Safe Harbor Statement

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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
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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

```
<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>QTY</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
<th>TAX</th>
<th>SUBTOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item 1</td>
<td>1</td>
<td>100.00</td>
<td>100.00</td>
<td>10</td>
<td>110.00</td>
</tr>
<tr>
<td>Item 2</td>
<td>2</td>
<td>50.00</td>
<td>100.00</td>
<td>20</td>
<td>120.00</td>
</tr>
<tr>
<td>Item 3</td>
<td>3</td>
<td>75.00</td>
<td>225.00</td>
<td>30</td>
<td>255.00</td>
</tr>
</tbody>
</table>

Subtotal: 585.00
Tax: 117.00
Total: 702.00

Invoice Date: 15-June
Invoice No: 123456

TO: [Customer Name]
Address: [Customer Address]
City: [City]
State: [State]
Zip: [Zip]
Phone: [Phone]
Fax: [Fax]
E-mail: [E-mail]

Terms: Net 30 Days

Oracle Corporation Inc.
1 Oracle Drive
Redwood Shores, CA 94065

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```
BI Publisher ... For All Your Reports

Invoices

Correspondence

Dear [Name],

According to our records as of [Date], we note the following open invoices:

<table>
<thead>
<tr>
<th>Invoice Number</th>
<th>Invoice Type</th>
<th>Invoice Amount</th>
<th>Bank Charge</th>
<th>Open Balance Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>123456</td>
<td>Standard</td>
<td>$125,999.99</td>
<td>$5.00</td>
<td>$125,999.99</td>
</tr>
<tr>
<td>654321</td>
<td>Standard</td>
<td>$98,765.43</td>
<td>$3.50</td>
<td>$98,765.43</td>
</tr>
</tbody>
</table>

**Invoice Balance:** $224,765.42

**Outstanding Credits and Rebates:** $0.00

**Total:** $224,765.42

Your total purchase is $224,765.42, made up as follows:

<table>
<thead>
<tr>
<th>Invoice Number</th>
<th>Invoice Type</th>
<th>Invoice Amount</th>
<th>Bank Charge</th>
<th>Open Balance Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>123456</td>
<td>Standard</td>
<td>$125,999.99</td>
<td>$5.00</td>
<td>$125,999.99</td>
</tr>
<tr>
<td>654321</td>
<td>Standard</td>
<td>$98,765.43</td>
<td>$3.50</td>
<td>$98,765.43</td>
</tr>
<tr>
<td>789012</td>
<td>Standard</td>
<td>$98,765.43</td>
<td>$3.50</td>
<td>$98,765.43</td>
</tr>
</tbody>
</table>

**Oracle Corporation**

[Oracle Corporation Address]

Page 1 of 12
## BI Publisher ... For All Your Reports

### Invoices

- Correspondence

### Purchase Orders

---

### Purchase Order

<table>
<thead>
<tr>
<th>Line</th>
<th>Description</th>
<th>Quantity</th>
<th>Unit Price</th>
<th>Amount</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Item 1</td>
<td>100</td>
<td>$10</td>
<td>$1000</td>
<td>$100</td>
</tr>
</tbody>
</table>

---

**Special Information:**

- The terms & conditions are as outlined on the purchase order.
- Payment is due within 30 days of receipt.
- Any disputes must be resolved within 60 days of delivery.

---

**Supplier:**

Oracle Co.

**Invoice:**

- Date: 01/15/2023
- Due Date: 02/15/2023

---

**Customer:**

ABC Corporation

---

**Signature:**

[Signature]

---

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### BI Publisher ... For All Your Reports

**Invoices**

**Correspondence**

**Purchase Orders**

**Shipping Labels**

**Govt. Forms**

---

#### W-2 Wage and Tax Statement

**Form W-2**

Department of the Treasury—Internal Revenue Service

**Copy A**

For Social Security Administration — Send this entire page with Form W-2 to the Social Security Administration; photocopies are not acceptable.

---

**Employee Information**

- **Social Security Number:** 888-88-8888
- **Employer Identification Number (EIN):** 00-0763965
- **Address:**
  - **Corporation:** ABC Corporation
  - **Address:** 855 Main Street
    - **State:** IL
    - **City:** Chicago, **Zip Code:** 60639

**Employer Information**

- **Employer Identification Number (EIN):** 80008963 JRM
- **Address:**
  - **Name:** Jane Smith
  - **Address:** 894 Elm Street
  - **City:** Naperville, **Zip Code:** 60543

**Wages, Tips, Other Compensation**

- **Wages:** $20,000.00
- **Tips:** $500.00

**Social Security Information**

- **Current Year Social Security Wage Base:** $100,000.00
- **Social Security Tax Withheld:** $3,000.00

**Federal Income Tax Information**

- **Wages, Tips, Other Compensation:** $7,000.00
- **Federal Income Tax Withheld:** $7,000.00

**Medicare Information**

- **Medicare Wage and Tips:** $50,000.00
- **Medicare Tax Withheld:** $700.00

**Filing Information**

- **Employer's Federal Tax Identification Number (EIN):** 00-0763965
- **State:** IL
- **City:** Naperville

---

**Instructions for Filing W-2**

- **Employers** must file the information on Form W-2 by January 31 of the year following the year wages were paid.

---

**Disclaimer:**

The information provided is for educational purposes only and is not intended as legal, financial, or technical advice. Always consult with a professional for specific guidance on tax matters.
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
- 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

Layout Template Types
- Layout Editor
- MS Word
- MS Excel
- Adobe
- Flex
- XSL

Layout Design Tools

Output Formats
- Interactive
- PDF
- HTML
- Excel
- PPT
- Flash
- RTF
- CSV
- XML
- EDI
- EFT

Destinations
- Email
- Printer
- Fax
- Repository
- e-Commerce

Data Sources
- Oracle, Oracle BI EE, Oracle BI Apps, SQL Server
- E-Business Suite, PeopleSoft, Siebel, JDE, Primavera
- OLAP
- Web Services
Program Agenda

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Easier, Better Managed & Faster
BI Publisher: Easier to Implement

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
# BI Publisher: Better Managed

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

## 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
BI Publisher: Faster

**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
Program Agenda

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5. Layout Design 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:

• 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

<table>
<thead>
<tr>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Users viewing reports online</td>
</tr>
<tr>
<td>• Scheduled Jobs running at the same time</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Factors to Consider</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Number of users viewing Small, Medium, Large, XLarge reports</td>
</tr>
<tr>
<td>• Number of CPUs/server</td>
</tr>
</tbody>
</table>

### Bursting Usage

<table>
<thead>
<tr>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Bursting reports</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Factors to Consider</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Total Number of reports</td>
</tr>
<tr>
<td>• Time window</td>
</tr>
<tr>
<td>• % of Small, Medium, Large reports</td>
</tr>
<tr>
<td>• Number of CPUs/Server</td>
</tr>
</tbody>
</table>
BI Publisher Best Practices

BI Publisher Sizing

• My Oracle Support – Note 948841.1
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

Client \[\rightarrow\] Web server

<table>
<thead>
<tr>
<th>BI Publisher</th>
</tr>
</thead>
<tbody>
<tr>
<td>JMS Processor</td>
</tr>
<tr>
<td>JobProcessor</td>
</tr>
<tr>
<td>ReportProcessor</td>
</tr>
<tr>
<td>EmailProcessor</td>
</tr>
<tr>
<td>FTPProcessor</td>
</tr>
<tr>
<td>PrintProcessor</td>
</tr>
<tr>
<td>WebDavProcessor</td>
</tr>
<tr>
<td>FaxProcessor</td>
</tr>
</tbody>
</table>

Client \[\rightarrow\] Web server

<table>
<thead>
<tr>
<th>BI Publisher</th>
</tr>
</thead>
<tbody>
<tr>
<td>JMS Processor</td>
</tr>
<tr>
<td>JobProcessor</td>
</tr>
<tr>
<td>ReportProcessor</td>
</tr>
<tr>
<td>EmailProcessor</td>
</tr>
<tr>
<td>FTPProcessor</td>
</tr>
<tr>
<td>PrintProcessor</td>
</tr>
<tr>
<td>WebDavProcessor</td>
</tr>
<tr>
<td>FaxProcessor</td>
</tr>
</tbody>
</table>

BI Publisher Reports Repository

Web server/JMS Provider (Web Logic, Active MQ)

- FAX Q.
- Printer Q
- Email Q.
- FTP Q
- WebDav Q.

JMS Resources

- Job Q
- Report Q
- BIP System Topic
- File Q

Scheduler database

Fax
Printer
Email
Repository
File system
Program Agenda

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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

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Layout Design Best Practices
## Layout Design Best Practices

### Choose the right Template Type

<table>
<thead>
<tr>
<th>Template Type</th>
<th>Description</th>
</tr>
</thead>
</table>
| **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

<table>
<thead>
<tr>
<th>Template Type</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PDF Templates</strong></td>
<td>• PDF forms with XML elements mapped to form fields.</td>
</tr>
<tr>
<td></td>
<td>• Directly use Government Forms as Template</td>
</tr>
<tr>
<td></td>
<td>• PDF output only</td>
</tr>
<tr>
<td></td>
<td>• Use Acrobat Professional to Create/Edit Template</td>
</tr>
<tr>
<td><strong>e-Text Templates</strong></td>
<td>• Text output only – for electronic communication</td>
</tr>
<tr>
<td></td>
<td>• Great for character delimited or fixed position docs (EFT &amp; EDI)</td>
</tr>
<tr>
<td></td>
<td>• RTF with table of statements to place fields and separators</td>
</tr>
<tr>
<td><strong>Flash Templates</strong></td>
<td>• SWF files with BI Publisher data – for sophisticated interactivity</td>
</tr>
<tr>
<td></td>
<td>• Create in Adobe Flex Builder</td>
</tr>
<tr>
<td><strong>XSL Style Sheets</strong></td>
<td>• Allows for third party tools and legacy solutions</td>
</tr>
</tbody>
</table>
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
  - Revenue
  - G2
  - Country
  - Cost
Layout Design Best Practices

RTF Template

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

<table>
<thead>
<tr>
<th>Benefits</th>
<th>Risks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1</strong> Benefit here</td>
<td><strong>1</strong> Risk here</td>
</tr>
<tr>
<td>• Details here</td>
<td>• Details here</td>
</tr>
<tr>
<td>• Details here</td>
<td>• Details here</td>
</tr>
<tr>
<td><strong>2</strong> Benefit here</td>
<td><strong>2</strong> Risk here</td>
</tr>
<tr>
<td>• Details here</td>
<td>• Details here</td>
</tr>
<tr>
<td>• Details here</td>
<td>• Details here</td>
</tr>
<tr>
<td><strong>3</strong> Benefit here</td>
<td><strong>3</strong> Risk here</td>
</tr>
<tr>
<td>• Details here</td>
<td>• Details here</td>
</tr>
<tr>
<td>• Details here</td>
<td>• Details here</td>
</tr>
</tbody>
</table>
Q & A
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
Resources

- **Certification matrix (11.1.1.x)**
  System Requirements and Supported Platforms for Oracle Business Intelligence Suite Enterprise Edition 11gR1 (11.1.1.3.0-11.1.1.6.0)
  System Requirements and Supported Platforms for Oracle Business Intelligence Suite Enterprise Edition 11gR1 (11.1.1.7.0)
  http://www.oracle.com/technetwork/middleware/bi/bi-11gr1certmatrix-ps6-1928219.xls

- **High availability white paper**

- **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

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

Default values
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 – Default: False
  – 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

- General
- Caching
- Formatting
- Font Mapping
- Currency Format

If the Report Value is not set then the Server Value will be used.

Properties | Report Value | Server Value
--- | --- | ---
PDF Output | | |
Compress PDF output | | |
Hide PDF viewer's menu bars | | |
Hide PDF viewer's tool bars | | |
Replace smart quotes | | |
Enable PDF Security | | |
Open document password | | |
Modify permissions password | | |
Encryption level | | |
Disable document modification | | |
Disable printing | | |
Disable adding or changing comments and form fields | | |
Enable XSLT processor | false | true
Enable scalable feature of XSLT processor | false | |
Enable XSLT runtime optimization | false | true
Enable XPATH optimization | false | |
Pages cached during processing | 50 | |
Blob language digit substitution type | | |
Disable variable header support | false | |
Add prefix to IDs when merging FO | false | |
Enable multi threading | false | |
Disable external references | false | true
FO Parsing Buffer Size | 1000000 | |
Enable XSLT runtime optimization for | | |
BI Publisher Best Practices

Report Properties

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