



**ACTUATE**®

*The BIRT Company*™

## **BIRT Best Practices**

*John Ward*

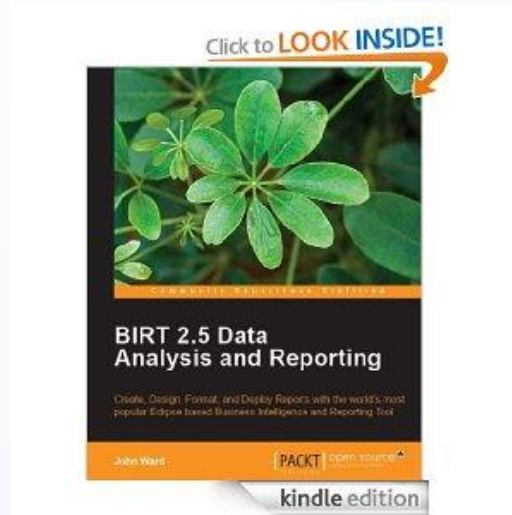
*OEM BIRT Engineer/Expert*

- Author of several publications on BIRT
  - Practical Data Analysis with BIRT
  - BIRT 2.6 Reporting
  - IBM Developerworks Series on Extension Points
- Comes from several years consulting on commercial and open source BIRT deployments
- So many best practices, I've picked the most helpful

# 5 Areas We Will Focus On

- Development Environment
- Report Design
- Scripting
- Data Design
- Troubleshooting and Improving Performance

# Further Information



BIRT Master Class		
Day 1	Day 2	Day 3
<ul style="list-style-type: none"> <li>• Introduction and Goals</li> <li>• BIRT development environment - Key issues.</li> <li>• Workspace &amp; iServer Express relationship</li> <li>• Creating workspace for resource sharing</li> <li>• Resources Review: JavaScript, Java, CSS, Image files</li> <li>• BIRT Library files</li> <li>• BIRT Template</li> <li>• Localization Properties</li> <li>• JavaScript on Server side</li> <li>• JavaScript on Browser side</li> <li>• Java Event Handlers</li> <li>• Java Helper classes</li> <li>• Calling Java from JavaScript</li> </ul>	<ul style="list-style-type: none"> <li>• Using images in BIRT reports</li> <li>• Styles of including images: URI, Embedded, from resource folder</li> <li>• Using BIRT Libraries and Templates</li> <li>• Using libraries to construct dynamically altering reports</li> <li>• Hierarchy of libraries and Templates</li> <li>• Building master pages from library components</li> <li>• Building report templates from component libraries</li> <li>• Cascading Style Sheets</li> <li>• Import or Use CSS styles</li> <li>• Overview: Localization of report content</li> <li>• Using Connection Profiles</li> <li>• Localization hierarchy</li> </ul>	<ul style="list-style-type: none"> <li>• Sorting Table using JSAPI</li> <li>• Compare with HTML/JavaScript solution</li> <li>• <b>Advanced Reporting Techniques</b></li> <li>• Show/Hide details with Browser side JavaScript</li> <li>• Form to select a region</li> <li>• JSAPI interaction to apply filter on table for selected region.</li> <li>• Update titles after Asynchronous JSAPI update.</li> <li>• Mouse-over chart to show sales information</li> </ul>

<http://www.lebirtexpert.com/eBooks.php>

[http://www.amazon.com/BIRT-Data-Analysis-Reporting-ebook/dp/B005OY7RYO/ref=sr\\_1\\_8?ie=UTF8&qid=1383539021&sr=8-8&keywords=BIRT](http://www.amazon.com/BIRT-Data-Analysis-Reporting-ebook/dp/B005OY7RYO/ref=sr_1_8?ie=UTF8&qid=1383539021&sr=8-8&keywords=BIRT)

<http://www.youtube.com/user/BIRTdeveloper>

\*Yes, I totally stole Amazons image for my own book =D



# Tips That Got Cut Due to Time – From Our BIRT Developers YouTube Channel

- Troubleshooting Someone Else's Reports Without Access to Their Data Source
  - [http://www.youtube.com/watch?v=M5ezBPQlpUw&list=TLBJn\\_AGkP71I\\_qJvM1JWwVaL1QRvf7uVv](http://www.youtube.com/watch?v=M5ezBPQlpUw&list=TLBJn_AGkP71I_qJvM1JWwVaL1QRvf7uVv)
- Using the Report Examples View
  - <http://www.youtube.com/watch?v=1hc6KIRL3Us>
- Using Styles and Themes
  - [http://www.youtube.com/watch?v=1exDwCCEnTY&list=TLBa\\_cQuZRAqiZxVz97f-hI9IZoktzyL14](http://www.youtube.com/watch?v=1exDwCCEnTY&list=TLBa_cQuZRAqiZxVz97f-hI9IZoktzyL14)
- Reusable Components with Libraries
  - <http://www.youtube.com/watch?v=HnSjj2N8xFc&list=TLIBhUdm3SqKNJJqVM5mhx-egNF1LA0iet>
- BIRT Console Logging (not on YouTube Channel)
  - <http://birtworld.blogspot.com/2010/01/quick-and-dirty-logging.html>

# Managing a Large Development Shop – A Common Problem

- Lots of Developers
- No Standardized Naming or Organization Strategy
- Lots of different file silos on individual machines with nothing centralized except deployment environments
- No way to head off problems when changes are made
- No documentation of changes made
- “Keys to the Kingdom”

- Projects
  - Use different folders for each project
  - Folder names should match up what is in your deployment environment
- Resources
  - Keep in single, separate project, not in each project
    - *Javascript source*
    - *Libraries*
    - *Templates*
    - *Styles*

- Use full, descriptive names!
  - *Camel Case*
  - *If using the commercial BIRT **use spaces***
  - *If using the open source BIRT, don't use spaces*
  - *Don't be afraid to be verbose.*
- Consider using language of names
  - Examples
    - *Prefix report names with department or report type*
  - Make sure this is consistent



- Set up the BIRT development environment to use a single Resource project
- Use the Report Example View, and look at a report designed to be used with Open Source BIRT

- Storing BIRT Reports in Source repository
  - CVS
  - Subversion
  - Github
  - Google Code
- Fastest way to get new recruits up and going

- Import CustomersOrderFinal project into workspace
- Change a report, using Chart DaVinci, stylize the chart
- Submit a report to the SVN
- Look at the Change Log to see changes, open historical versions of report
- Show Old Report and New Report side by side

# Continuous Integration and Unit Testing

- Continuous Integration Environment
  - Hudson/Jenkins
- Unit Testing
  - Junit
  - Homegrown BIRT Report
    - *Persistent report list as parameter*
    - *Used as standalone, does not integrate with CI*
- Should not be testing the integrity of data. Should be testing the business logic of the report

- Use of Junit tests to track particular functionality in a report
- See local testing inside of the development environment
- Submit a bad change to the SVN
- Use of a CI environment to immediately notify when a bad change has been submitted and regression testing fails
- Revert CustomerOrderReport from history in SVN

- Use meaningful ID's and Bookmark names in report designs
- Avoid using Nested Elements and Styles
- Make use of re-usable resources in report designs
- Try making designs as flexible so that you manage a single report design, not multiple designs for the same purpose
- Use the Outline when designing reports to avoid adding properties to write report elements
- Don't be afraid to use plugins to extend capabilities

- Use meaningful Variable Names and documentation in scripts
- Make use of the reportContext and getAppContext
- Store Javascript in .js files and use as resources
- You always have access to the entire Java classpath in report designs
- If business logic is too complex, type sensitive, use Java instead
- Make use of vars[] and global variables.
- Remember that Text element <script> tags can make use of Server Side Javascript with <Value-Of> tag.

- Open Customer Orders report with newly applied Chart DaVinci script
- Show proper commenting in report
- Remove Initialize Script
- Use shared .JS file in Resource folder
- Open Scripting Example DaVinci examples, show initialize removed, using shared resource



- Use Data stored in libraries whenever possible
- Make use of Bound Query Parameters instead of Filters whenever possible
- Validate parameters to prevent SQL Injection Attacks
  - Use Function Lib plugin
  - <https://code.google.com/a/eclipselabs.org/p/birt-functions-lib/>

- Check your memory settings
  - Get rid of the dreaded PermGen error
- Identify Bottlenecks in phases
  - Run Phase
    - *Data Retrieval*
    - *Layout*
  - Render Phase
  - Use Benchmarking tools
- Quick and Dirty Logging
- Minimize remote data calls
  - Use Information Objects or BIRT Data Objects
  - If using Open Source, use Report Document ODA

# Locations for Tools Used in Presentation

- Function Lib
  - <https://code.google.com/a/eclipselabs.org/p/birt-functions-lib/>
- XML Emitter
  - <http://www.ibm.com/developerworks/opensource/library/ba-birt-emitter/index.html>
- Chart DaVinci
  - [http://www.birt-exchange.org/devshare/\\_/designing-birt-reports/birt-chart-davinci-plugin-r1482](http://www.birt-exchange.org/devshare/_/designing-birt-reports/birt-chart-davinci-plugin-r1482)

# Questions?



- 1** Sign-in: [www.eclipsecon.org](http://www.eclipsecon.org)
- 2** Select session from schedule
- 3** Evaluate: 