



Oracle Reports to JasperReports

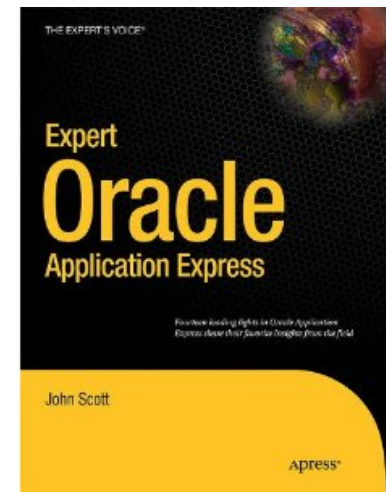
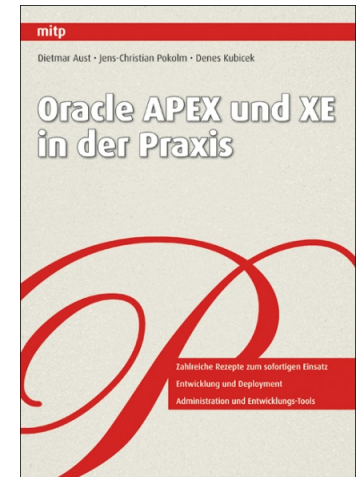
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- ▶ Why?
- ▶ JasperReports
 - Quick Overview, Features
 - Getting Started
 - Implementing Relevant Use Cases in JasperReports
- ▶ Integration with APEX
- ▶ Summary

- ▶ Building Oracle based Web Applications since 1997
 - Portal, Forms, Reports, OWA Toolkit, now APEX!
- ▶ Dipl.-Inform. Dietmar Aust, Freelance Consultant
 - Master's Degree in Computer Science (MSCS)
- ▶ 1997-2000: Consultant at Oracle Germany
- ▶ Since 09/2000: Freelance Consultant, Since 2006 – APEX only!
- ▶ Blog: <http://daust.blogspot.com/>
- ▶ Regular presenter at Oracle conferences (ODTUG, DOAG, OOW)
- ▶ Author of the JasperReportsIntegration toolkit
 - Cost free alternative for generating print ready reports in APEX.
 - <http://www.opal-consulting.de/tools>



- ▶ Giving APEX trainings regularly in Germany together with Denes Kubicek
- ▶ Co-author of „Oracle APEX und XE in der Praxis“
 - Published 21.12.2009 in German
- ▶ Co-author of „Expert Oracle Application Express“
 - Published 25.05.2011
 - Charity project in memory of Carl Backstrom and Scott Spadafore (previous members of the APEX Team)



Why?

::Replacing Oracle Forms and Reports

- ▶ Oracle Forms and Oracle Reports will be desupported for sure any time in the future ...
- ▶ Everybody is talking about an Oracle Forms replacement, but what are the alternatives for Oracle Reports?
 - Oracle Reports is still included in release 12c, but it was a last minute decision!
 - Poll of the German User Group (DOAG): 35% of existing Oracle Reports customers are moving to Open Source alternatives

Why? ::Alternatives?

► Open Source alternatives

- Eclipse BIRT, JasperReports and Pentaho
- Recent comparison (2012, based on JasperReports 4.5.0):
 - <http://www.innoventsolutions.com/open-source-reporting-review-birt-jasper-pentaho.html>
 - <http://www.innoventsolutions.com/jasper-review.html>
- JasperReports clear winner for page oriented printed reports

► JasperReports – is your investment safe?

- Started as a Sourceforge project in 2001, 2005 release 1.0 published
- Continued and active development (at least 6 releases per year)
- JasperReports is the most widely used **open source** reporting engine, boasting over **175,000** production deployments worldwide
- Plenty of customer case studies: <http://www.jaspersoft.com/case-studies>
- You can buy support and training
- Since it is open source you have no vendor-lock in

JasperReports ::The Components

► Components

- **JasperReports library** (i.e. „the engine“)
 - <http://jasperforge.org/projects/jasperreports>
 - The runtime environment
- **iReport designer**
 - <http://jasperforge.org/projects/ireport>
 - Visually design the report and create the .jrxml and .jasper file
 - The **JasperSoft Studio** is an alternative rewritten based on Eclipse
- **JasperReports Server**
 - <http://jasperforge.org/projects/jasperserver>
 - Portal for deployment, user management and authorization



► What is it?

- Java library (jar file), can be embedded into any java application (e.g. SWING, RCP, J2EE, on the command line using ANT or just a plain Java Runtime)
- It ships with other Open Source libraries like iText, Groovy, Hibernate, JFreeChart, Log4J, POI, etc.

► At design time

- Report definition in XML (e.g. `report.jrxml`)
- Compile to binary format (e.g. `report.jasper`)

► At run time

- Initialize a data source
- Fill the report with data and supply runtime parameters
- Export into different Formats (HTML, PDF, XLS, DOC, RTF, DOCX, ...)

► Features:

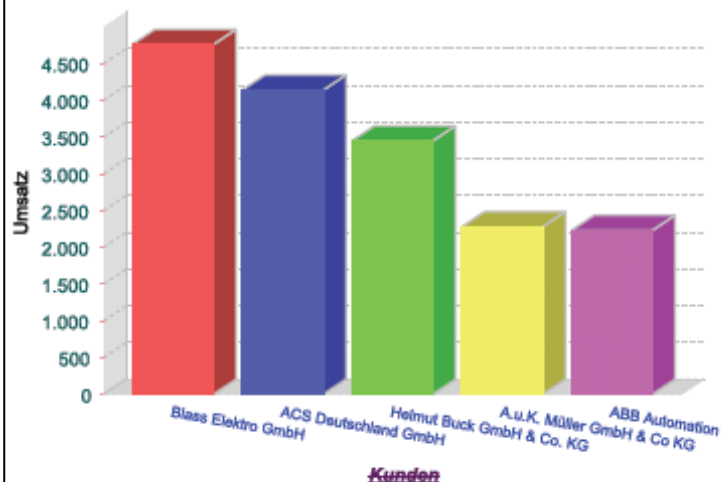
- **JasperReports provides a comprehensive feature set**
- Data sources: JDBC, XML, OLAP, TEXT, Hadoop ..., and extensibility through custom data sources
- Multiple data sources per report
- Output formats: pdf, xls, xlsx, html, xhtml, csv, text, rtf, odf, docx, pptx, ..
- Matrix reports
- Charts (Jfreechart)
- Report trigger
- Subreports / modularization / reusability
- Conditional formatting (styles)
- Conditional rendering of elements
- Scripting languages, especially for conditions and calculations: Java, Groovy, Javascript
- Fonts, Unicode, NLS
- ...



Kunden - Ranking

Top 5 Kunden - Liste

Rang	Kd-Nr.	Kunde	Umsatz
1	2115	Blass Elektro GmbH	4760,36 €
2	2041	ACS Deutschland	4137,28 €
3	2536	Helmut Buck GmbH &	3449,00 €
4	2039	A.u.K. Müller GmbH &	2277,32 €
5	2559	ABB Automation	2229,46 €



Angebot vom 18.03.2008

Angebot

Angebot Nr.: 50017/1
 Status: Angebot erstellt
 Erstellt: 01.03.2008(DENES.KUBICEK)
 Aktualisiert: 09.03.2008(DENES.KUBICEK)

Kunde

Kundennr.: 2115
 Kunde: Blass Elektro GmbH
 Strasse: Industriestraße 4
 PLZ / Ort: 96349 / Steinwiesen

Artikel

Nr.	Artikel	Anzahl	Preis	Rabatt [%]	Summe
	HTML und WEB	2	€ 21,91	32,00	€ 29,80
	PL / SQL	5	€ 19,79	12,00	€ 87,08
	ApEx	3	€ 49,45	6,00	€ 139,45
	ApEx	1	€ 31,49	0,00	€ 31,49
	PL / SQL	32	€ 40,92	5,00	€ 1.243,97
	Österreichische Küche	31	€ 13,99	3,00	€ 420,68
	Französische Küche	12	€ 259,99	10,00	€ 2.807,89
Gesamtsumme:					€ 4.760,36



Barbecue Sample

This sample uses Barbecue Version 1.0.6b
<http://barbecue.sourceforge.net/>



1234567890

Shipments to Argentina

		1997						1998					Total
		Jan	Feb	May	Oct	Dec	1997 Total	Jan	Feb	Mar	Apr	1998 Total	
No region	Buenos Aires	29.8	38.8	25.3	22.6	1.1	117.7	19.8	93.7	146.1	217.9	477.4	595.1
	Total	29.8	38.8	25.3	22.6	1.1	117.7	19.8	93.7	146.1	217.9	477.4	595.1
Argentina Total		29.8	38.8	25.3	22.6	1.1	117.7	19.8	93.7	146.1	217.9	477.4	595.1

Shipments to Austria

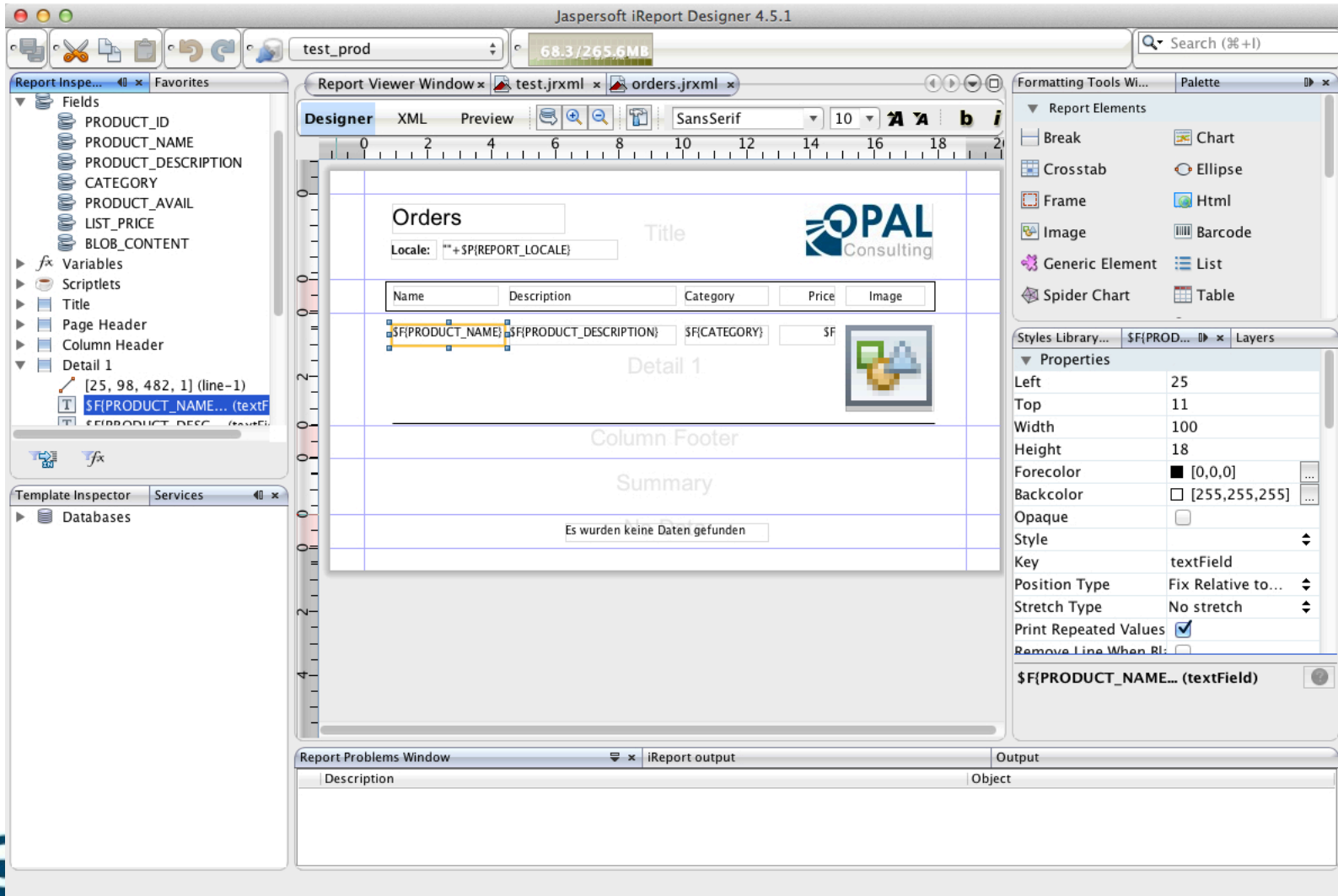
		1996				1997											1998					Total	
		Jul	Nov	Dec	1996 Total	Jan	Feb	Mar	Apr	May	Jul	Aug	Sep	Oct	Nov	Dec	1997 Total	Jan	Feb	Mar	Apr	1998 Total	
No region	Graz	286.6	162.3	323.1	772.0	141.7	506.7	0.0	0.0	790.0	122.8	477.9	78.1	272.5	0.0	593.4	2983.1	549.7	263.0	353.1	946.5	2112.2	5867.3
	Salzburg	0.0	360.6	0.0	360.6	122.5	0.0	31.3	5.3	339.2	35.1	0.0	0.0	96.5	117.3	0.0	747.2	25.2	0.0	0.0	53.0	78.3	1186.1
	Total	286.6	523.0	323.1	1132.6	264.1	506.7	31.3	5.3	1129.2	158.0	477.9	78.1	369.0	117.3	593.4	3730.3	574.9	263.0	353.1	999.5	2190.5	7053.4
Austria Total		286.6	523.0	323.1	1132.6	264.1	506.7	31.3	5.3	1129.2	158.0	477.9	78.1	369.0	117.3	593.4	3730.3	574.9	263.0	353.1	999.5	2190.5	7053.4

Northwind Order List							
Max order ID is : 10500							
Order	Name, City	Date	Freight	Order	Name, City	Date	Freight
Countries Starting With Letter : A				Countries Starting With Letter : B			
Argentina				Belgium			
Mon, Feb 17, 1997				Fri, Mar 14, 1997			
10448	Rancho grande, Buenos Aires	17/02/1997	38.82	10475	Suprêmes délices, Charleroi	14/03/1997	68.82
10409	Océano Atlántico Ltda., Buenos Aires	09/01/1997	29.83	10463	Suprêmes délices, Charleroi	04/03/1997	14.82
Count : 2 Total : 68.65				10478	Suprêmes délices, Charleroi	26/02/1997	147.82
Austria				10302	Suprêmes délices, Charleroi	10/09/1996	6.82
Fri, Mar 28, 1997				10252	Suprêmes délices, Charleroi	09/07/1996	5.82
10489	Piccolo und mehr, Salzburg	28/03/1997	5.29	Count : 5 Total : 287.82			
10442	Ernst Handel, Graz	11/02/1997	47.94	Brazil			
10430	Ernst Handel, Graz	30/01/1997	458.78	Fri, Apr 4, 1997			
10427	Piccolo und mehr, Salzburg	27/01/1997	31.29	10496	Tradição Hipermercados, Sao Paulo	04/04/1997	46.82
10403	Ernst Handel, Graz	03/01/1997	73.79	10494	Comércio Mineiro, Sao Paulo	02/04/1997	68.82
10402	Ernst Handel, Graz	02/01/1997	67.88	10487	Queen Cozinha, Sao Paulo	26/03/1997	7.82
10392	Piccolo und mehr, Salzburg	24/12/1996	122.46	10481	Ricardo Adocicados, Rio de Janeiro	20/03/1997	64.82
10390	Ernst Handel, Graz	23/12/1996	126.38	10466	Comércio Mineiro, Sao Paulo	06/03/1997	1.82
10382	Ernst Handel, Graz	13/12/1996	94.77	10447	Ricardo Adocicados, Rio de Janeiro	14/02/1997	68.82
10368	Ernst Handel, Graz	29/11/1996	101.95				

► More examples:

- [JasperReports-Demo-Documents/](#)

JasperReports ::iReport Designer GUI



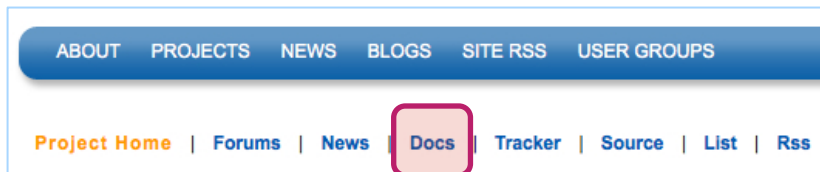
JasperReports :: Licensing

- ▶ JasperReports is available under the GNU Lesser General Public License version 3 (LGPLv3)
 - <http://www.gnu.org/licenses/lgpl-3.0.html>
- ▶ JasperReports can be
 - used in production systems in your corporation as well as
 - included in commercial applications
 - (as long as you don't modify the .jar files)
- ▶ All dependent libraries that were chosen to be included (iText, ...) are non-viral, i.e. mostly use Apache or LGPL licenses:
 - http://jasperforge.org/plugins/espforum/view.php?group_id=102&forumid=103&topicid=7255
 - Example iText (current license is AGPL not allowing the inclusion into commercial software or SAAS solutions). Shipped with JasperReports ist version 2.1.7 which was distributed under the LGPL license.
- ▶ **Don't take my word for this, check with your legal department!**



► JasperReports Library

- <http://jasperforge.org/website/jasperreportswebsite/trunk/documentation.html?header=project&target=jasperreports>



Documentation

- Requirements
- Getting Started
- Tutorial
- FAQ
- Schema Reference
- Configuration Reference
- Sample Reference [Work in Progress]
- API Docs
- The Ultimate Guide to JasperReports (eBook)

Articles

- JasperReports Animated TechAnim, by John Rizzo and Teodor Danciu
- Getting Started With JasperReports, by David R. Heffelfinger
- Reports made easy with JasperReports, by Erik Swenson
- A Tutorial on Reporting in JAVA using JasperReports, iReport and JFreeChart, by Onur Derin
- Reports Made Easy with JasperReports and Hibernate, by Peter Sellars
- Creating a Report with JasperReports, by Deepak Vohra
- Open Source Java Reporting with JasperReports and iReport, by John Ferguson Smart
- JasperReports and OpenReports, by Brian Burridge
- Using Oracle stored procedures with JasperReports, by Brian Burridge
- Generating huge reports using JasperReports, by Mohamed Raffi
- Generating XML templates for JasperReports using Rational Application Developer, by Ricardo Olivieri and Jorge D Rodriguez
- Generating online reports using JasperReports and WebSphere Studio, by Ricardo Olivieri
- Dynamic PDF Generation with JasperReports, Struts and a Database, by Allistair Crossley
- How to Integrate JasperReports with Ruby on Rails, by Justin Forder
- Comparing FOP and JasperReports, by Adrian Spinei
- JasperReports by Example, by Kumar Abhishek Shahi
- JasperReports - Subreport Usage Demonstration, by Maxim Veksler

Third Party Books

- JasperReports 3.5 for Java Developers, by David Heffelfinger
- JasperReports 3.6 Development Cookbook, by Bilal Siddiqui

JasperReports ::Getting Started

► JasperReports Library

- Sample Reference:
<http://jasperforge.org/uploads/publish/jasperreportswebsite/trunk/sample.reference.html>
- Separate download of the sourcecode including all samples (jasperreports-4.6.0-project.zip)

[JasperReports Ultimate Guide](#) - [Sample Reference](#) - [Schema Reference](#) - [Configuration Reference](#) - [API \(Javadoc\)](#)

JasperReports - Configuration Reference (version 4.5.1)



This document lists all the configuration properties available for the JasperReports library.

► iReport Designer

- Forum: <http://jasperforge.org/projects/ireport/forum/>
- Wiki: <http://jasperforge.org/plugins/mwiki/index.php/ireport>
- Tutorials & Help:
http://jasperforge.org/uploads/publish/ireportwebsite/IR%20Website/ir_documentation.html



► For cost material on <http://www.Jaspersoft.com>

- iReport Designer Ultimate Guide (33€)
- <https://www.jaspersoft.com/store/ireport-ultimate-guide-documentation>
- Online Training, instructor led classes

Products	Services	Customers	Partners	Company
	Services	Training		Support
	Professional Services	Course Schedule		Self-Service Support
	Self Service Express Subscriptions	Course Catalog		Support Policies and Procedures
	Jumpstart Programs Overview	Online Learning Portal		Support Definitions
	Pilot Programs	Learning Credits		Product Patch Policies
	Upgrade Assistance	Live Online Training FAQ		Service Level Agreement
	Production Audit	Third Party Courses		End of Life Policies
	Time for Hire	Business Intelligence Tutorials		Support Login
	Methodology			

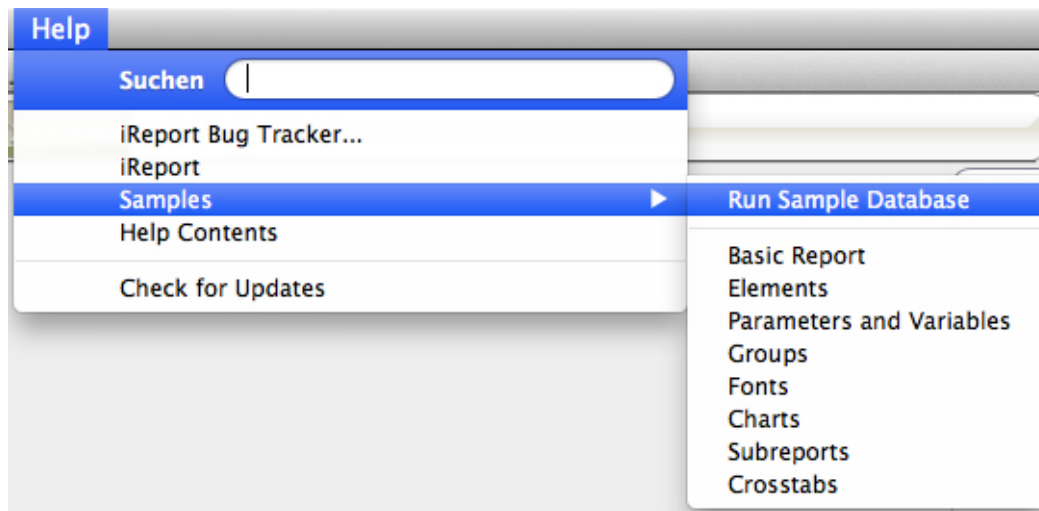
► Stackoverflow – topics about JasperReports

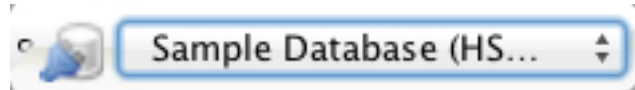
- <http://stackoverflow.com/questions/tagged/jasper-reports?sort=newest&pagesize=15>



► iReport Designer – using the built-in samples

- Start the in-process database (run in the current java process)



- Select the data source 
- Run the different sample reports
- The in-process database will be shut down when iReport Designer is closed



► Rendering **approach: Report Bands**

- **Title:** appears only once at the very beginning of the report
- **pageHeader:** appears at the top of each page, usually to display logos, the company name or date information
- **columnHeader:** lists columns headings for the fields in the detail band
- **Detail:** is the part where all rows of a query are displayed, line by line
- **columnFooter:** may display summary information to display sums, averages or other aggregates
- **pageFooter:** appears at the bottom of each page
- **Summary:** appears at the end of the report

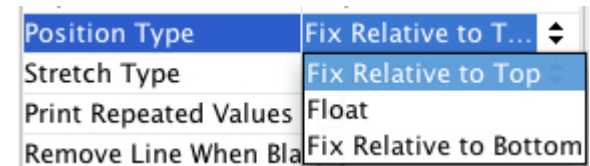
Title
Page Header
Column Header
Detail 1
Column Footer
Page Footer
Summary

Sample: 01-Understanding-Report-Bands/understanding-report-bands.jrxml

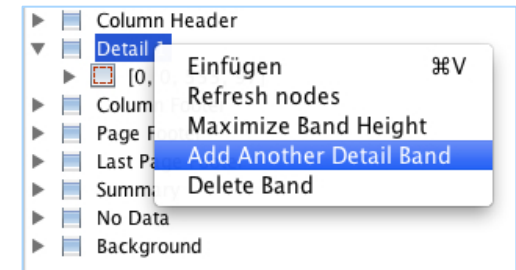
JasperReports ::Report Layout

► Report Layout with JasperReports / Tips:

- Layout objects within a band can be positioned differently (position type)
 - Fix relative to top
 - Float (important to push elements down)
 - Fix relative to bottom



- Important restriction:
 - Maximum height of a band cannot be larger than the pagesize!
 - To overcome the limitation:
=> add another detail band



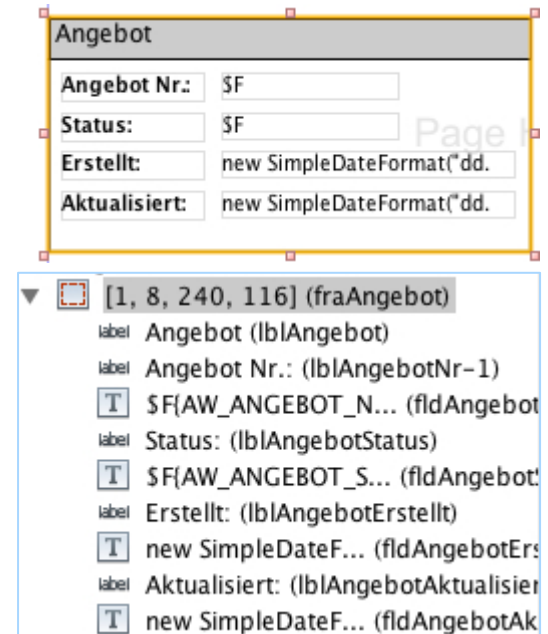
JasperReports ::Report Layout

► Report Layout with JasperReports / Tips:

- Element property „remove line when blank“ will collapse space when element is conditionally suppressed

Remove Line When Blank ☐

- Use frames to organize content



The screenshot displays a report design in JasperReports. At the top, a frame titled "Angebot" is shown with a grey header. Inside the frame, there are four rows of content, each consisting of a label and a text field:

Angebot	
Angebot Nr.:	\$F
Status:	\$F
Erstellt:	new SimpleDateFormat("dd.
Aktualisiert:	new SimpleDateFormat("dd.

Below the frame, the element tree is visible, showing the hierarchy of the report design:

- ▼ [1, 8, 240, 116] (fraAngebot)
 - label Angebot (lblAngebot)
 - label Angebot Nr.: (lblAngebotNr-1)
 - T \$F(AW_ANGEBOT_N... (fldAngebot
 - label Status: (lblAngebotStatus)
 - T \$F(AW_ANGEBOT_S... (fldAngebot
 - label Erstellt: (lblAngebotErstellt)
 - T new SimpleDateF... (fldAngebotEr
 - label Aktualisiert: (lblAngebotAktualisier
 - T new SimpleDateF... (fldAngebotAk

JasperReports

::Use Case #: Master –Detail

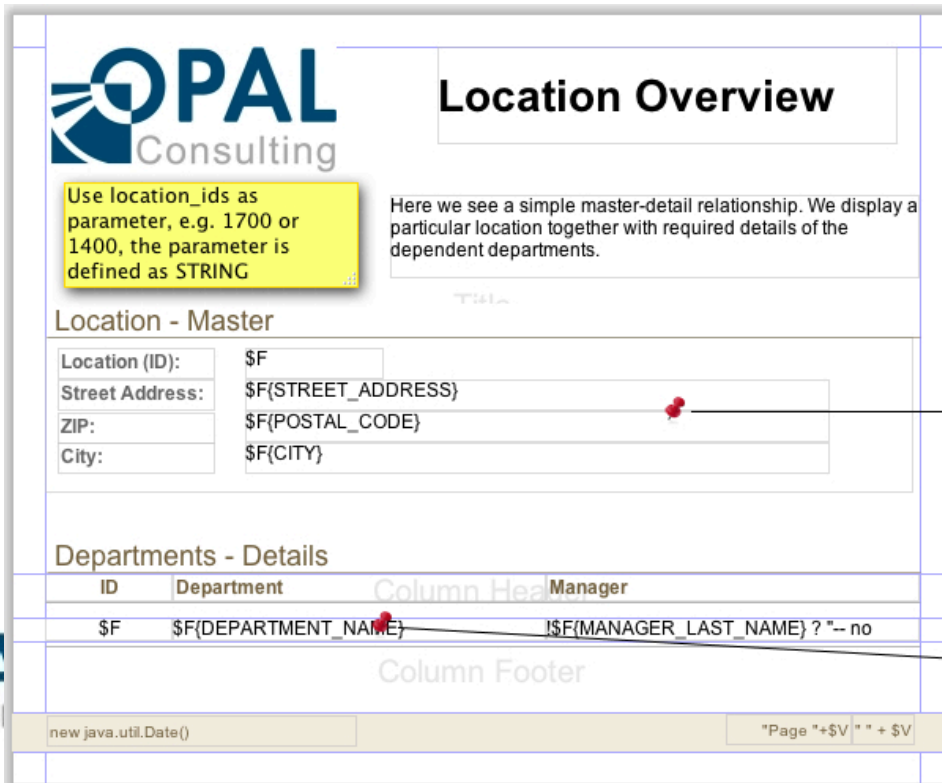
► Master-Detail relationship

- Example: Location and departments at the location
- 02-Master-Detail/master-detail.jrxml



► Implementation simply using the wizard, use of predefined templates and stiles is recommended

Demo: Master-Detail relationship using templates and stiles



Location Overview

Use location_ids as parameter, e.g. 1700 or 1400, the parameter is defined as STRING

Here we see a simple master-detail relationship. We display a particular location together with required details of the dependent departments.

Location - Master

Location (ID):	\$F
Street Address:	\$F{STREET_ADDRESS}
ZIP:	\$F{POSTAL_CODE}
City:	\$F{CITY}

Departments - Details

ID	Department	Manager
\$F	\$F{DEPARTMENT_NAME}	\$F{MANAGER_LAST_NAME} ? "-- no

new java.util.Date()

"Page "+\$V " " + \$V

The report is filtered by a specific location_id as a parameter: p_location_id

The query contains both fields from the master table (OEHR_LOCATIONS) as well as from the detail table (OEHR_DEPARTMENTS)

The master columns are placed in the title band.

The details are simply placed in the detail band

► Master-multiple details


- Example: Location, all departments and warehouses at this location
- 02-Master-Detail/master-multiple-details-subreport.jrxml






Demo: Master-multi-Detail Report using Subreports

► Implementation using Subreports

► How?

- Create subreport element  Subreport
- Pass parameters to join with master

► Pros / Cons

-  An additional report file is required for each detail query
-  Could be useful to break up complexity, especially when using multiple levels on the details (master-detail-detail)
-  Reusuability / modularization

JasperReports

::Use Case #: Master – multiple Details

► Master-multiple details

- Example: Location, all departments and warehouses at this location
- 02-Master-Detail/master-detail-table-component.jrxml

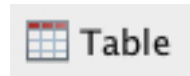


Demo: Master-multi-Detail Report using table components



► Implementation using the table component

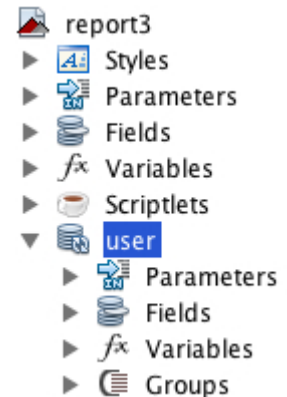
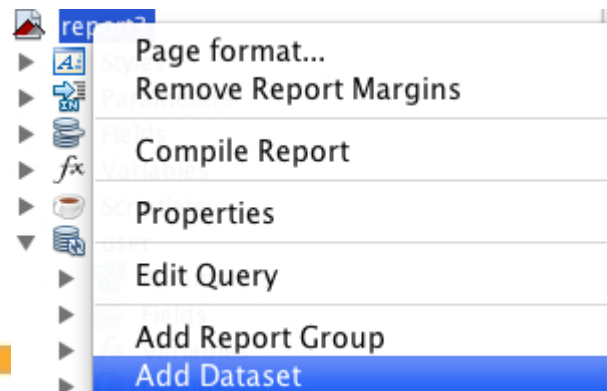
► How?

- Add component „table“ from the palette
- Create dataset in the report
- Has almost all features of a subreport



► Pros / Cons

-  Pro: Embedded directly
-  Con: „just“ a table, no title / summary

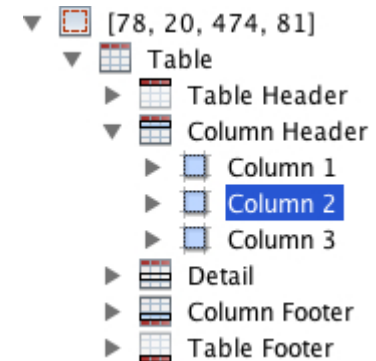


► Collapsing a column in a tabular report

- Example: Show or hide details depending on the report data or passed parameters
- 03-Conditional-Columns/conditional-columns.jrxml

► Implementation using the table component

- <http://thinkinginsoftware.blogspot.de/2011/06/ireport-dynamically-hide-show-columns.html>
- Print when expression on the respective column element
 - E.g.: `$P{p_show_details}=="YES"` or `F{OBJECT_NAME}.contains("FILE")`



JasperReports

::Use Case #: Conditional Formatting

► Conditional Formatting (aka format trigger)

- Example: The order status should use different colors based on its value
- 04-Conditional-Formatting/conditional-formatting.jrxml



Demo: Conditional formatting

► Implementation using styles and conditional styles

Order Date	Order Mode	Status	Customer Last Name	Total
01.08.2000	direct	5	Hannah	€ 2.075,20
27.07.2000	direct	8	Welles	€ 33.893,60
14.07.2000	direct	0	Sutherland	€ 46.257,00
27.06.2000	online	10	Steenburgen	€ 144.054,80
26.06.2000	online	4	Edwards	€ 126,00

► How?

- Create a style
- Create a conditional formatting on the style
- Apply the style to one or more objects

► Pros / Cons



Pro: Flexible and reusable



Con: Usage is a little bit counter-intuitive

JasperReports

::Use Case #: Report Trigger

► Report trigger

- Example: Dynamically change values in the report or execute plsql code at the beginning or end of the report
- 05-Report-Trigger/report-trigger.jrxml

► Implementation using Scriptlets

- Callback – functions, which are called at different times during the processing of the report (beforeReportInit(), afterReportInit(), beforeGroupInit(String groupName), ...)
- Execute commands, e.g. using JDBC in the current session
 - `"BEGIN dbms_application_info.set_action('set context for session: '||sys_context('userenv','sid')); END;"`
- Set report variables dynamically, e.g.:
 - `this.setVariableValue("scriptletVariable", "set from within scriptlet");`
- Call methods directly from within the report:
 - `public String hello() throws JRScriptletException`

JasperReports

::Use Case #: Report Trigger

► How?

- Create Java class (default class JRDefaultScriptlet) and overwrite required handlers, e.g. beforeReportInit()
- compile class
- Register scriptlet in report

► Pros / Cons

- ⊕ Variables can be modified at runtime
- ⊕ SQL statements can be executed (DDL as well as DML)
- ⊖ Through JDBC call the main select statement cannot be modified, only other subreports or table component selects are impacted
 - For setting a vpd context better use a refcursor approach
- ⊖ There is no AfterReport() trigger available

JasperReports

::Use Case #: User Exits

► User Exits

- Example: C / C++ programs to be called from Oracle Reports at runtime.
- 05-Report-Trigger/report-trigger.jrxml

► Implementation

- Scriptlets can be called using a direct function call or they are called at different times during report execution and modify internal variables
- Scriptlets are written in Java (or any other language with is binary compatible)

► Modularization / Reusuability

- Example: The company address is part of 100+ reports. Once the address or the CEO changes, ALL reports need to be updated.
- 06-Modularization/modularization.jrxml

► Implementation using subreports

- With subreports you could implement the footer only ONCE and reference that in all other reports.

JasperReports

::Use Case #: Internationalization

► Internationalization

- Example: The report needs to be run in German as well as in English and French. We want to see the respective number and date formats as well as different labels.
- 07-Internationalization/I18nReport.jrxml



*Demo:
internationalization*

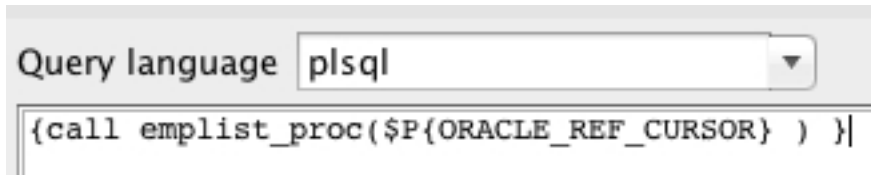
► Implementation

- Java is fully i18n compliant
- Format masks (number date) uses generic format masks, e.g. #,##0.00
- Labels can be externalised into properties files and applied at runtime

► Tip:

- Change locale settings in iReport using Settings > iReport > Compilation and Execution

- ▶ Query based on an Oracle Refcursor
 - Example: The data is queried from an Oracle refcursor
 - 08-RefCursor-Query/refcursor.jrxml
- ▶ Implementation using default functionality
 - Directly supported in JasperReports
 - Choose as query language „plsql“



Query language

```
{call emplist_proc($P{ORACLE_REF_CURSOR} ) }
```

- ▶ Additional information:
 - <http://rajendratambat.blogspot.de/2011/10/calling-oracle-stored-procedure-in.html>
 - <http://michakurt.blogspot.de/2010/02/how-to-integrate-jasperserver-and.html>

- ▶ Query based on an Oracle Refcursor
- ▶ Pros / Cons
 - ➖ The columns need to be defined manually
 - ➕ Very good mechanism to set a vpd context before executing the report

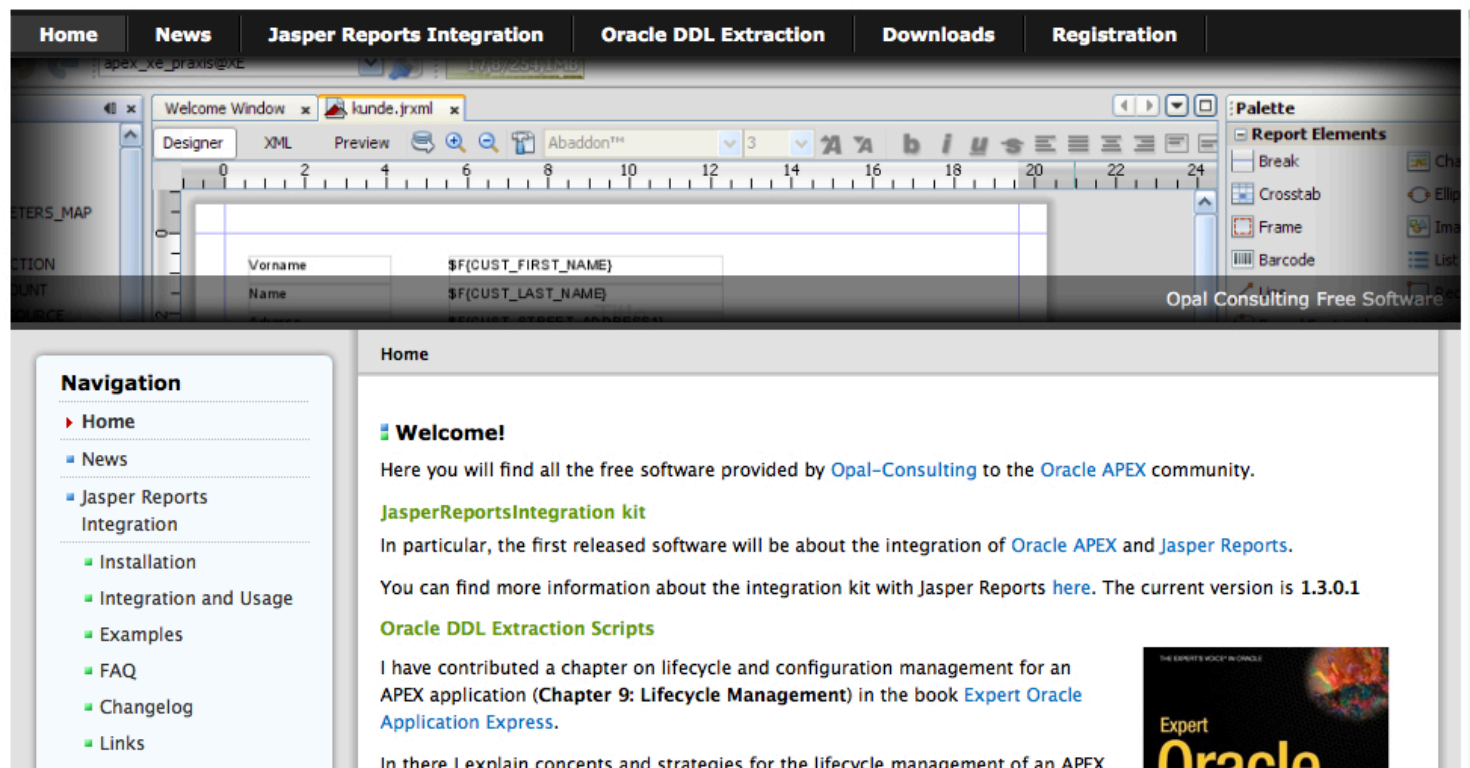
JasperReports ::Additional Use Cases

- ▶ Send the report output directly to a network printer
- ▶ Report scheduling
- ▶ Process extremely large reports (using a temporary spool file)
- ▶ Send reports via email
- ▶ Create partly formatted text elements (e.g. Please transfer the money **\$10.000€** until the **1.8.2012.**)
- ▶ Display html text directly (including formatting)
- ▶ Display image BLOBS inline directly
- ▶ Display large texts (CLOBs)

Integration mit Oracle APEX

► JasperReportsIntegration – free tool for the integration with APEX

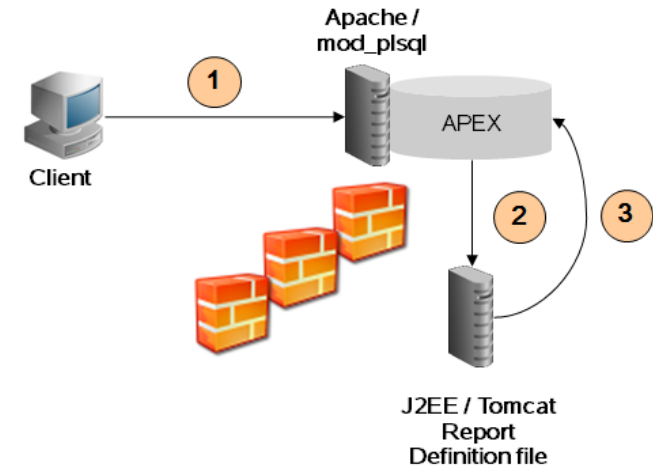
- <http://www.opal-consulting.de/tools>
- <http://www.opal-consulting.de/forums>



Integration mit Oracle APEX ::Architecture

► Architecture

- 1: User clicks on link in APEX application
- 2: PL/SQL API to call a JasperReports report and pass parameter (using utl_http)
- 3: JasperReports creates a JDBC connection to Oracle, executes report and returns the report output (e.g. PDF) directly



► Characteristics

- The JasperReports files are stored locally on the J2EE server
 - Easy to develop, no roundtrip development needed
- Security implemented through firewall
- The API call will return a BLOB
 - display to user immediately, store in table, send as email attachment

Integration mit Oracle APEX ::Getting started

► Testing the J2EE application

- `http://<server>:<port>/JasperReportsIntegration/`
- 1: test the jdbc connection
 - `http://<server>:<port>/JasperReportsIntegration/test?_dataSource=default`
- 2: run the test.jasper report against your schema
 - `http://<server>:<port>/JasperReportsIntegration/report?_repName=test&_repFormat=pdf&_dataSource=default`
- 3: passing parameters to the report
 - `http://<server>:<port>/JasperReportsIntegration/report?_repName=test&_repFormat=pdf&_dataSource=default¶meter1=1¶meter2=2`

► Tip:

- Best error messages when exporting to HTML format!

Integration mit Oracle APEX ::Getting started

- ▶ The sample application (included in the download)
 - src/apex/f860_JasperIntegrationTest_1.1.0.0.sql
 - Basic tests of the installation / configuration
 - Report testing tool

JasperReportIntegration URL

_repName [test] [demo/orders] [demo/top_orders]

_repFormat ▼

_dataSource

_outFileName [myTest.pdf] [myTest.rtf]

_repLocale [de_DE] [en_US]

_repEncoding [ISO-8859-1] [ISO-8859-15] [UTF-8] [Windows-1252]

additional url parameters

Report URL

Installation status

Step	Required	Status
Step 1: Grant execute on utl_http	*	✓
Step 2: Install XLIB packages	*	✓
Step 3: Install Tomcat	*	✓
Step 4: Install JasperReportsIntegration	*	✓
Step 6: Install sample application		✓




▶ Demo of the different API calls:

- Show report
- Get report as BLOB

Integration mit Oracle APEX ::Getting started

► Step by step integration into the sample application:

- http://www.opal-consulting.de/downloads/free_tools/JasperReportsIntegration/Opal-Consulting-JasperReportsIntegration.pdf




PDF Printing With APEX – A Cost-Free Alternative

By Dietmar Aust, Opal-Consulting

THE PROBLEM

Producing print ready reports (in PDF or MS Word format) is a common requirement in most applications. More often than not you have to deal with somewhat more complex requirements, formatting of data, grouping, calculating totals and subtotals, conditional showing and hiding of information, and integration of images or matrix (pivot) queries. Typical use cases are financial reports, invoices, sales orders, or tax forms. See Figure 1 as an example.



Printing

Enable Report Printing ☒ Yes

Link Label Drucken

Response Header Report Settings

View File As Attachment

Output Format Derive from Item

Report Layout user_objects

Figure 2: Enable printing on a report region

You can choose a generic layout or a custom layout (with named columns), and also specify some basic print attributes declaratively like a custom header or footer, the columns to be included, as well as their corresponding widths, fonts, colors, etc.

- ▶ JasperReports is a powerful alternative to Oracle Reports
- ▶ The important design patterns can be translated
- ▶ Easy integration with APEX
- ▶ Be aware of license issues when packaging the dependent libraries (e.g. iText), best use the libraries shipped with the iReport designer

Q&A

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JasperReports ::Security - Authorization

- ▶ How can we implement access control to our reports and the data?
 - We can implement a simple or complex scheme based on our requirements.
 - The J2EE server can only be reached through APEX / the database
 - The user is authenticated against APEX => we can use :APP_USER safely

- ▶ Access control to the report
 - Can be implemented as an authorization scheme

- ▶ Access control to the underlying data
 - Check the users' privileges **before** calling the report via the API.