Open Report Engine®

Reference Guide

Using Open Report Engine

GRS 3.00

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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
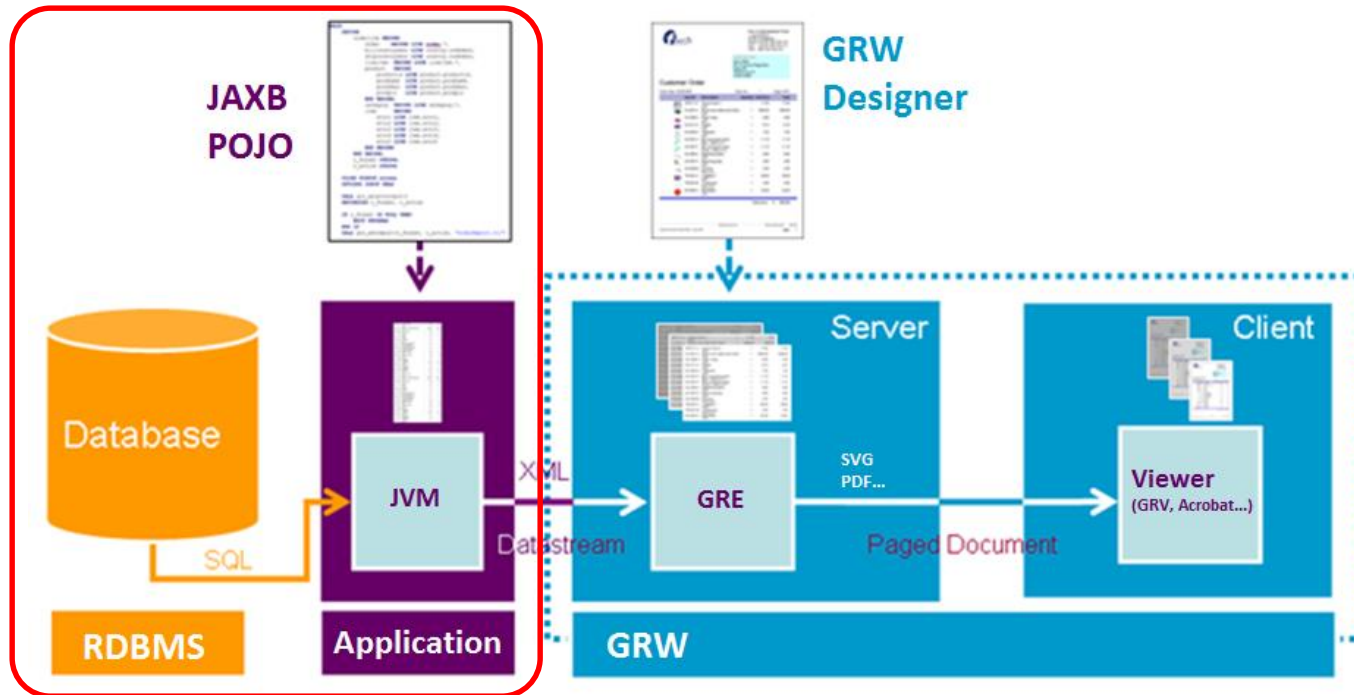 - Note: Internals of certain formats (PDF) do not support end to end streaming
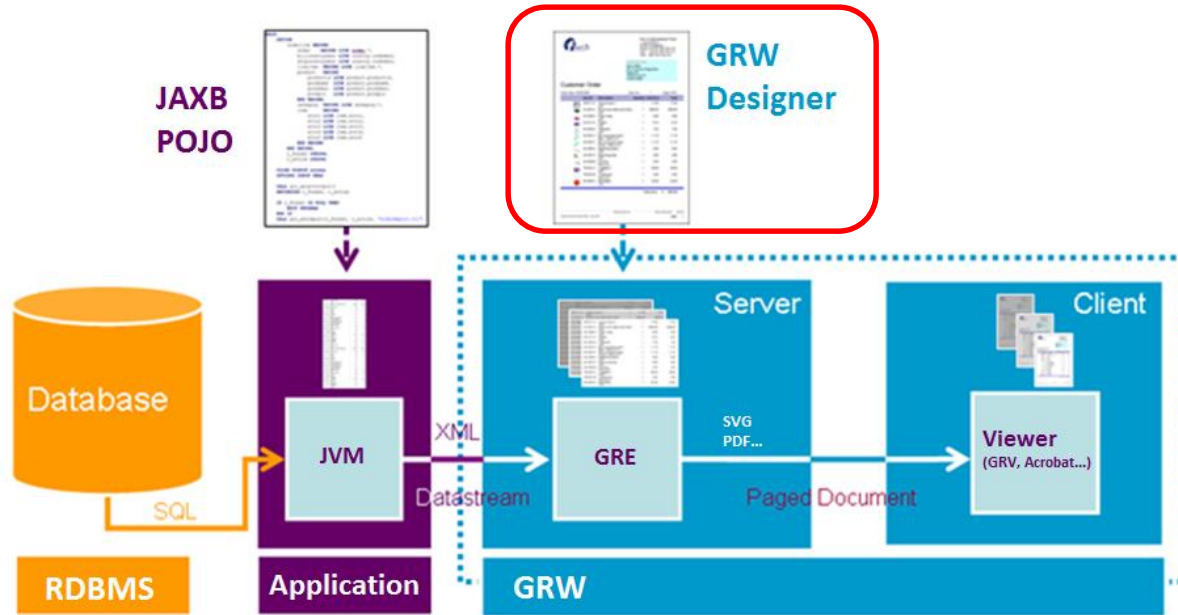
Architecture
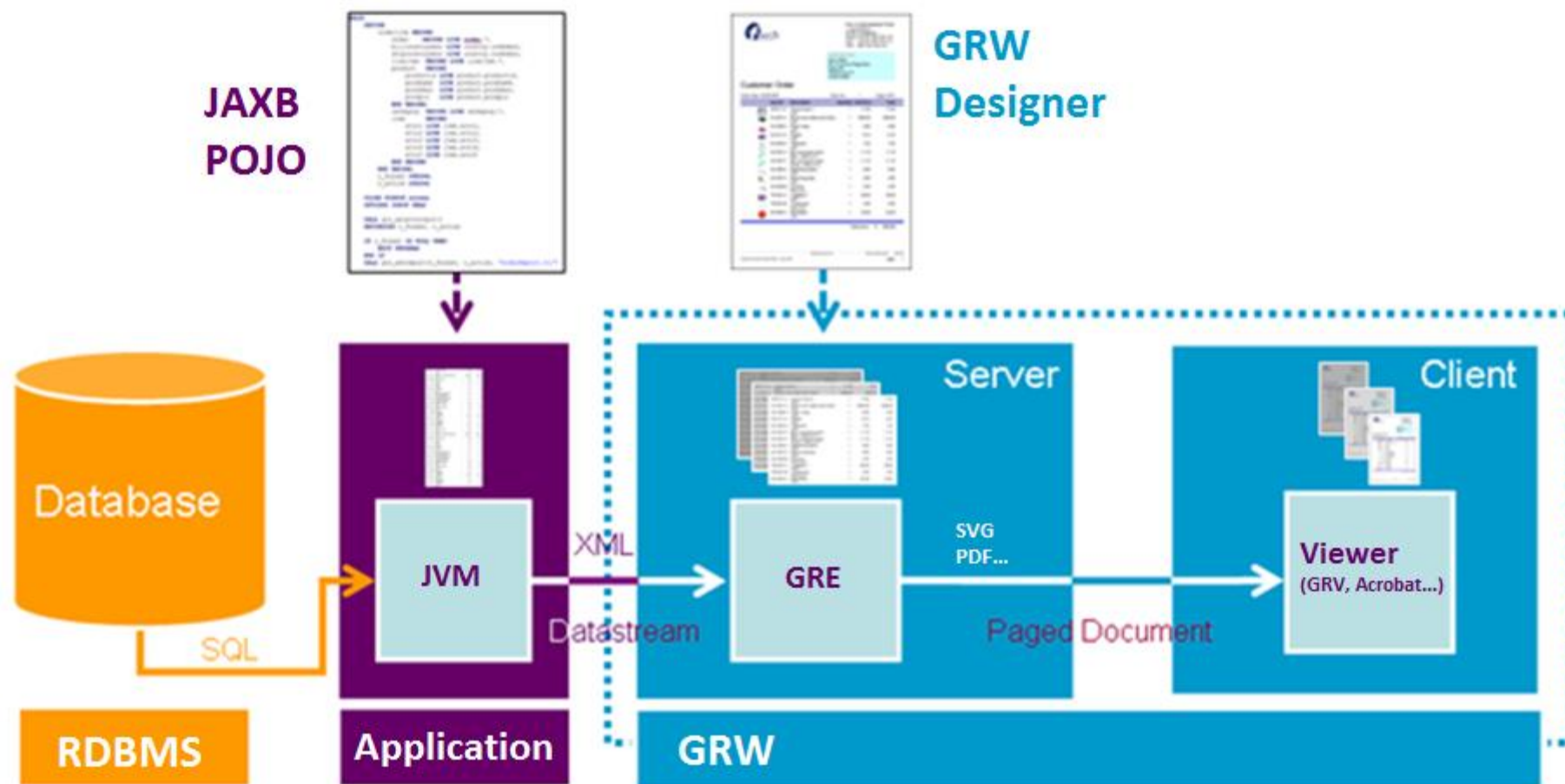
Architecture

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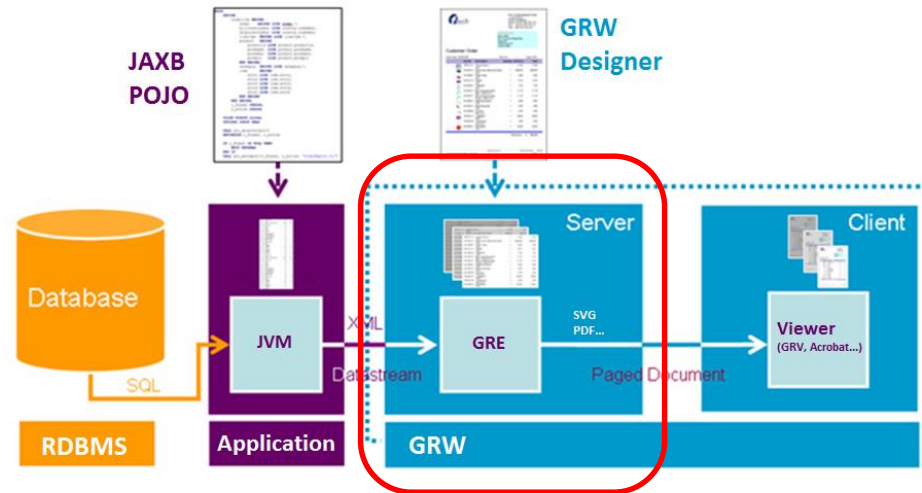 - Uses JAXB to produce XML data stream

![Open Report Engine® logo] **Open Report Engine®**

Architecture

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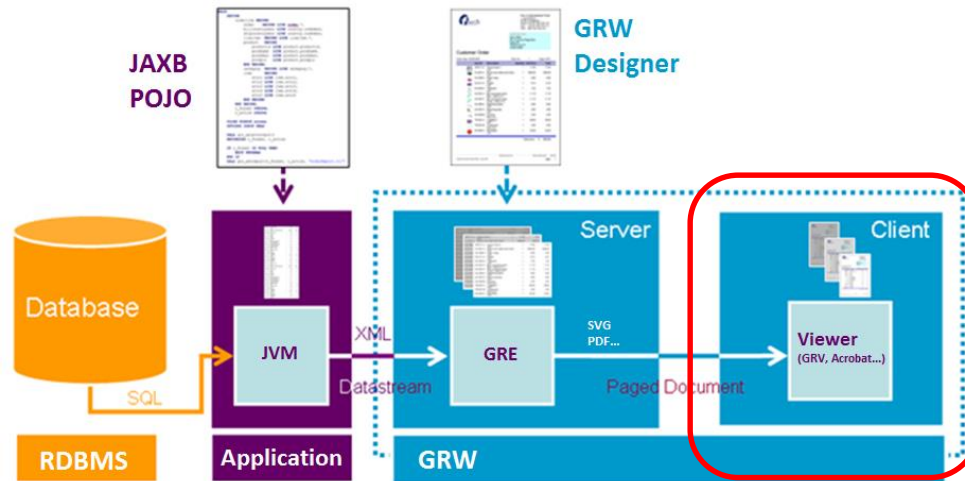
Introduction to Genero Report Writer

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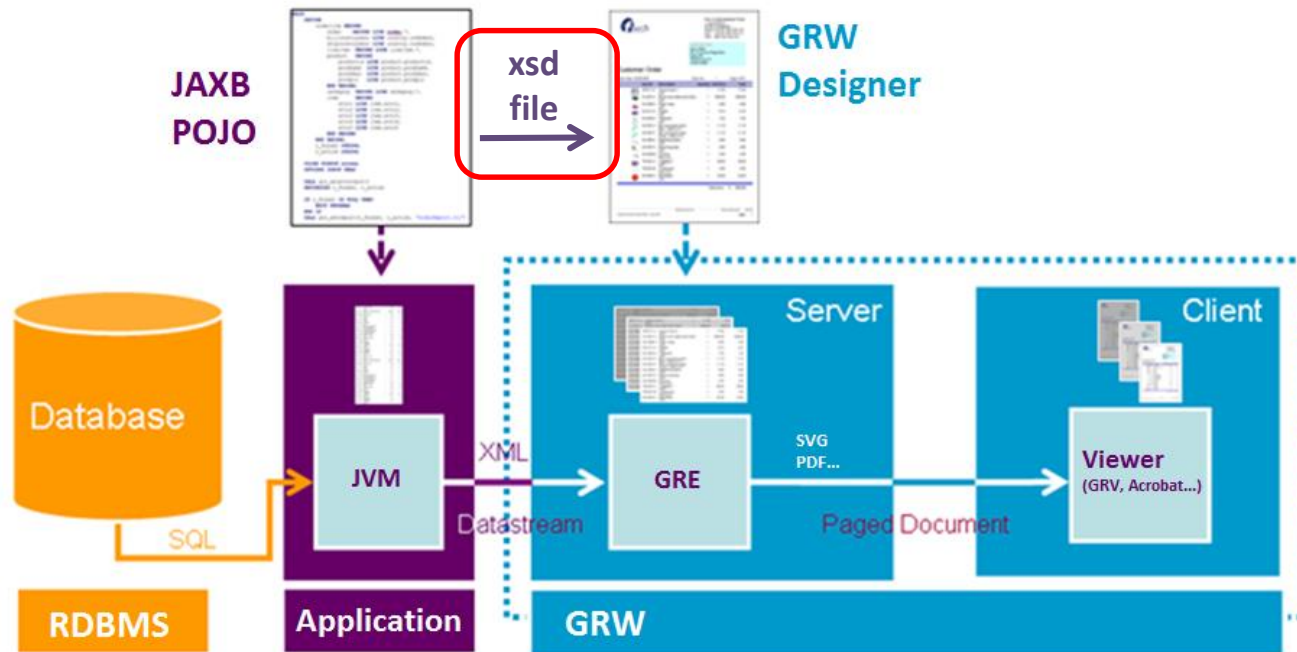
- Report Data Definition (XSD file)
  - When designing reports, need to inform the report designer about what information will be available in the report

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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, xslx, 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

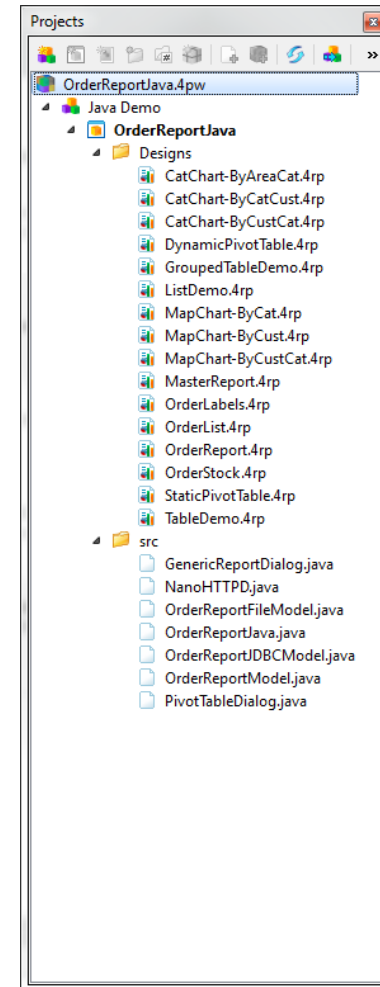- View the report in any viewer (depending on the output format)

Processing pipe
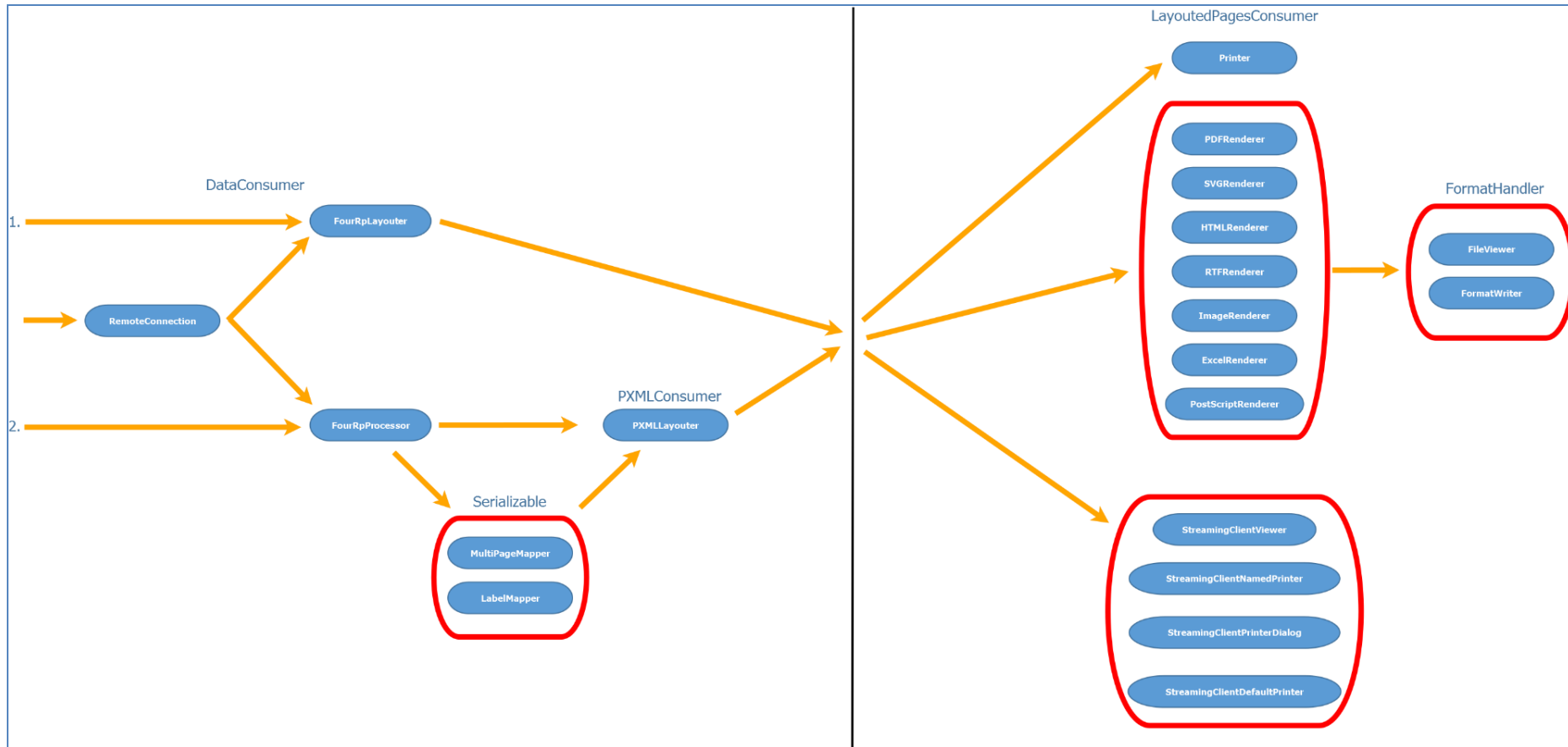
Reports Demo

- 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

Projects

- OrderReportJava.4pw
  - Java Demo
    - OrderReportJava
      - Designs
        - CatChart-ByAreaCat.4rp
        - CatChart-ByCatCust.4rp
        - CatChart-ByCustCat.4rp
        - DynamicPivotTable.4rp
        - GroupedTableDemo.4rp
        - ListDemo.4rp
        - MapChart-ByCat.4rp
        - MapChart-ByCust.4rp
        - MapChart-ByCustCat.4rp
        - MasterReport.4rp
        - OrderLabels.4rp
        - OrderList.4rp
        - OrderReport.4rp
        - OrderStock.4rp
        - StaticPivotTable.4rp
        - TableDemo.4rp
      - src
        - GenericReportDialog.java
        - NanoHTTPD.java
        - OrderReportFileModel.java
        - OrderReportJava.java
        - OrderReportJDBCModel.java
        - OrderReportModel.java
        - PivotTableDialog.java

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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));
          ```

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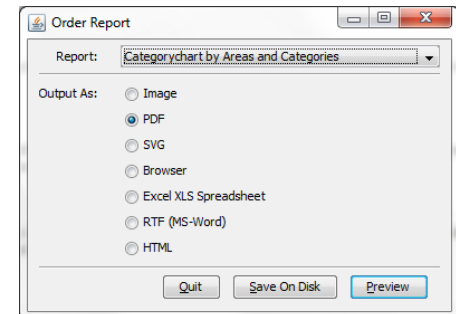
Understanding the sample

- 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);

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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

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Online Help Documentation

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

Questions?