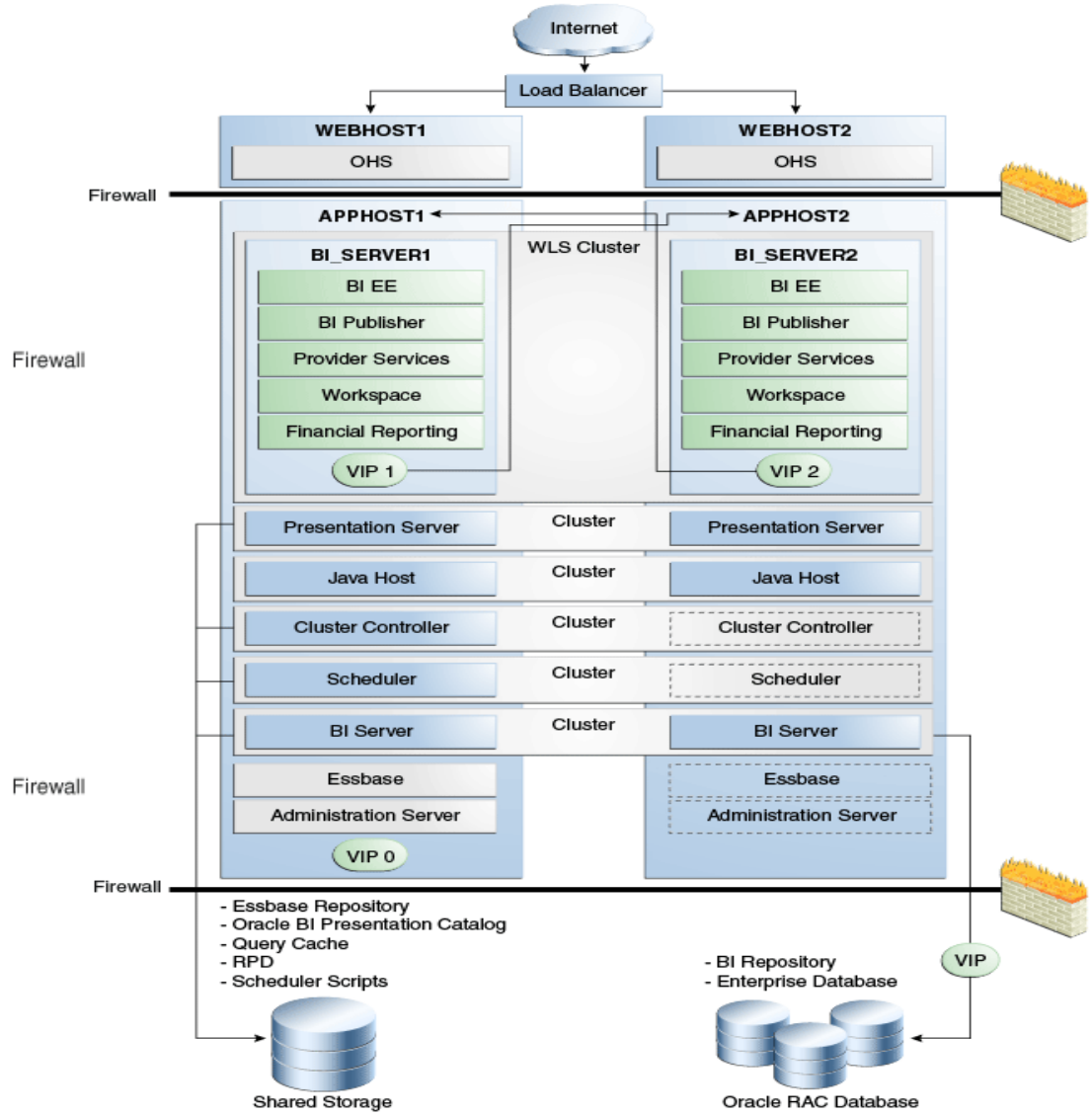
Refer to Oracle® Fusion Middleware High Availability Guide 11g Release 1 (11.1.1)



BI Publisher Best Practices

High Availability Architecture

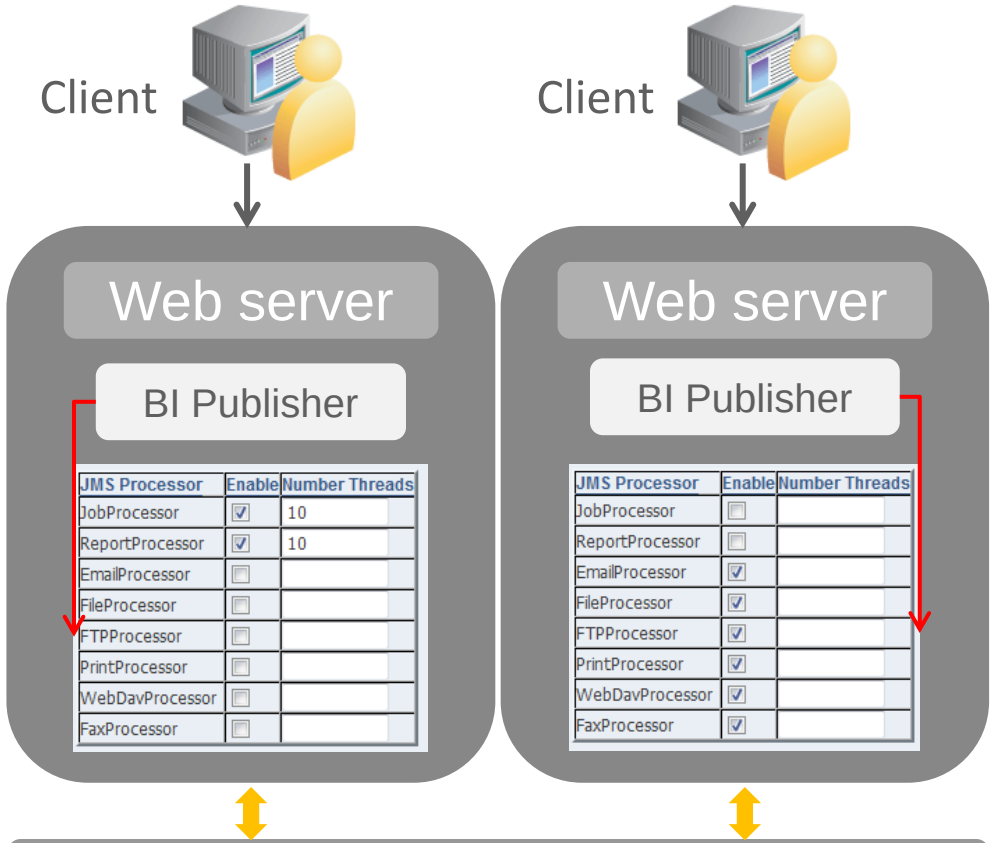
- When BI Publisher is deployed along with OBIEE and other products in BI Suite.

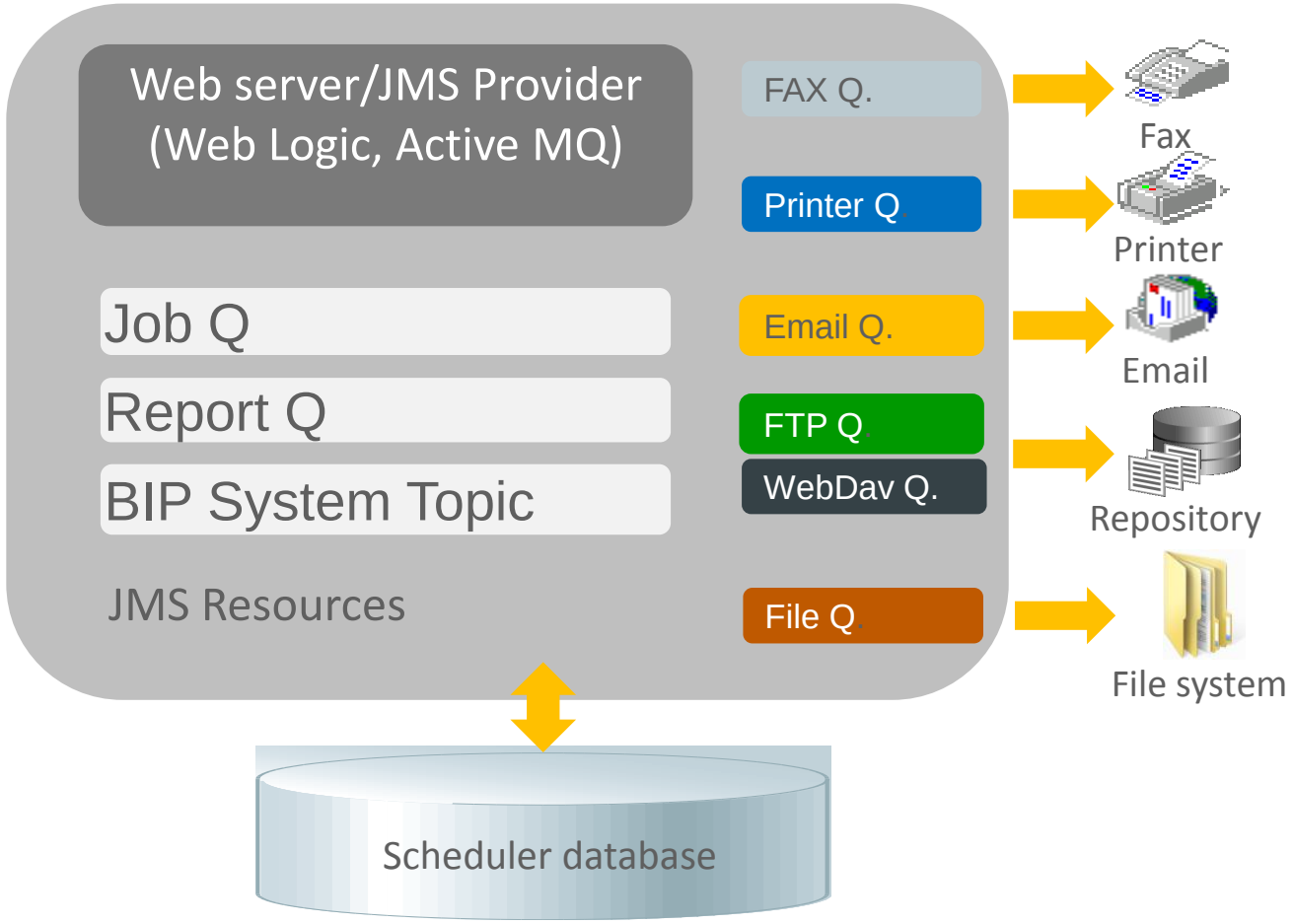


Refer to Oracle® Fusion Middleware High Availability Guide 11g Release 1 (11.1.1)

BI Publisher Best Practices

Scheduler Architecture





Program Agenda

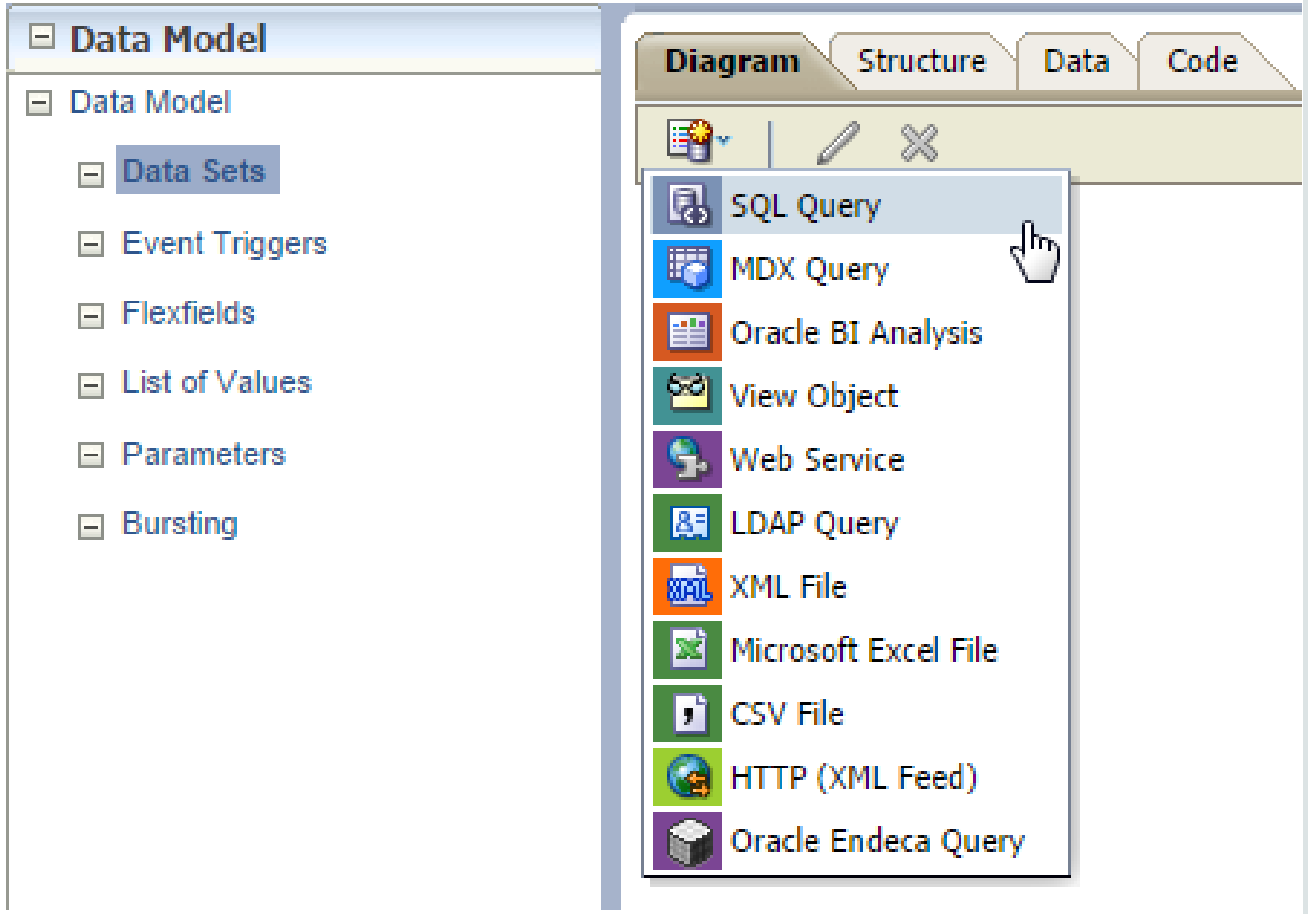
1. Oracle BI Publisher Overview
2. Easier, Better Managed & Faster
3. BI Publisher Best Practices
4. Data Model Design Best Practices
5. Layout Design Best Practices

Data Model Design Best Practices

Data Model Design Best Practices

Data Source Types

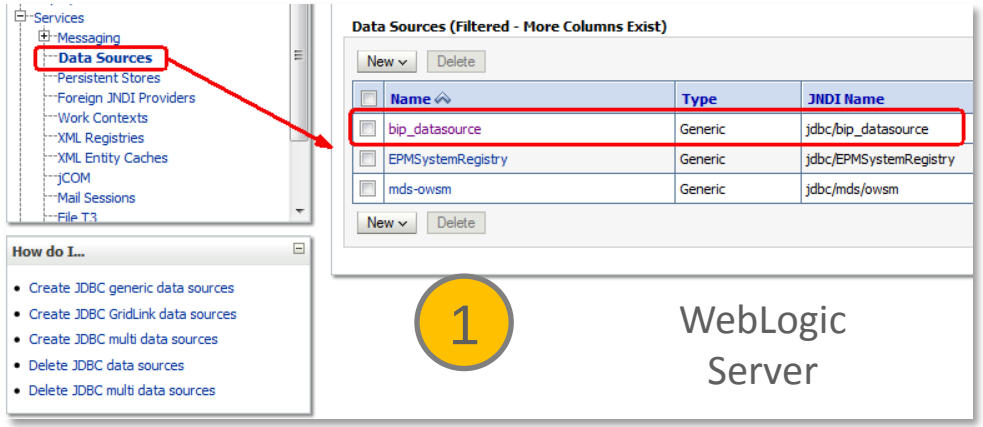
- SQL Query
- MDX Query
- Oracle BI Analysis
- View Object
- Web Service
- LDAP Query
- XML File
- Microsoft Excel File
- CSV File
- HTTP (XML Feed)
- Oracle Endeca Query

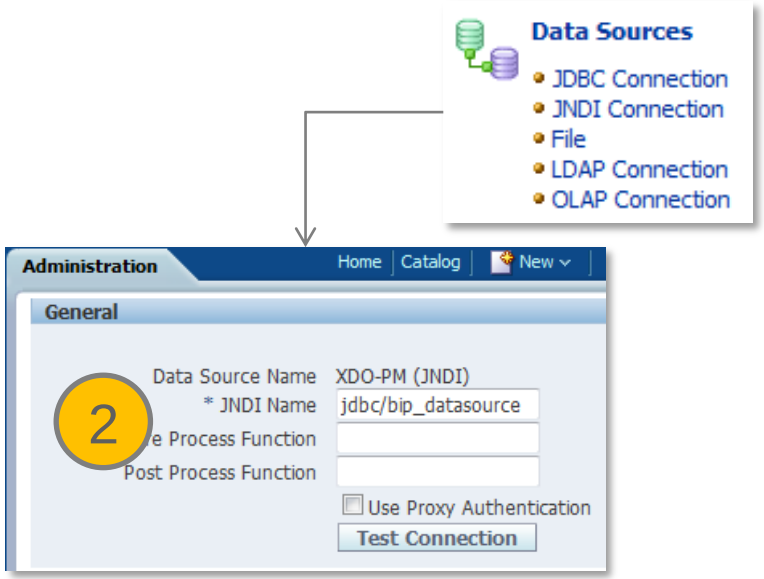


Data Model Design Best Practices

JDBC vs JNDI to Connect to Database

- Both types of connection use the same JDBC driver
- With JNDI you can take advantage of connection pooling
  - Better performance
    - Connection already established to the source
    - Best practice for reports with many parameters with SQL type LOVs attached to them
  - Better RDBMS resource management

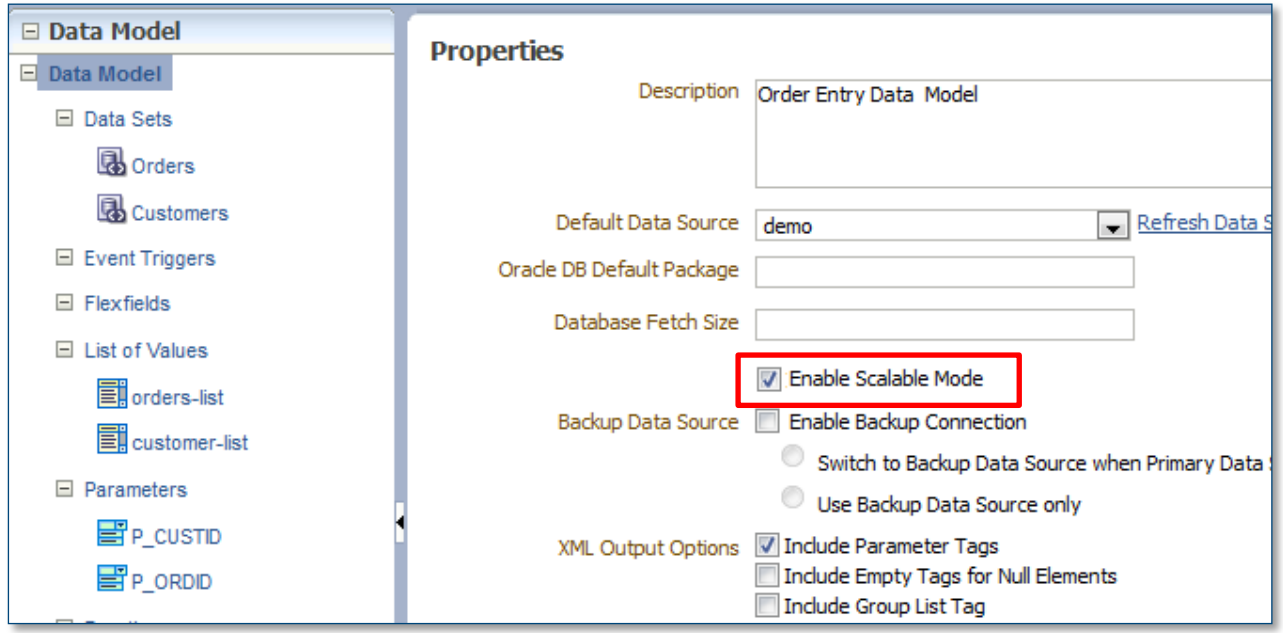




Data Model Design Best Practices

Enable Scalable Mode

- Enable for large reports
  - Slower performance, but prevents out-of-memory errors
  - Use with scheduled reports



Data Model Design Best Practices

Leverage Database Capabilities

- Leverage back-end system resources (whenever possible)
  - Join data
  - Filter & group data
  - Perform expensive calculations & data transformations
  - Sort data

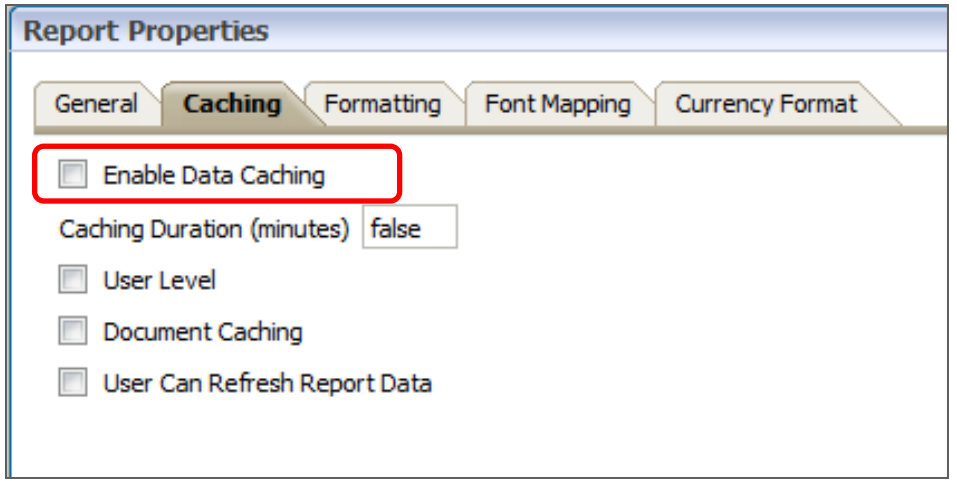
```
Select
  t."OFFICE_DSC" as "Office"
  sum(f."REVENUE") as "Sales Sum"
From
  "BISAMPLE"."SAMP_REVENUE_F" f
  "BISAMPLE"."SAMP_OFFICES_D" t
Where
 t."OFFICE_KEY"=f."OFFICE_KEY"
group by
  t."OFFICE_DSC"
```

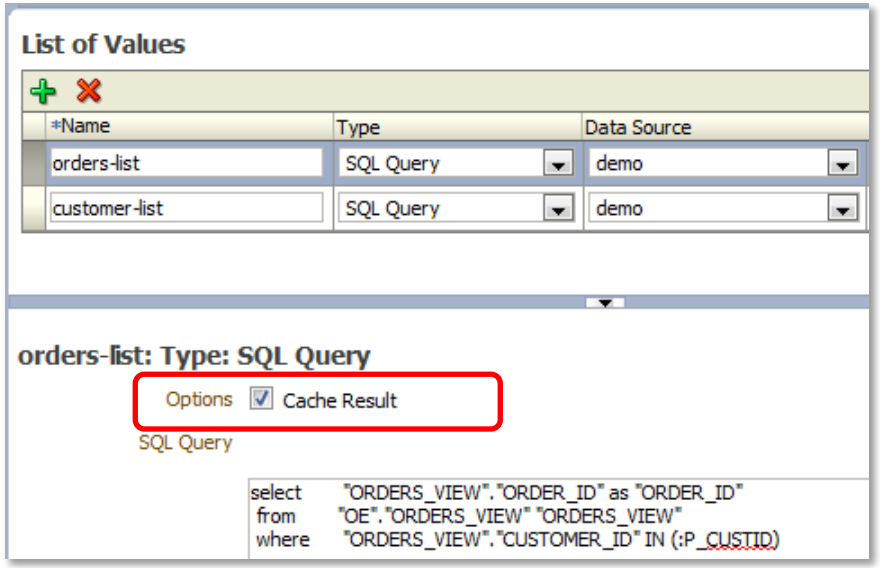
20 Vs 20,000 records

Data Model Design Best Practices

Report Data & LOV Caching

- Report Data Cache
- LOV Parameter Cache





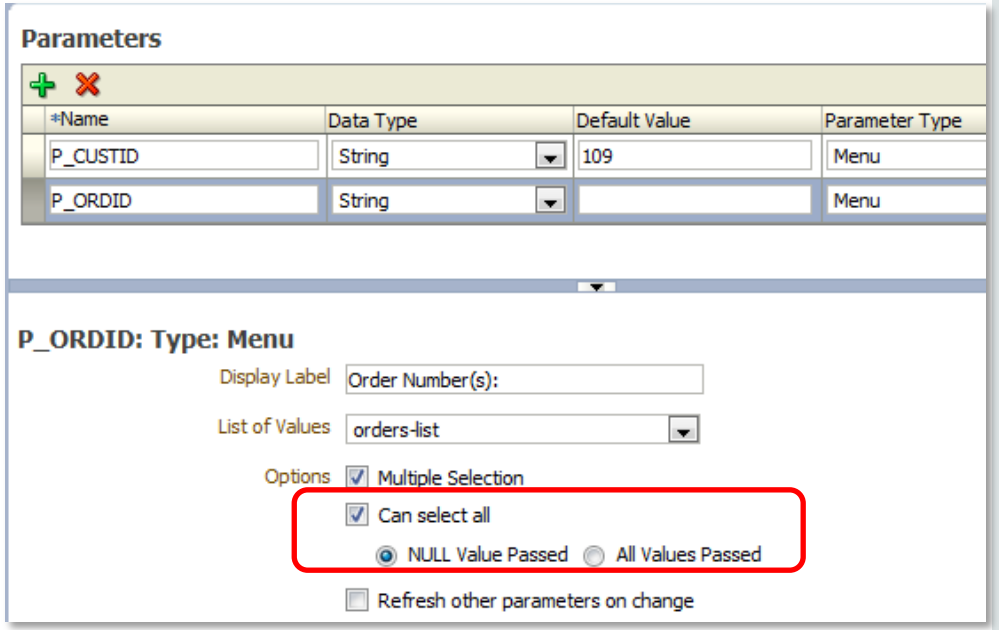
Data Model Design Best Practices

Pass Null Value when User selects “All” in LOV

- For large LOVs, pass **NULL** to the parameter when users select **All** & modify WHERE clause in Data Set query to use the NVL function.

  For example:

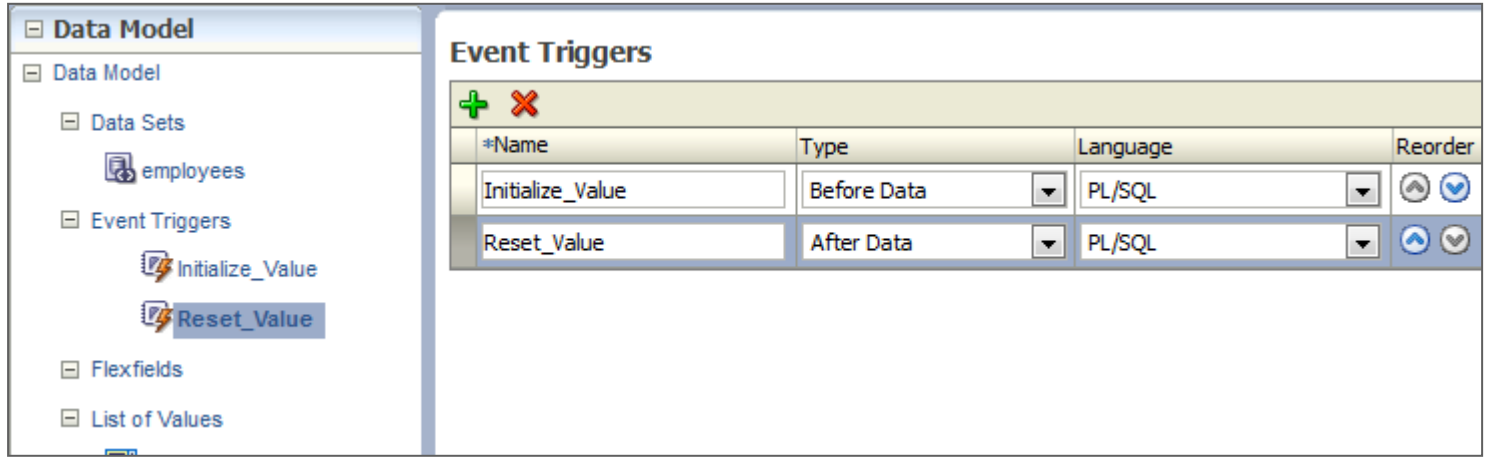
  “Where order_id=nvl(:p_ordid, order_id)”



Data Model Design Best Practices

Data Triggers

- Before Data Triggers
  - Generate dynamic SQL
  - Populate TEMP tables
  - Set user context



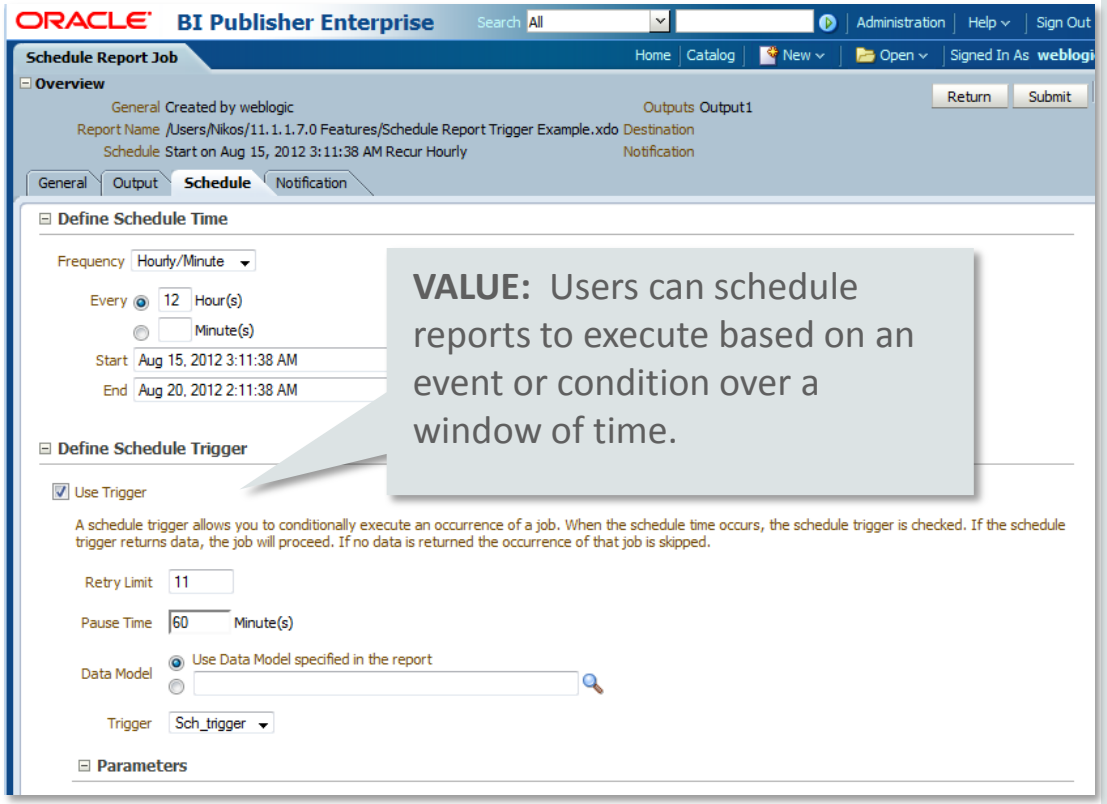
- After Data Triggers
  - Insert rows to a target table
  - Send notifications
  - Clean or delete TEMP tables

```
Select EMPLOYEE_ID,
          DEPARTMENT_ID,
          FIRST_NAME,
          LAST_NAME,
          EMAIL,
          PHONE_NUMBER,
          HIRE_DATE,
          JOB_ID,
          SALARY
from employees
where &p_where_clause
```

Data Model Design Best Practices

Schedule Trigger

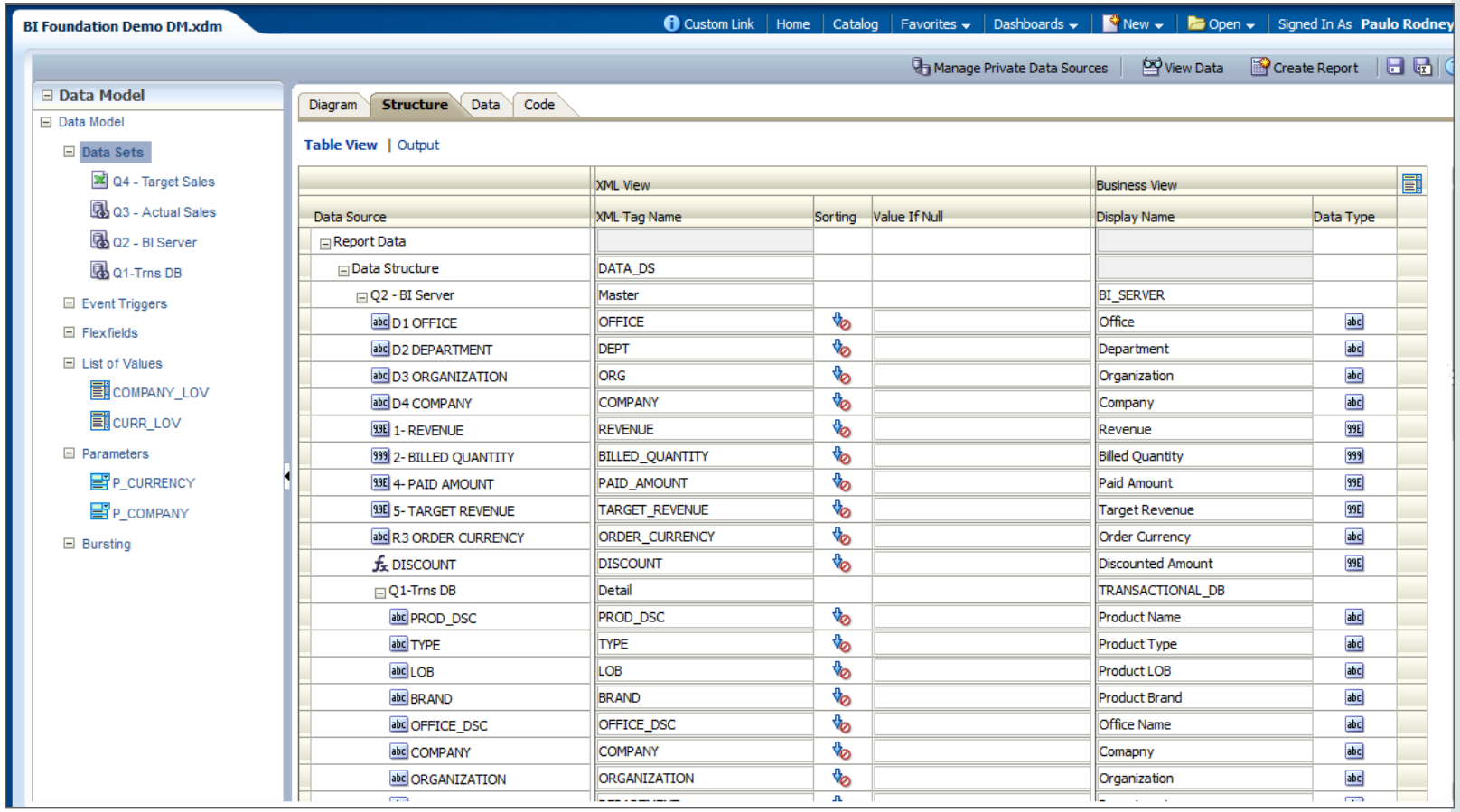
- Data Model Designer creates Data Model with schedule trigger
- Triggers can be created and shared from a single data model
- Users create scheduled jobs and determine window of time to check for condition
- Reports execute when condition is true or are skipped



Data Model Design Best Practices

Data Structure

- Structure data for the report
- Use short XML tag names
- Use display names
- Create global & group-level aggregate functions
- Pre-sort data (preferably at the source)



Program Agenda

1. Oracle BI Publisher Overview
2. Easier, Better Managed & Faster
3. BI Publisher Best Practices
4. Data Model Design Best Practices
5. Layout Design Best Practices

Layout Design Best Practices

ORACLE

Layout Design Best Practices

Choose the right Template Type

BI Publisher Template	• Web based Layout Editor – no client installation required • Best for Management Report – WYSIWIG experience • Interactive Output • Wide range of output (PDF, HTML, Excel, PPT, RTF, MHTML)
RTF Templates	• Easy to create using Template Builder MS Word Add-in • Extensible to use XSL code syntax within BI Publisher Code Syntax • Wide range of output (PDF, HTML, Excel, PPT, RTF, MHTML)
Excel Templates	• Excel w/ data mapped to named cells & Excel and XSL formatting • Great for formatted, true Excel output and burst over sheets • Only XLS output

Layout Design Best Practices

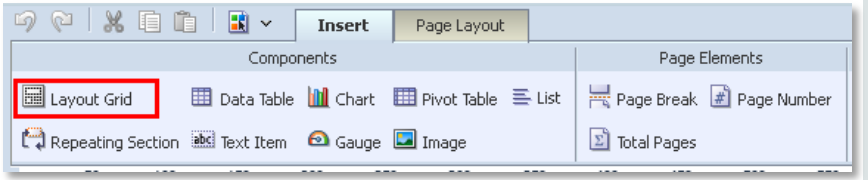
Choose the right Template Type

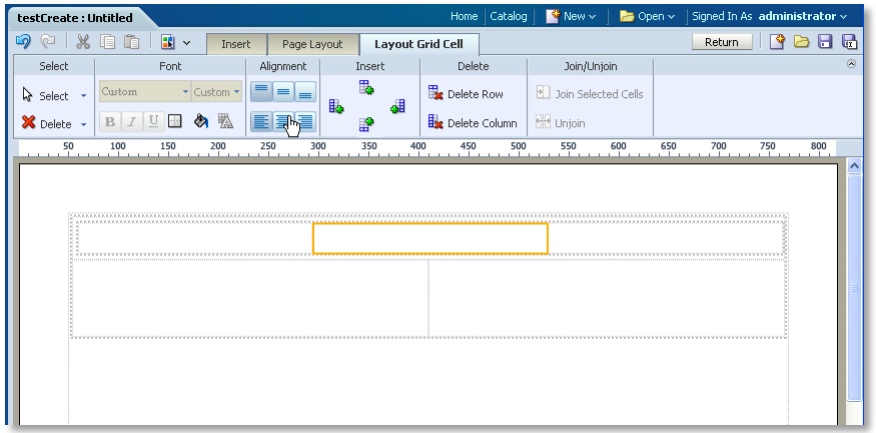
PDF Templates	• PDF forms with XML elements mapped to form fields. • Directly use Government Forms as Template • PDF output only • Use Acrobat Professional to Create/Edit Template
e-Text Templates	• Text output only – for electronic communication • Great for character delimited or fixed position docs (EFT & EDI) • RTF with table of statements to place fields and separators
Flash Templates	• SWF files with BI Publisher data – for sophisticated interactivity • Create in Adobe Flex Builder
XSL Style Sheets	• Allows for third party tools and legacy solutions

Layout Design Best Practices

BI Publisher Template

- Use Layout Grids to position components – similar to tables in RTF Templates
- Layout Grids can be nested
- Layout Grid Cell can be joined
- The minimum height of rows can be fixed
- DO NOT put **LARGE** tables or pivot tables into Layout Grids (Performance!)

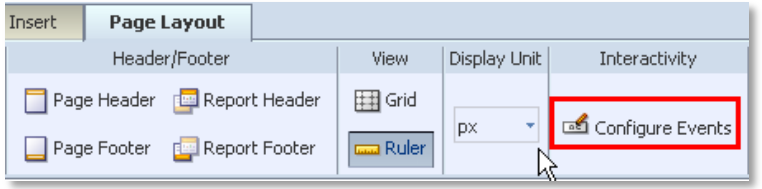


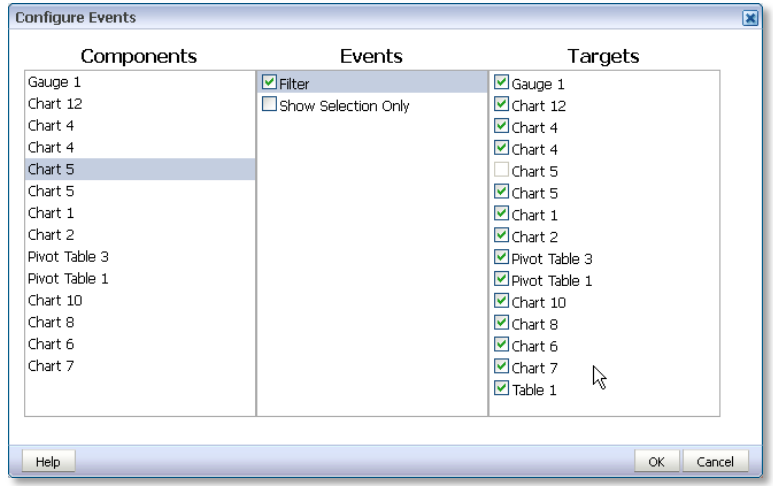


Layout Design Best Practices

BI Publisher Template

- The Interactive Viewer is one of BI Publisher's most promising new features
- Interactivity works best for flat tables or simple nested master-detail data sets
- Unrelated queries or groups can not interact
  - Disable interactions for unrelated queries in the **Configure Events** Dialog





BAD: Country on two branches

Data
- G1
  - **Country**
  - Revenue
- G2
  - **Country**
  - Cost

GOOD: Country in common parent

Data
- G1
  - **Country**
  - G2
    - Revenue
  - G3
    - Cost

Layout Design Best Practices

RTF Template

- Use tables to control precisely where field data will be placed in the report

Grp:Supplier

Supplier	Supplier 1
Address	1 Long Avenue

Invoice Number	Invoice Date	Currency	GL Date	Entered Amount	Accounted Amount
Grp:Invoice1134922	01-Jan-2007	USD	01-Jan-2007	$100.00	$100.00End Invoice
			Total for Supplier: Supplier 1	$100.00	$100.00

End Supplier

Invoice Tax Summary

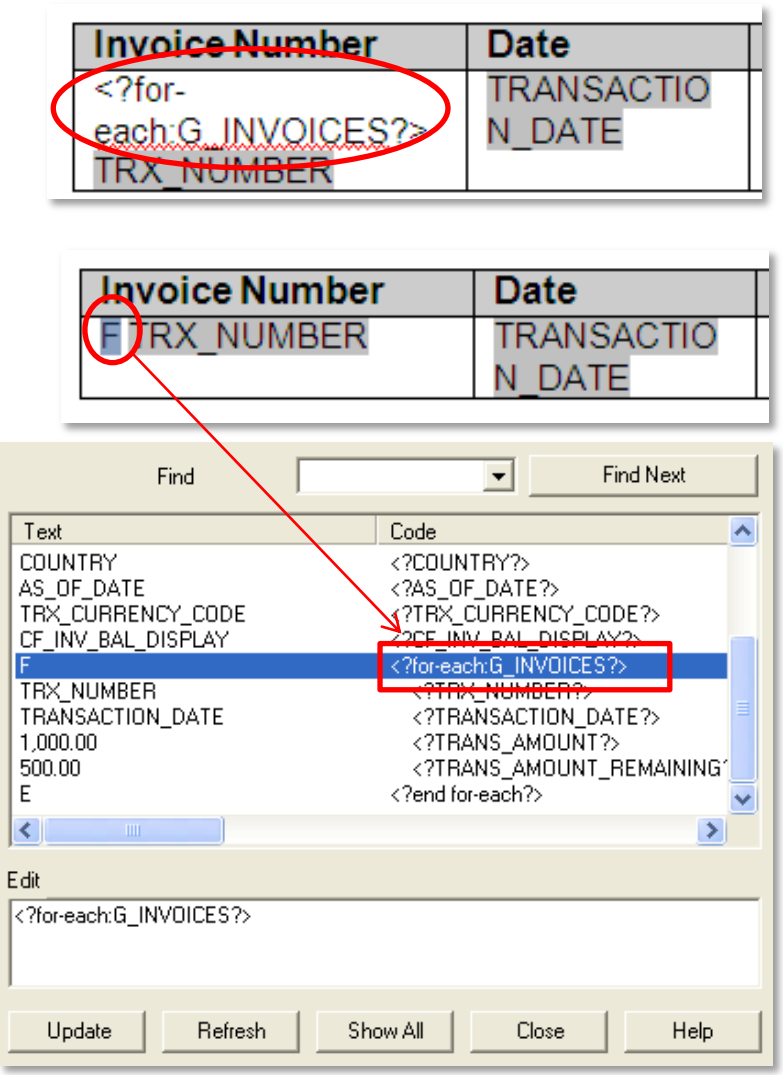
Tax Code	Entered Amt	Accounted Amt
Grp:TaxVAT 17.5%	$100.00	$100.00End Tax

Report Total	$100.00	$100.00

Layout Design Best Practices

RTF Template

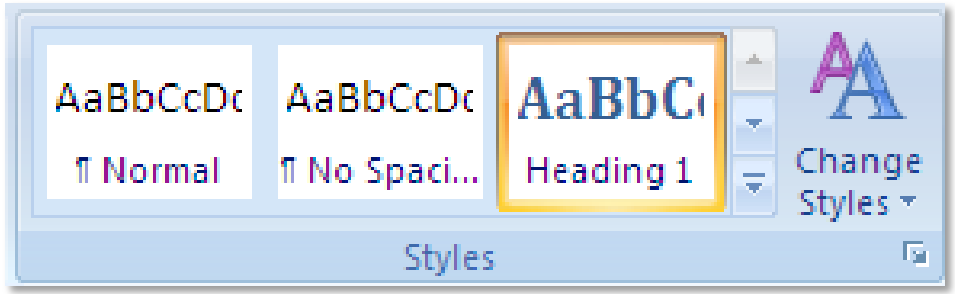
- Use Form Fields
  - Keep the template clean
  - Supported by the Template Builder Field Browser
  - Can be colored or hidden to help understand the structure
  - Caveat: Word header & footer don't allow form fields

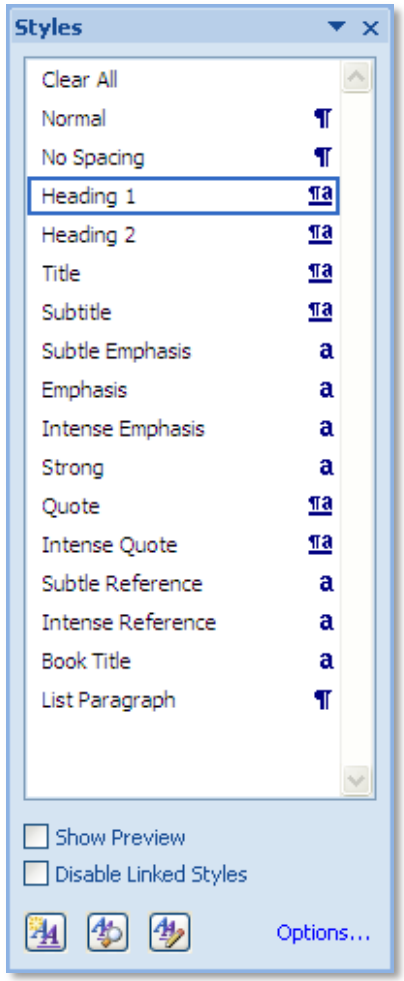


Layout Design Best Practices

RTF Template

- Use Style Templates
  - Achieve consistency in the template and between templates
  - In 11g use Style Templates to control the template styles





Layout Design Best Practices

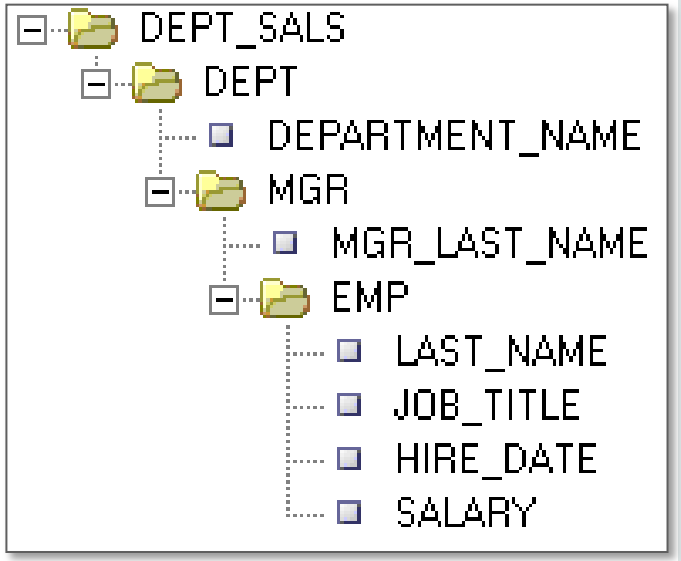
RTF Template

- Do Not Over Complicate your Layout Template Design
  - Keep it easy to understand, debug and maintain
  - In general better to have different business documents in different templates
  - Try to limit the logic in templates to simple if or loop statements
  - Use sub templates to simplify documents if necessary
  - Many calculations are better performed in the data model

Layout Design Best Practices

RTF Template

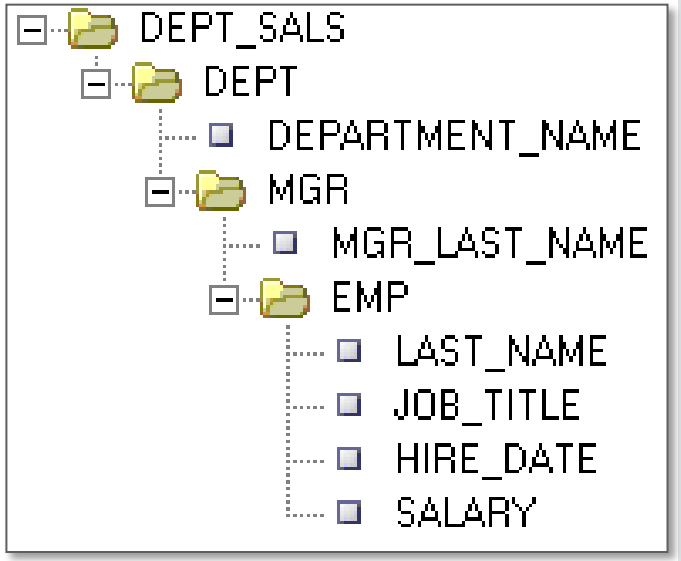
- Use XPATH
  - BI Publisher uses XPATH to access data elements
  - DEPARTMENT_NAME is inserted in the template as <?DEPARTMENT_NAME?>
  - <?DEPARTMENT_NAME?> is translated to the XPATH .//DEPARTMENT_NAME
  - .//DEPARTMENT_NAME searches for DEPARTMENT_NAME in the complete sub-tree starting from current context



Layout Design Best Practices

RTF Template

- Use XPATH
  - Use the full relative path for large datasets
    - Instead of <?for-each: DEPT?>
      use <?for-each:/DEPT_SALS/DEPT?>
    - Instead of <?DEPARTMENT_NAME?>
      use <?./DEPARTMENT_NAME?>
  - For large documents that don't fit into memory the search requires disk access
  - For small documents the search time is negligible



Layout Design Best Practices

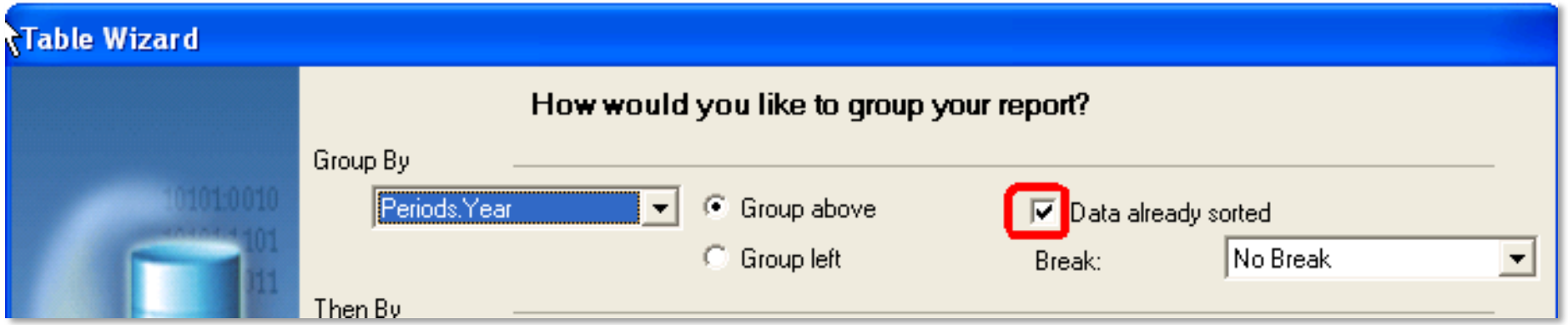
RTF Template

- XPATH Tuning
  - Start with the outer loops and outer most data access
  - Reducing full tree searches will provide bigger improvements than optimizing access in a small subset of the data
  - Fixing the XPATH in a single for-each loop may be all the performance tuning you need to do
- Tables
  - LARGE tables that span hundreds of pages consume considerable server resources. If possible group the data and create a table inside each grouping.
  - Do not nest LARGE tables into tables.

Layout Design Best Practices

RTF Template

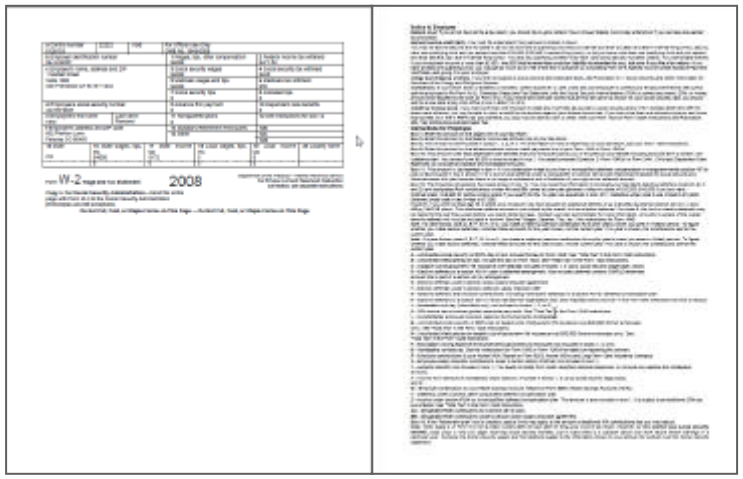
- Sorting & Grouping
  - Better to Sort data in the data model
  - Group By <?for-each-group?>
    will force the XSL engine to sort data
  - Checking “Data already sorted” option in the Table Wizard will not re-sort data (good thing)

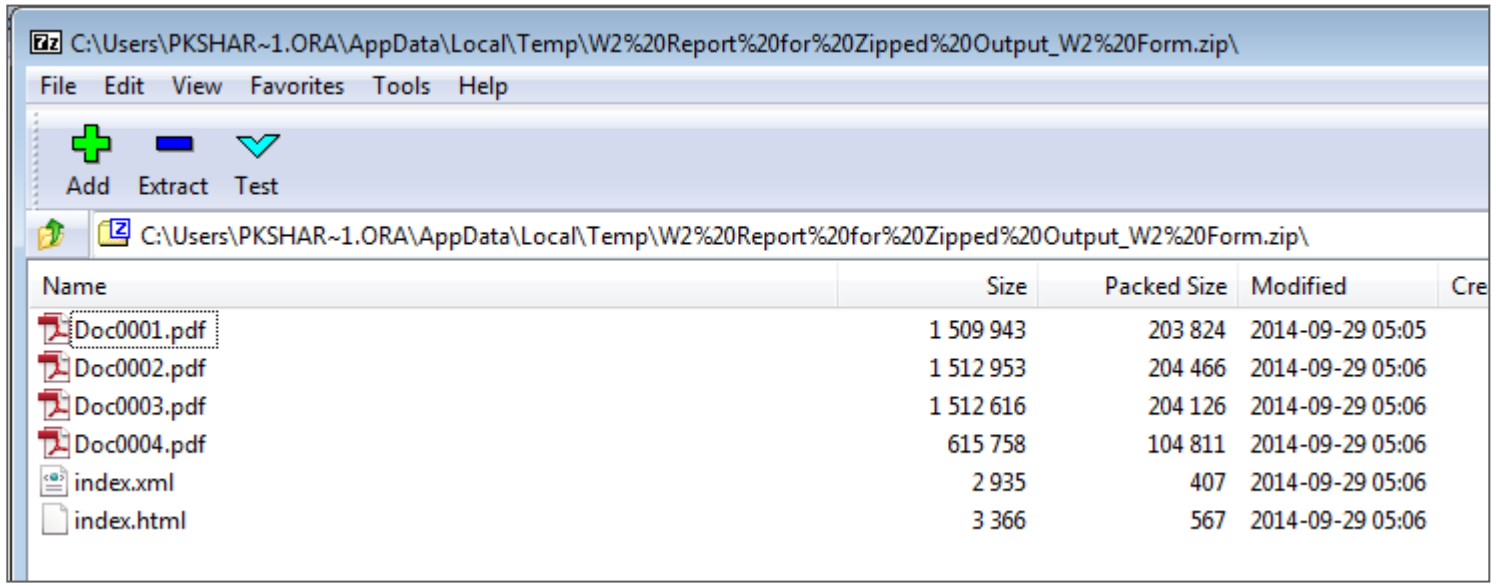


Layout Design Best Practices

RTF Template

- Handling Large Outputs
  - Make use of “Reuse Static Content” for reports with alternate page with fine prints
  - Zipped Output format





Relationship: Benefits vs. Risk Analysis

Benefits	Risks
1 Benefit here • Details here • Details here	1 Risk here • Details here • Details here
2 Benefit here • Details here • Details here	2 Risk here • Details here • Details here
3 Benefit here • Details here • Details here	3 Risk here • Details here • Details here

Stay Connected with BI Publisher

Oracle Technology Network

http://www.oracle.com/technetwork/middleware/bi-publisher/overview/index.html

Oracle BI Publisher Blog

from pixel-perfect to interactive reporting...

YouTube twitter LinkedIn facebook

Appendix

Resources

- **Certification matrix (11.1.1.x)**
  System Requirements and Supported Platforms for Oracle Business Intelligence Suite Enterprise Edition 11*g*R1 (11.1.1.3.0-11.1.1.6.0)
  http://www.oracle.com/technetwork/middleware/bi-enterprise-edition/bi-11gr1certmatrix-166168.html
  System Requirements and Supported Platforms for Oracle Business Intelligence Suite Enterprise Edition 11*g*R1 (11.1.1.7.0)
  http://www.oracle.com/technetwork/middleware/bi/bi-11gr1certmatrix-ps6-1928219.xls
- **High availability white paper**
  http://www.oracle.com/technetwork/middleware/bi-publisher/bip-cluster-deployment-366859.pdf
- **QUARTZ Scheduling (clustering) wiki page**
  http://wiki.opensymphony.com/display/QRTZ1/ConfigJDBCJobStoreClustering

BI Publisher Best Practices

Installation Requirements

System Requirements

- Disk Space: 20GB or more
- Available Memory (RAM): 4GB or more
- Temp Space: 950MB or more
- Swap Space: 3GB or more
- CPU: dual-core Pentium, 1.5GHz or greater

Oracle® Fusion Middleware Installation Guide for Oracle Business Intelligence 11*g* Release 1 (11.1.1)
Part Number E10539-02

Database Requirements

Disk space requirements for the database containing the Oracle Business Intelligence Scheduler database tables.

- 500MB on Oracle and Microsoft SQL Server databases for standalone and Business Intelligence applications and deployments.
- 500MB on IBM DB2 databases for standalone deployments.

BI Publisher Best Practices

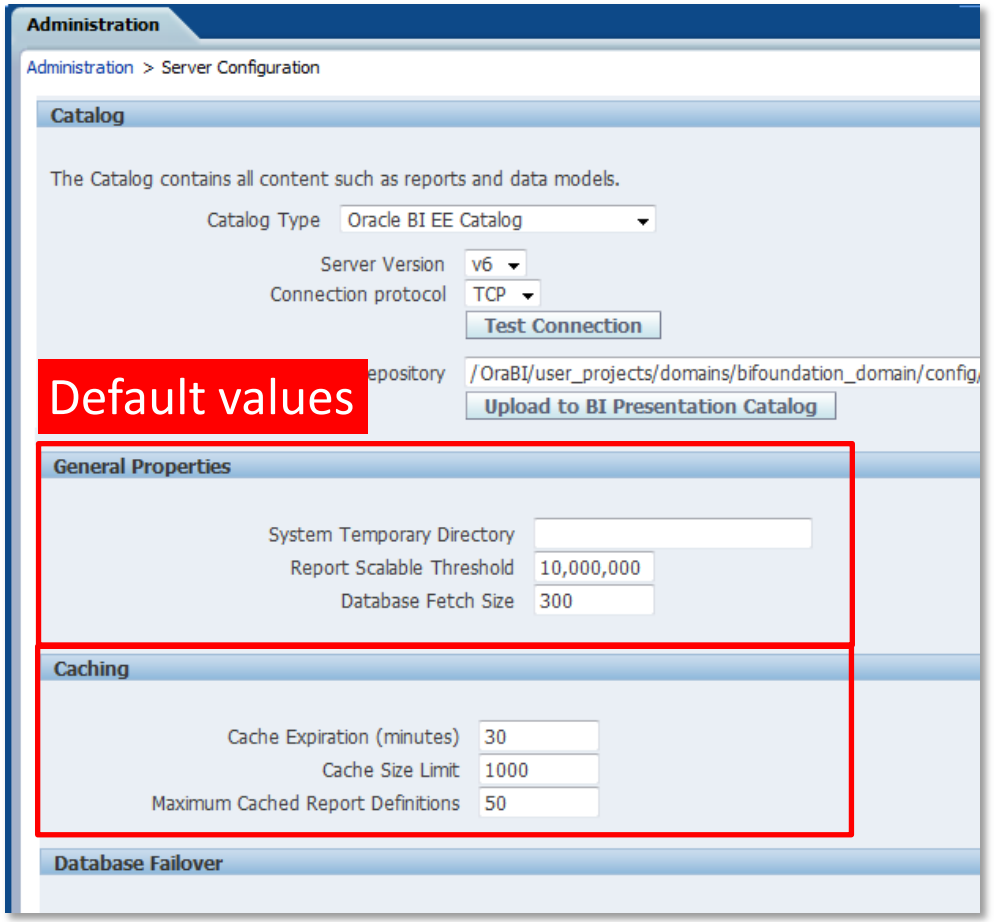
Recommended Configuration

- JVM settings & JDK version
  - 64 bit JVM/JDK (on a 64 bit OS)
  - JDK version 1.6 (update 2) or higher
- Memory (RAM for the JVM)
  - 8 GB on 64 bit JVM is recommended for large, high volume use
  - 2 GB on 32 bit OS suitable for small to mid volume deployments (2gb limitation for JDK on win OS)
- Storage
  - Repository: Varies. 30 GB Hard disk space (must be shared for cluster)
  - Temp Space: 20 GB (for document processing) not shared

BI Publisher Best Practices

Server Configuration

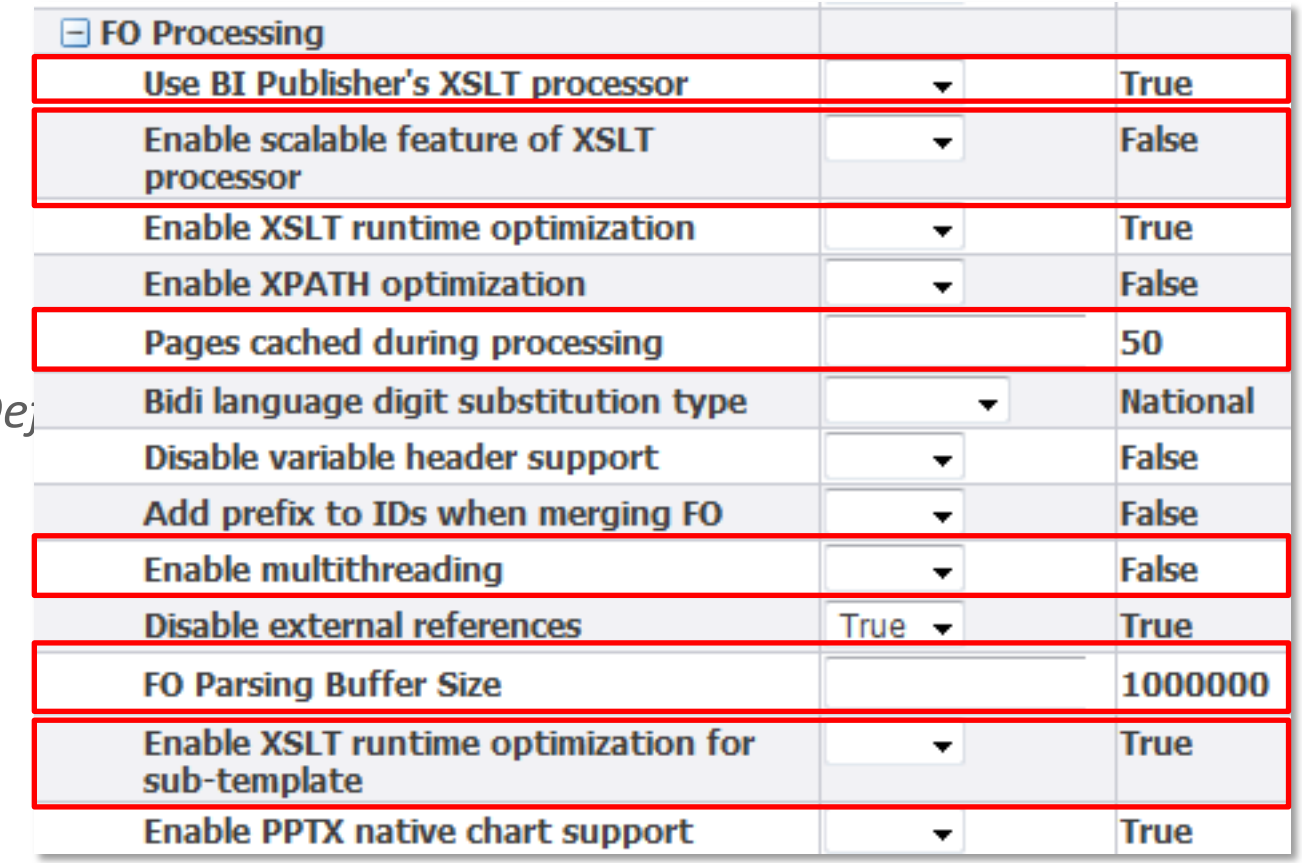
- Scalable threshold (in bytes)
- Cache expiration (in min)
- Cache size limit (# of datasets)
- Maximum cached reports
- Database Fetch Size



BI Publisher Best Practices

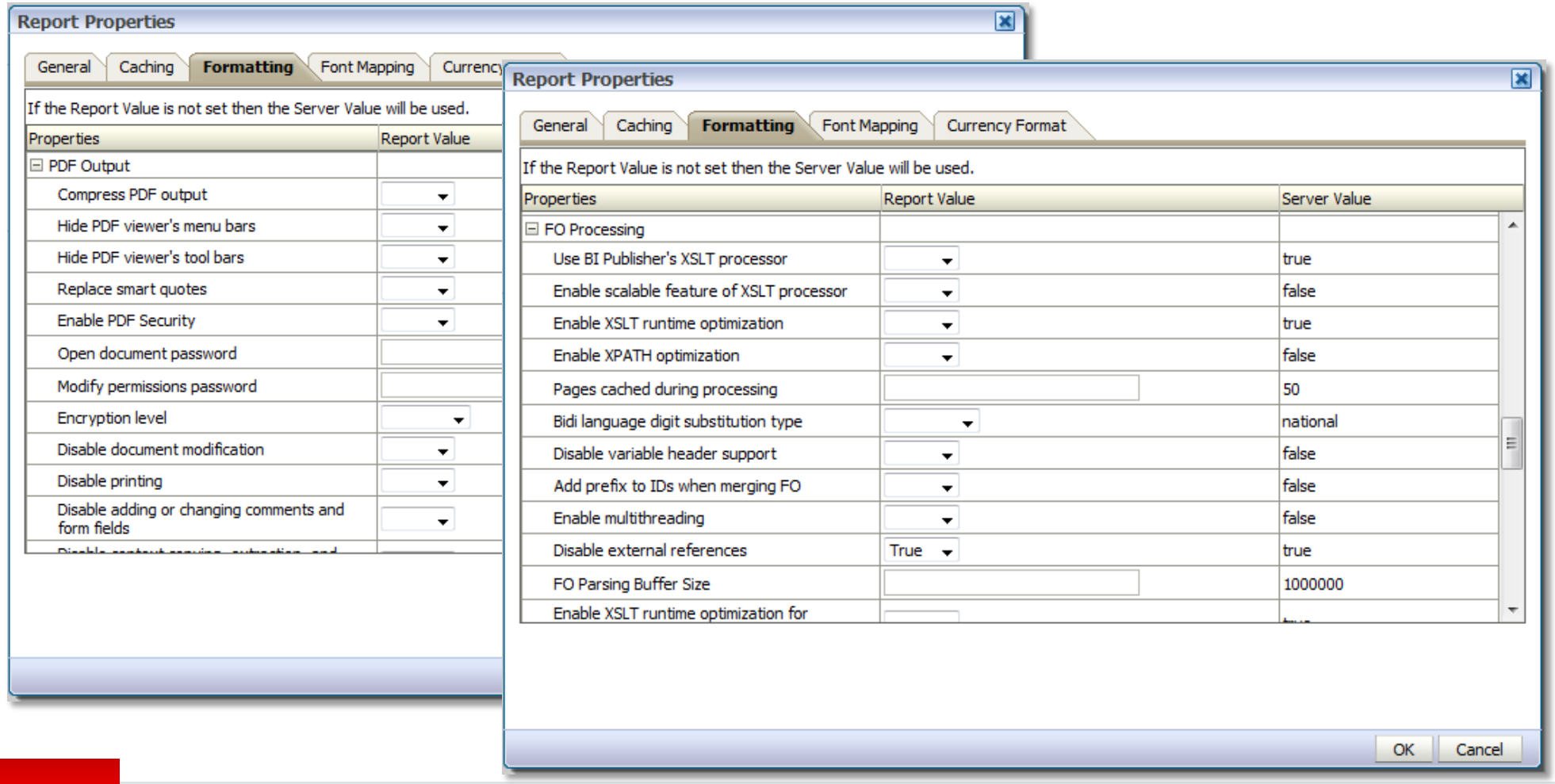
Runtime Configuration Properties

- Bursting (10g only)
  - Enable multithreading – *Default: False**
  - Thread count – *Default: 2**
- FO processing
  - **Use BI Publisher's XSLT processor** – *Default: True*
  - **Enable scalable feature of XSLT processor** – *Def*
  - Pages cached during processing – *Default: 50*
  - **Enable multithreading** – *Default: False**
  - **FO Parsing Buffer Size** – *Default: 1000000**
  - **Enable XSLT runtime optimization** – *Default: True*



BI Publisher Best Practices

Report Properties

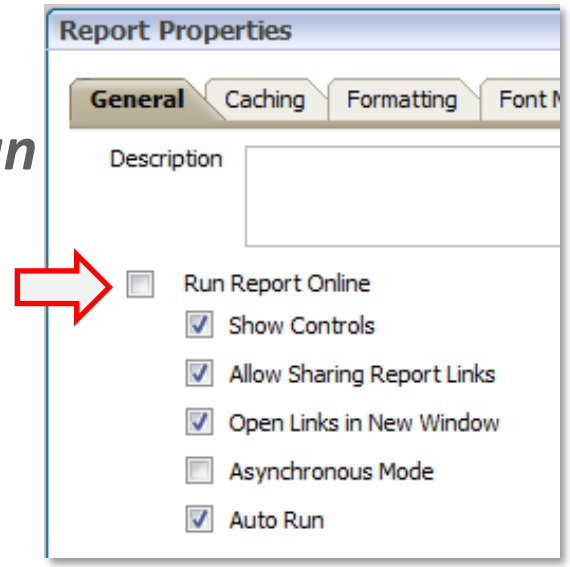


BI Publisher Best Practices

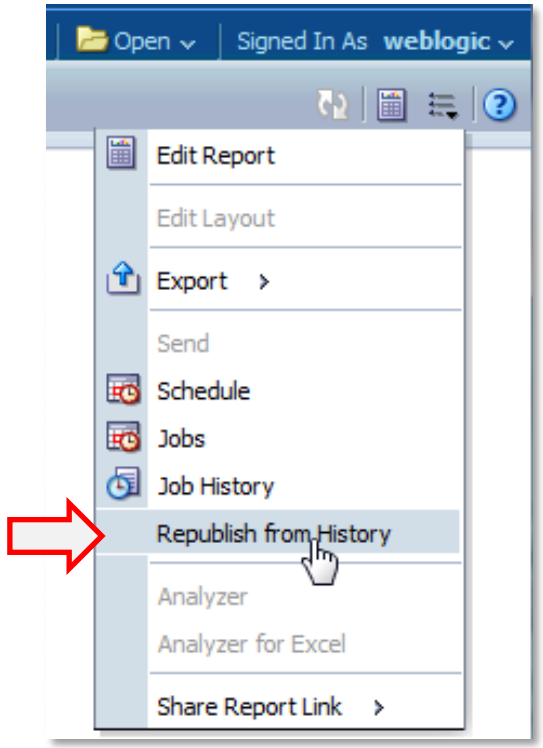
Report Properties

- For long running reports
  - Take advantage of scheduling and disable ***Run Report Online***.

Report Editor



Report Viewer

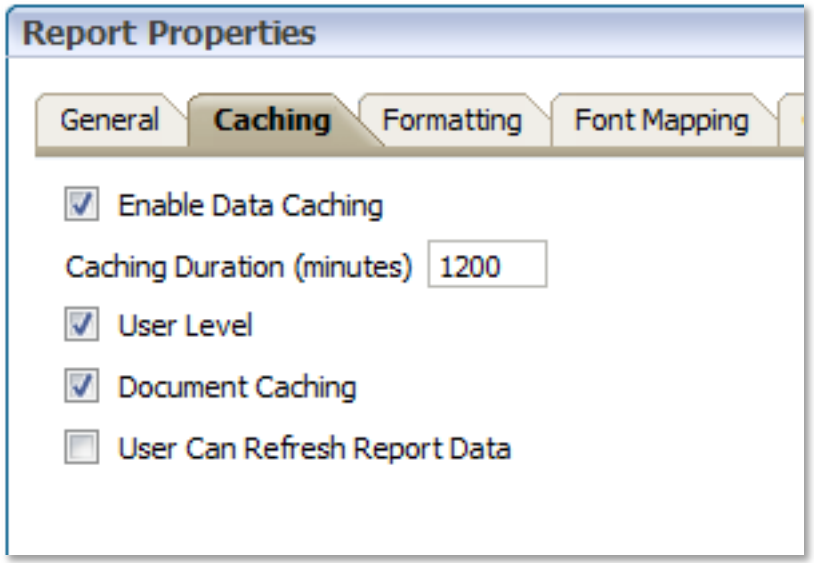


BI Publisher Best Practices

Caching

- **Enable Data Caching**
  - Saves XML data for reuse up to the Cache Expiration threshold
  - Improved performance with different template/output format
  - Not recommended for real-time data
- **Enable Document Caching**
  - Better performance
  - Consumes more Temp storage space
- **User Level**
  - Disable for better performance if data can be shared across users
- **Cache Duration**

Report Editor



Data Model Design Best Practices

Element Naming

- Avoid re-using the same name for element names; it can cause confusion in template design.
  - For example, CITY under SHIPPING_ADDRESS and BILLING_ADDRESS. But in many cases you are better off using different names e.g. S_CITY and B_CITY

- For reports that generate large data sets using 2 or 3 character names for elements can have a large impact on performance and size.
  Ex: a1, a2,…

Data Model Design Best Practices

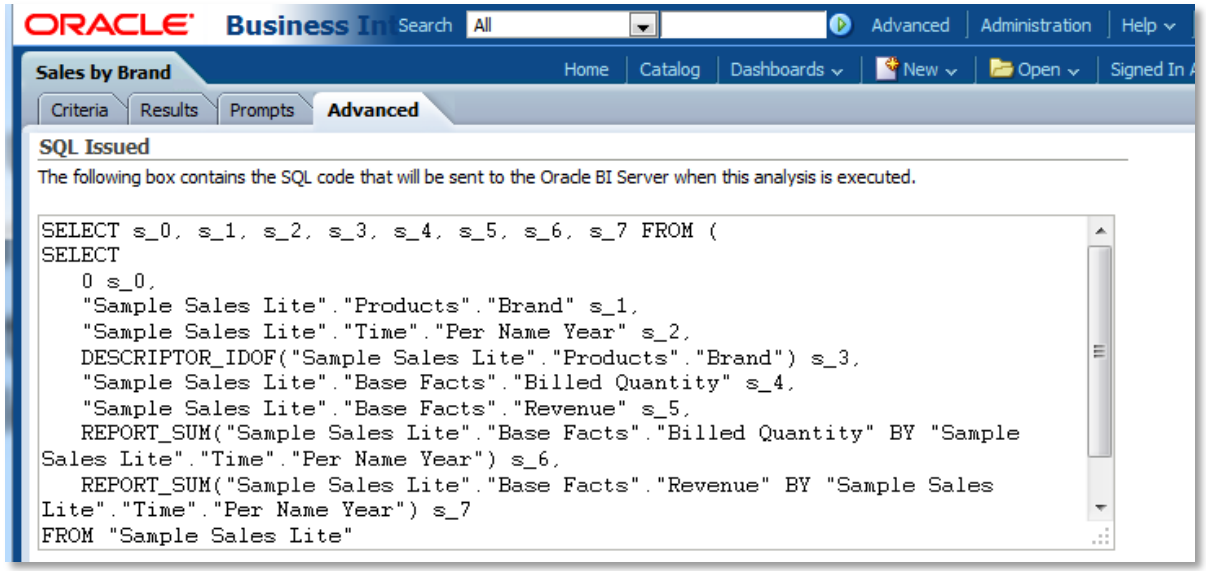
Null Elements & XML Attributes

- Avoid generating empty tags in the XML
  - Aggregation over fields that contain empty tags **will fail** with a “not a number” exception
  - Missing fields **do not** cause an issue with XSL – for example a print statement will just return an empty string
- Avoid XML attributes
  - They are supported in both RTF & Excel templates but they add an extra layer of complexity; they are not supported in the BI Publisher Layout Editor

Data Model Design Best Practices

OBIEE Data Source

- If possible use SQL/JDBC against BI Server instead of using an Answers Request as a data source
  - Tip: Copy the SQL in an Answers Request and paste into the Query Builder text area



Layout Design Best Practices

Sub Templates

- What is a sub template?
  - A document that contains layout and or code that can be defined once and used multiple times
  - Multiple functions (called “templates” in XSL) or text segments can be defined in a single sub template file
- Sub template types
  - XSL sub templates for code re-use or separation
  - RTF sub templates for layout re-use
  - Caveat: Use of RTF sub templates makes it harder to understand the template structure

Layout Design Best Practices

Sub Templates

- RTF sub templates
  - Re-use common layouts such as terms and conditions
  - Internationalized address block
- XSL sub templates
  - Transformations for complex chart requirements
  - Dynamically apply formatting to a portion of data (e.g. sub scripting / super scripting / chemical formula)
  - Print formatted XHTML data – convert to FO using sub template (as used in Oracle Contracts) (11.1.1.6 supports HTML in data)

Starting w/ 11.1.1.3 we recommend using Style Templates for Header / Footer instead of RTF Sub Template

Hardware and Software
Engineered to Work Together


ORACLE®