



Advanced Topics

Using Open Report Engine

GRS 3.00

Objectives

After this instruction, you will be able to:

- Identify the purpose and features of Genero Report Writer (GRW)
- Describe the architecture and its components
- List the steps for creating a report
- Locate and experiment with the Reports demo applications
- Find appropriate documentation and help

What is Genero Report Writer?

- Streams data from Java JVM for "print-as-you-go" processing
 - No temporary files or tables required
(less memory, more speed)
- Gathering of data separate from layout
- Based on XML standards
- Report layout defined in a separate document using Report Designer
- Multiple layouts can be designed for a single data stream

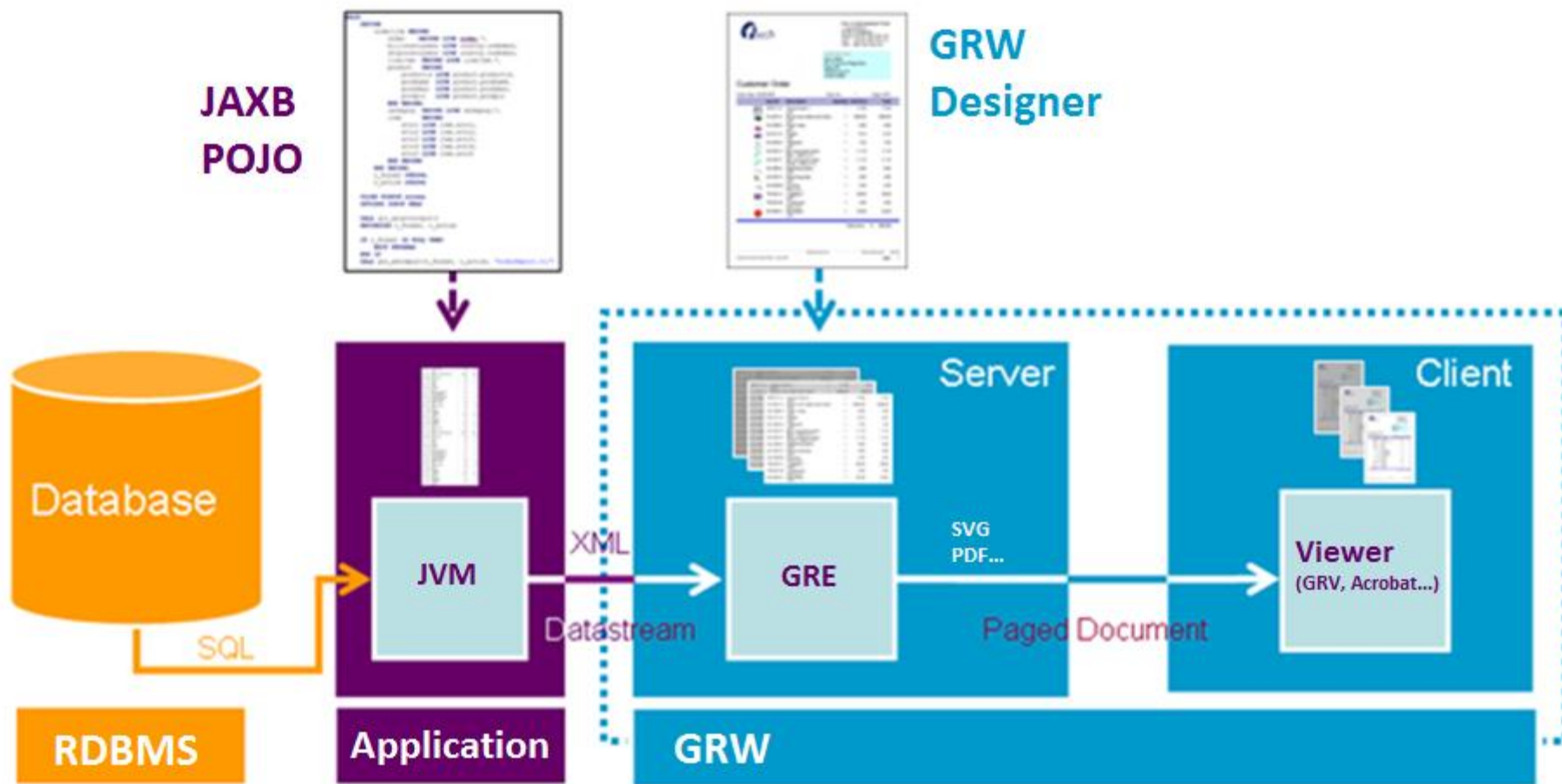
Features

- Enterprise Reports
- Scalability
- Streaming architecture
- Drag-and-drop GUI report design
- Dynamic layout
- Maintainability

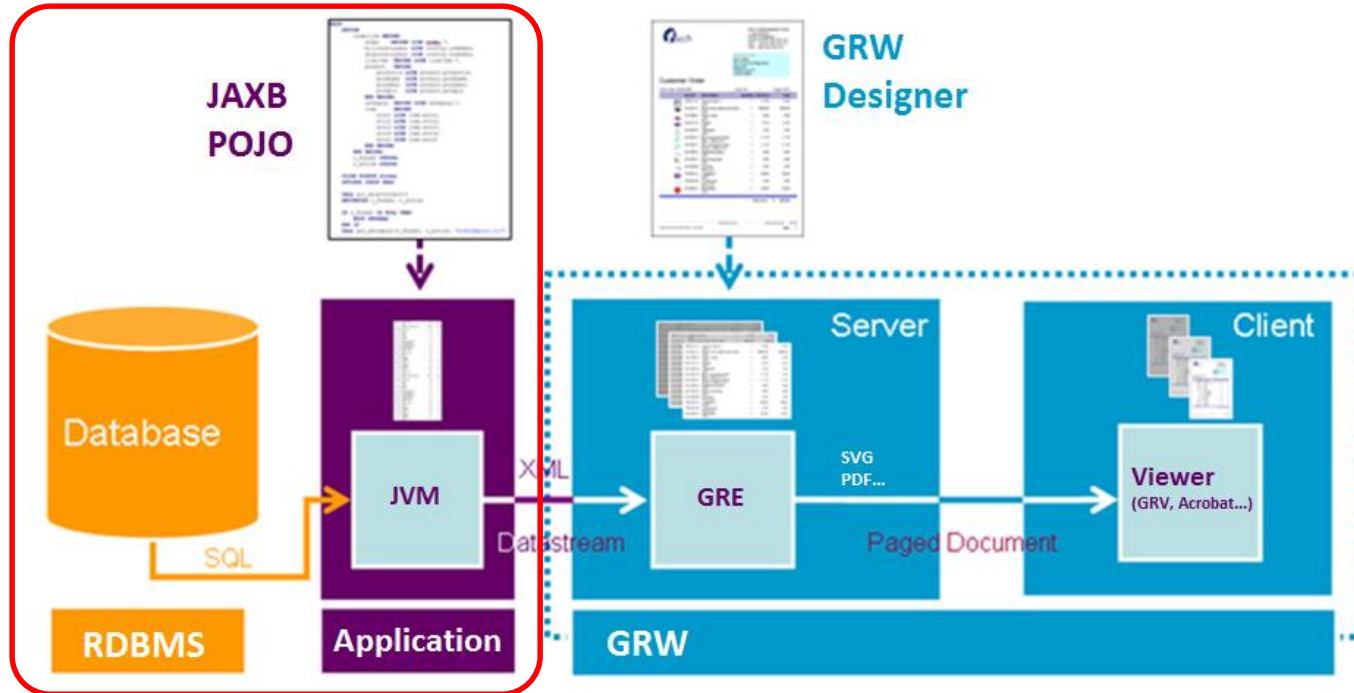
Architecture

- XML Standards
 - DataStream is XML
 - Report Design file (.4rp) is XML
 - SVG output (.svg) is XML
- Gathering of data is separate from layout
- Same data can be used to print many different reports in different formats
- End to end streaming, print as you go
 - Note: Internals of certain formats (PDF) do not support end to end streaming

Architecture

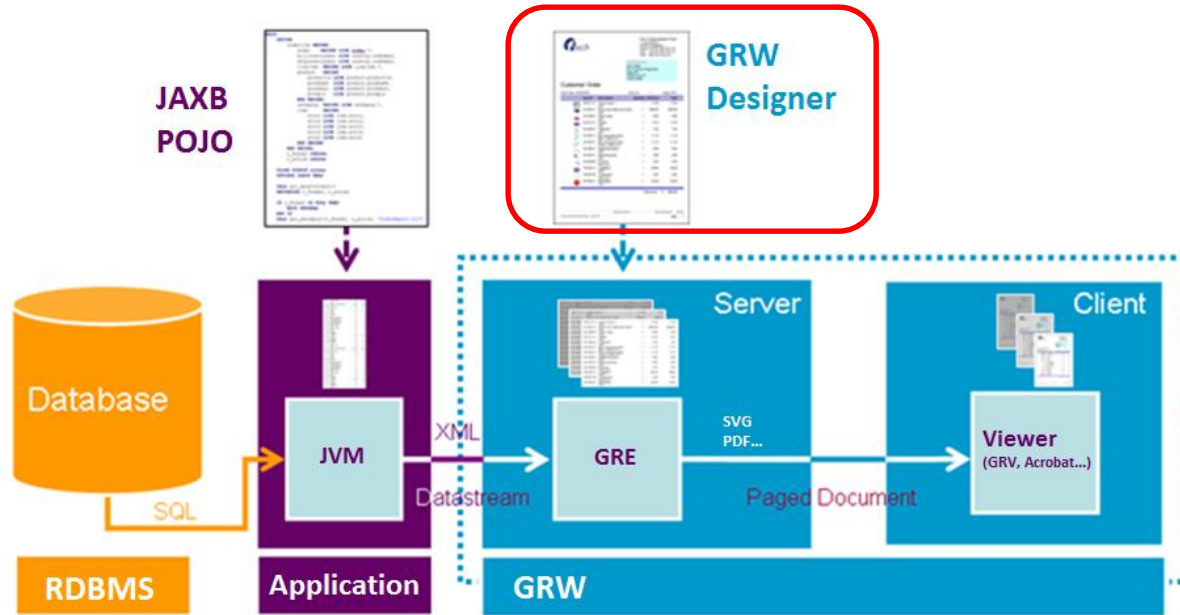


Architecture



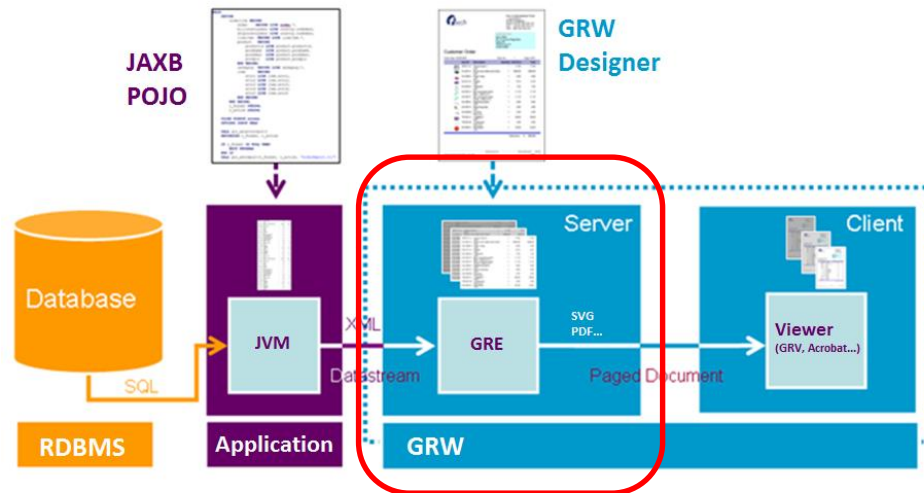
- Annotated Java POJO classes to produce XML DataStream
 - Uses JAXB to produce XML data stream

Architecture



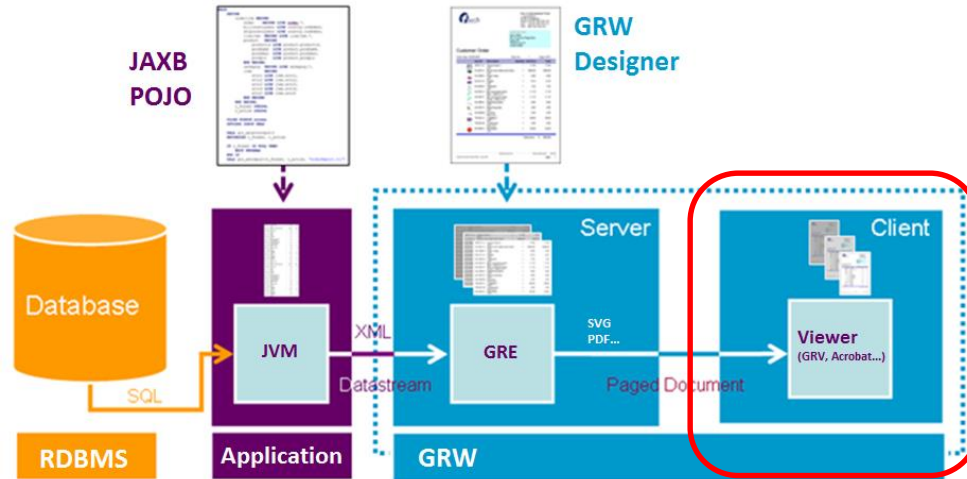
- Genero Report Designer (GRD) design a report
 - Near WYSIWYG editor to design the appearance of a report

Architecture



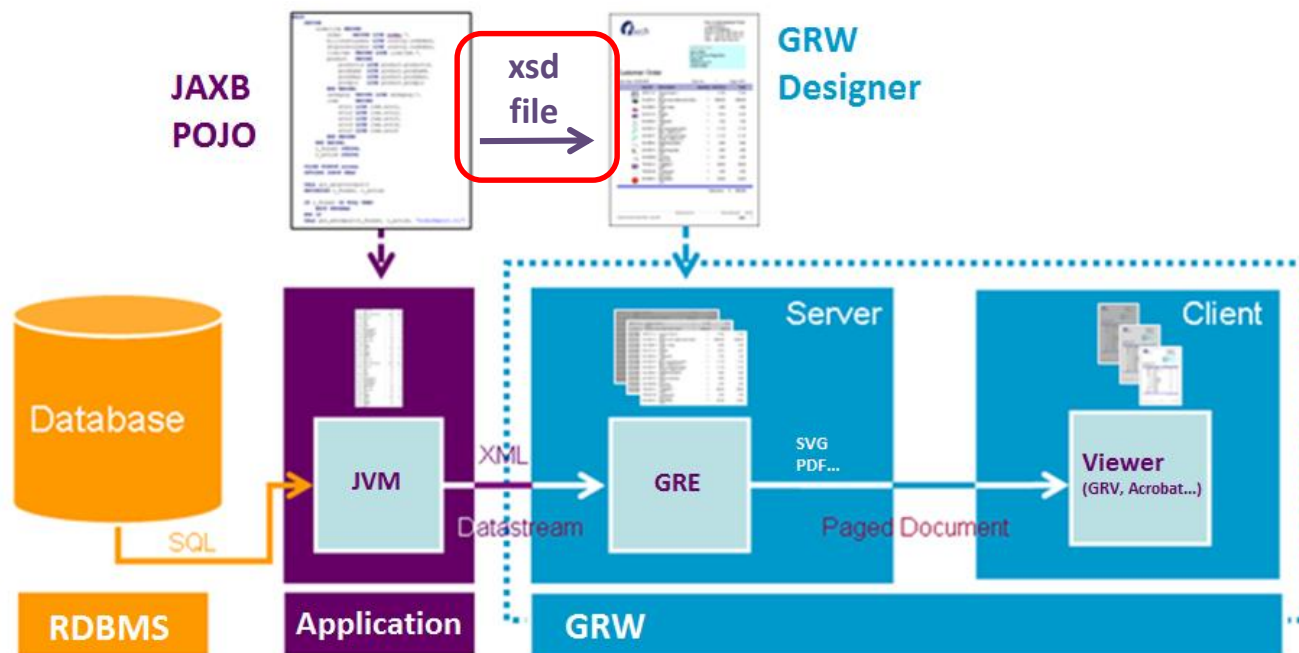
- Genero Report Engine uses these two inputs to produce a formatted report
 - XML DataStream + Report Design = Formatted Output
 - The Layouter does the Layouting
- Calculates where to position objects, and how to render them
 - GRE typically runs on a server, similar to application or database server

Architecture



- Viewing occurs on end-users client
 - Genero Report Viewer or Web Viewer to view SVG reports
 - PDF viewer for PDF reports
 - Any image viewer for Image reports.
 - Any browser for HTML reports
 - MS-Excel for XLS/XLSX reports
 - MS-Word/Open Office for RTF/OORTF reports

Architecture



- Report Data Definition (XSD file)
 - When designing reports, need to inform the report designer about what information will be available in the report

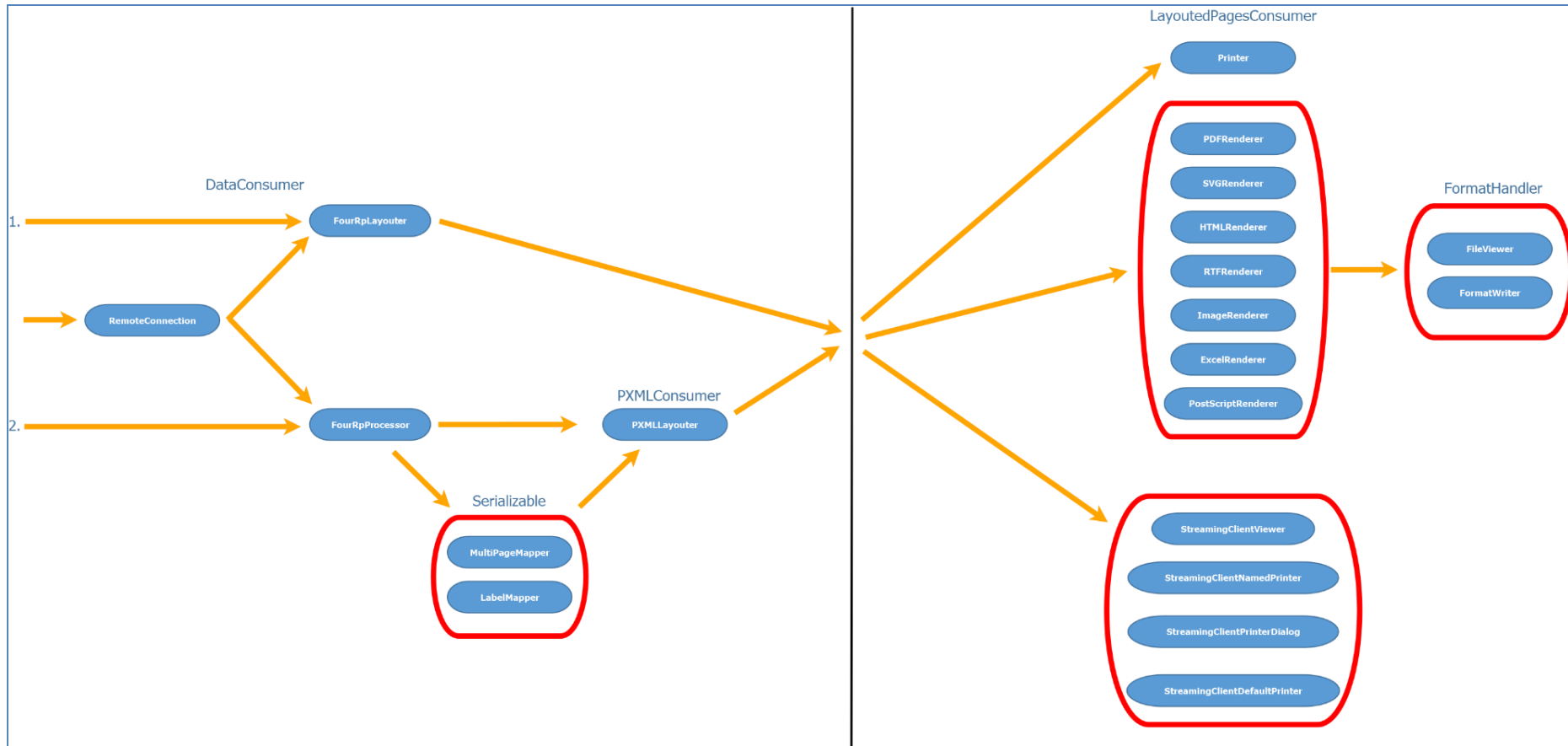
File Extensions

- java
 - Java source file
- xsd
 - Definition of data and structure of REPORT statements in .java source. Used by Genero Report Designer in design of reports
- xml
 - DataStream produced by the Java application.
 - Allows you to repeatedly test reports without selecting data from the database multiple times
- 4rp
 - Design of a report
- svg, pdf, Image (jpg, png, bmp and others), xls, xlsx, html, rtf, oortf, Printer
 - Different output formats of a report

Report Process

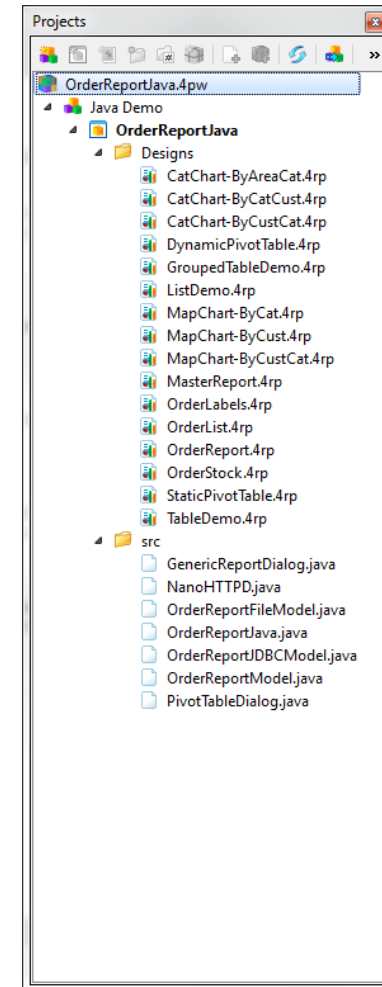
- Determine report requirements
- Organize the project workspace
- Create the Java report application
 - Written from hand in Java
 - Can use BAM to generate a data source
- Generate the .xsd file
 - Use JAXB's 'schemagen'
 - Provides the Data View for a report
- Design report document using Genero Report Designer
- Run the report application
- View the report in any viewer (depending on the output format)

Processing pipe



Reports Demo

- OrderReportJava.4pw
- Project contains:
 - Java application files (.java sources)
 - Report definition documents
 - Order Report - a customer order
 - Order Labels - pages of mailing labels for customers
 - Order Stock - stock information including a bar code
 - List Demo/Order List- reports in list format
 - Table demo - report as a table
 - A variety of Map Charts and Category Charts
 - Static and dynamic Pivot Table



Understanding the sample

- In \$SAMPLESDIR

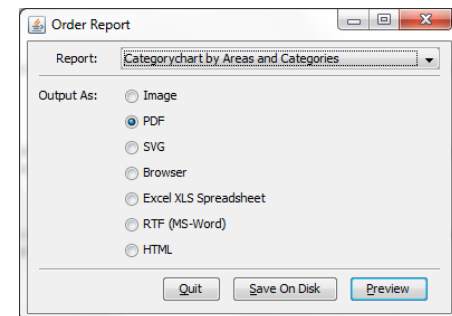
(Windows: C:\Users\rw\Documents\My Genero Report Studio Files\samples\Reports\OrderReportJava)

- Open OrderReportJava.4pw
- 1 Java Swing Application: OrderReportJava
 - Demonstrates most of the available Genero Report Writer features

- OrderReport.java

- Main Java source defining a Swing dialog
- Allow users to select different designs and output options
- `private static boolean runFromFile = false`
 - Runs report from a .unl file, set to false if you want to run from database
- `void createAndShowUI ()`
 - Shows a Swing user interface
 - Allows user to select report to produce
 - Output format e.g. Image, PDF, SVG
 - Action (e.g. preview, save) chosen in menu
 - Options selected used in lines

```
If("XLS".equals(output)) renderer=new ExcelRenderer();  
report.runFromJAXBObject(data);  
If("Preview".equals(action) && Desktop.isDesktopSupported())  
    Desktop.getDesktop().open(new File(outputFileName));
```



Understanding the sample

- NanoHTTPD.java
 - Handles HTTP requests for the Web Report Viewer
- OrderReportModel.java
 - Abstract class describing the report data model
- OrderReportJDBCModel.java & OrderReportFileModel.java
 - Implementation of the report model using JDBC (MySQL officestore)
 - Implementation of the report model using a file
- GenericReportDialog.java
 - Swing dialog that allows users to select fields for the generic report
- PivotTableDialog.java
 - Swing dialog that allows users to select measures and dimensions for the dynamic pivot table example

Understanding the sample

- We will learn the meaning of these key lines later today ...
 - `LayoutedPagesConsumer` renderer;
 - `report=new FourRpProcessor(fourRpfilepath, layout);`
 - `data=new OrderReportJDBCModel(controlBlock)`
 - `report.runFromJAXBObject(data);`
 - `data = new OrderReportJDBCModel(controlBlock);`



Understanding the sample

- Reports include (1)
 - OrderReport.4rp
 - Illustrates use of the section property, note the different page header/footer on each page..
 - OrdersLabels.4rp
 - Illustrate the labels functionality enabling you to print multiple labels on a single page
 - OrderList.4rp
 - An example of a simple list produced from the List Template.
 - OrderStock.4rp
 - Illustrates barcodes
 - Can be used to illustrate attachment and positioning rules
 - How to design a report onto pre-printed paper using a background image



Understanding the sample

- Reports include (2)
 - TableDemo.4rp
 - An example showing a simple usage of TABLE
 - GroupedTableDemo.4rp
 - TABLE with several header and body rows
 - ListDemo.4rp
 - Has two examples of RTL expressions. The changing color of the font and the hands-up/hands-down image are both RTL expressions to change the color and orientation at run-time based on the field value.

Understanding the sample

- Reports include (3)
 - CatChart-By*.4rp
 - An example showing a “Category” Chart (grouped by two fields). More than one example to show how different charts can be produced from the same data.
 - MapChart-By*.4rp
 - An example showing a “Map” Chart (grouped by one field). More than one example to show how different charts can be produced from the same data.
 - StaticPivotTable.4rp
 - A table of customer data, grouped by customers and orders.
 - DynamicPivotTable.4rp
 - Generates a table of user-selected measures, grouped by user-selected dimensions

Online Help Documentation

- Accessing online help
 - Help button in toolbar
 - F1 key
 - Start >> All Programs >> Genero Report Studio >> Genero Report Studio Help



Questions?
