
REVIEWER'S GUIDE

CRYSTAL REPORTS 2008

Table of Contents

<u>1. PRODUCT EVALUATION KIT OVERVIEW</u>	3
<u>2. CRYSTAL REPORTS PRODUCT OVERVIEW</u>	3
<u>3. WHAT'S NEW IN THIS RELEASE</u>	3
Advanced Information Visualization with Flash, Flex and Xcelsius.....	4
Improved End-User Report Viewing Experience.....	4
Enhanced report designer productivity.....	5
New flexible deployment options.....	5
Streamlined, flexible, improved report designer.....	6
Flexible Application Integration.....	6
What's Different in Crystal Reports 2008.....	7
<u>4. NEW FEATURES TEST DRIVE</u>	9
Flash Integration.....	7
Sort Controls.....	11
Interactive Parameters.....	13
Crosstab Improvements.....	15
Barcodes.....	20
XML Exporting.....	22
Web Service Data.....	25

1. Product Evaluation Kit Overview

This Product Evaluation Kit will help you evaluate all features of Crystal Reports® 2008, and will highlight some exciting new functionality.

There are three sections in this guide:

- Crystal Reports 2008 Product Overview
- New Features Summary
- Step-by-Step Test Drive of New Features

For more information or additional support materials, please visit:

<http://www.businessobjects.com/product/catalog/crystalreports/>

2. Crystal Reports Product Overview

Transforming data into actionable information.

Crystal Reports is an intuitive reporting solution that helps customers create flexible, feature-rich, dependable reports, and tightly integrate them into both thick and thin client applications.

The Crystal Reports solution consists of:

- **Powerful report designer:** Report authors benefit from a complete set of layout and design controls to create highly formatted, interactive, and professional looking reports. Use the standalone designer, or the design tool integrated within Visual Studio without leaving the development environment.
- **Flexible application development:** Developers can leverage cross-platform support for Java and .NET development technologies. HTML is generated directly by Crystal Reports, allowing developers to focus on application business logic, rather than tedious, time-intensive hand coding. Separation of application development and report design tasks allow developers to focus on application development, while the report authors can focus on report design.
- **Report management and delivery:** Reports are easily previewed in HTML and published to the web, for better business decisions at all levels of the organization. They can also be exported and repurposed to the electronic formats used by most end users such as PDF, Excel, and RTF. IT can centralize the management of operational reporting while distributing the report authoring function to the lines of business.

3. What's New in This Release

Crystal Reports 2008 provides advanced functionality to help reduce report proliferation and maintenance—increasing visualization flexibility and saving time with highly productive design features such as:

- Advanced information visualization capability
- Improved end user viewing experience
- Enhanced report designer productivity
- New flexible deployment options
- Flexible application integration
- A more streamlined and flexible report designer

Advanced Information Visualization with Flash, Flex and Xcelsius¹

Adobe Flash integration: A wide variety of flexible data presentation options are now available through Flash. Flash (SWF) files can be integrated into your report and report data can be shared with SWF via Flashvars for compelling, interactive, and information-rich reports. The SWF files can be embedded in the report or linked via a website.

Xcelsius integration: Import Xcelsius-generated SWF files into your report and benefit from improved design-time integration and stunning visualizations. Enhance your reports with what-if analysis models that enable users to make important decisions dynamically, without leaving the report file.

Adobe Flex integration: Integrate your reports with operational workflows by embedding Adobe Flex (SWF) applications into your reports. Using Adobe Flex Builder you can create any business-user UI to access report data and integrate with external web services. Data in your report can be passed to the Flex application via Flashvars, making it easy to create a flexible UI even when you don't have access to your data via web services. The Flex applications can do tasks like database write-back – invoking operational workflows directly within Crystal Reports.

Improved End-User Report Viewing Experience

Interactive report viewing: On-report sorting, filtering, and report reformatting with the .NET Winform, Java DHTML, and .NET Webform viewers allows users to explore information interactively without re-querying the database. New optional parameters provide for complex user-driven filtering scenarios. Users can answer more business questions with fewer, more flexible reports – significantly reducing Developer and IT support dependency.

Parameter panel: The report designer and the .NET Winform, Java DHTML, and .NET Webform viewers have a parameter panel so that parameter values can be set without refreshing data.

¹ Flash features are available for viewing in the .NET, Winform and Java DHTML viewers only

Parameters used are displayed on the panel so that report consumers can easily see them, make changes, and have the new values applied directly to the saved data.

Flexible pagination: Report designers can customize page size and easily control page breaking after N records/groups. A single report can combine portrait and landscape oriented pages and the white space at the end of groups can be removed by compressing the page footers. Online report consumption is improved because reports are easier to read.

Enhanced Report Designer Productivity

Powerful crosstabs: Summary, variance, and any other customer calculations can be inserted into a crosstab row or a column – especially useful for reports that benefit from a table structure, such as financial reports. The crosstab table structure makes reports much faster to build and maintain. This feature also provides powerful benefits to crosstab-based charts since custom formulas in the crosstab can be visualized within the charts.

Built-in barcode support: Generate barcodes with only a few clicks of the mouse by using the new “turn to barcode” function in the context menu. Easily convert fields to Code39 barcodes without any coding or extra steps. Additional barcode fonts are available from third-party vendors.

Enhanced designer features: Report designer will be more productive with features like global formula search, duplicate formula, duplicate running total, auto complete field names, and the Find in Field Explorer feature.

Hyperlinking wizard²: Report designers will save time by automatically creating the Crystal Reports formula required to invoke a BusinessObjects Enterprise OpenDocument hyperlink.

New Flexible Deployment Options

Save reports directly to crystalreports.com: Expand your deployment options with on-demand reporting capabilities when you open and save reports directly to crystalreports.com. This new integration allows you to manage and share your reports securely without dependency on IT.

Improved XML exporting: Render reports in almost any format and enjoy faster and easier integration with your industry-specific business processes – without any custom coding. The XSLT transformations are embedded into the report file and will be triggered by users from within the viewer when exporting to XML. This provides a powerful, flexible hook for transforming Crystal Reports data and integrating it into other applications.

Advanced report publishing²: Also known as report bursting, advanced report publishing is a platform for the mass distribution of personalized content. Multiple reports can be created based on different data sources, combined into one desired file format (such as PDF), loaded with personalized content, and then sent to a dynamic list of recipients – with a single action. The content can be archived, printed, or emailed in separate actions, or simultaneously. This makes scheduling much faster and easier, with the ability to conduct cost effective one-on-one marketing campaigns and other personalized high-volume reporting.

² Available only with a BusinessObjects Enterprise XI Release 3 server environment

Improved Report Designer

Single edition: Crystal Reports 2008 comes in a single edition that is the feature equivalent of the old Developer Edition. This single offering provides customers with quick access to the features they need to meet any application and user requirement. Report samples and developer documentation are now a free, optional download.

Multilingual reporting: Choose the working language you prefer by simply selecting the language packs you wish to use during product installation. Then switch the report designer UI to use any of the installed language packs. The report content locale can also be explicitly set for each report file. This setting controls sorting, grouping and formatting that matches the local language customs and conventions.

Reduced install footprint: The download size has been reduced to 250MB to provide fast access via the download site. The runtime files included in developer applications are also significantly smaller.

Flexible Application Integration

Integrated salesforce.com driver: The salesforce.com driver included with Crystal Reports 2008 allows for easy access to complete customer data – turning it into actionable business information. Reports that use a salesforce.com driver will refresh when deployed to crystalreports.com.

Enhanced web services data driver: Integration with various web services can be difficult and complex due to a wide variety of implementation types. The new data driver offers additional web access to web services by providing support for RPC encoding of SOAP messages, SSL-secured web servers, as well as a working compatibility with the WS-Security standard. It adapts to custom logon requirements such as email addresses or user/password.

.NET report modification SDK: The Report Application Server SDK is now available for users of CR.NET API without the use of a RAS server. Report modification such as changing / adding / removing database providers, adding / removing / creating report objects, parameters, formulas, and sections can be achieved by accessing the RAS SDK through the CR .NET SDK.

What's Different in Crystal Reports 2008

In an effort to improve the Crystal Reports experience, we've made some changes to certain components of Crystal Reports 2008:

Reports samples and sample database: To reduce download time, report samples and the Xtreme sample database are now accessed through separate downloads on the Start Page of Crystal Reports 2008.

.NET developer SDK documentation, merge modules, and MSI files: .NET developer documentation, merge modules, and MSI files are now accessed through separate downloads on the Start Page of Crystal Reports 2008.

Report developer component (RDC): The RDC is unsupported in Crystal Reports 2008. Developers wishing to use Crystal Reports in a COM application should use Crystal Reports XI Release 2. The ActiveX viewer remains a fully supported component of Crystal Reports 2008.

Advanced DHTML viewers: The Advanced DHTML viewers have been removed from Crystal Reports 2008. The improvements to the DHTML viewers make these additional viewers unnecessary.

Java reporting component (JRC) availability and Java SDK documentation: Java developers now receive the JRC and Java SDK documentation through the free Crystal Reports for Eclipse download. This product will be updated on a separate schedule from Crystal Reports. Visit the start page in Crystal Reports 2008 for more information on updates to Crystal Reports for Eclipse.



4. New Features Test Drive

We recommend you unzip the Reviewers Guide Files.zip. Access to the reports and additional files contained will be required throughout the following exercises.

4.1 Flash Integration

With Flash integration, report authors can embed any Shockwave Flash file (SWF) into an RPT file, to insert Xcelsius charts and widgets into Crystal Reports. This includes the ability to pass data from Crystal Reports into the Xcelsius SWF. Now report authors can extract and massage data before pushing it into Xcelsius visualizations.

Xcelsius version 5 and higher will tag 'Sharepoint parameters' used in Xcelsius SWFs with specific metadata that will make data binding between Crystal Reports and Xcelsius simple. Data binding to other SWFs is also supported, but report authors should have a deep understanding of the target SWF's parameters and Crystal Reports' formula language to leverage this functionality. A how-to guide on integrating Xcelsius 4.5 visualizations into Crystal Reports 2008 can be found at:

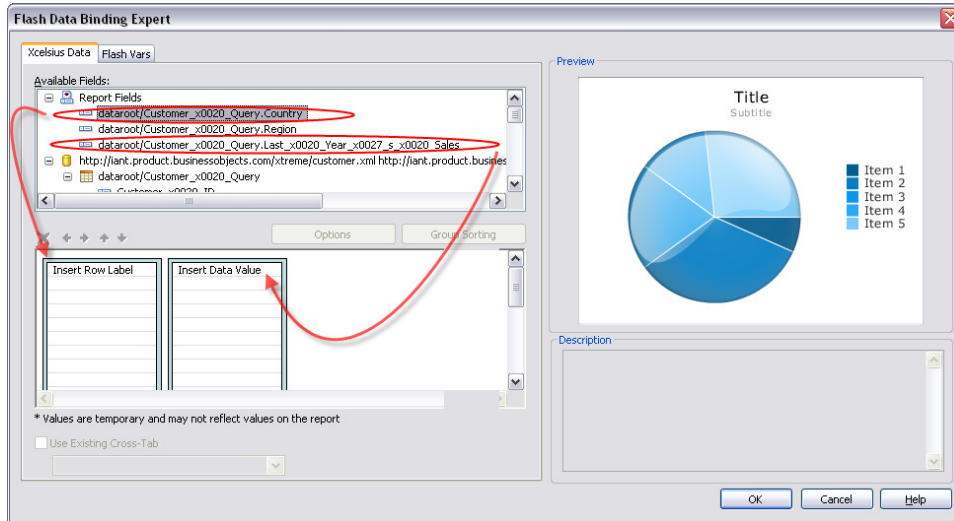
http://www.businessobjects.com/pdf/product/catalog/crystalreports/WP3120_A_CX_Visual_CR08.pdf

Adding a Simple Chart

1. Open the **Flash Integration.rpt** report provided with this guide.
2. Choose **Flash** from the **Insert Menu** (accessible from the Design or Preview tab).
3. Browse to **Simple Pie Chart.swf** provided with this guide. Select **OK** and place the SWF in your report header.
4. Right-click on the SWF and select **Flash Data Expert**.

You should now be in the Flash Data Binding Expert where you can map Crystal Reports fields or formulae to the SWF parameters as follows:

5. Click and drag the **{Customer.Country}** field from the Available Fields to the Row Label area :



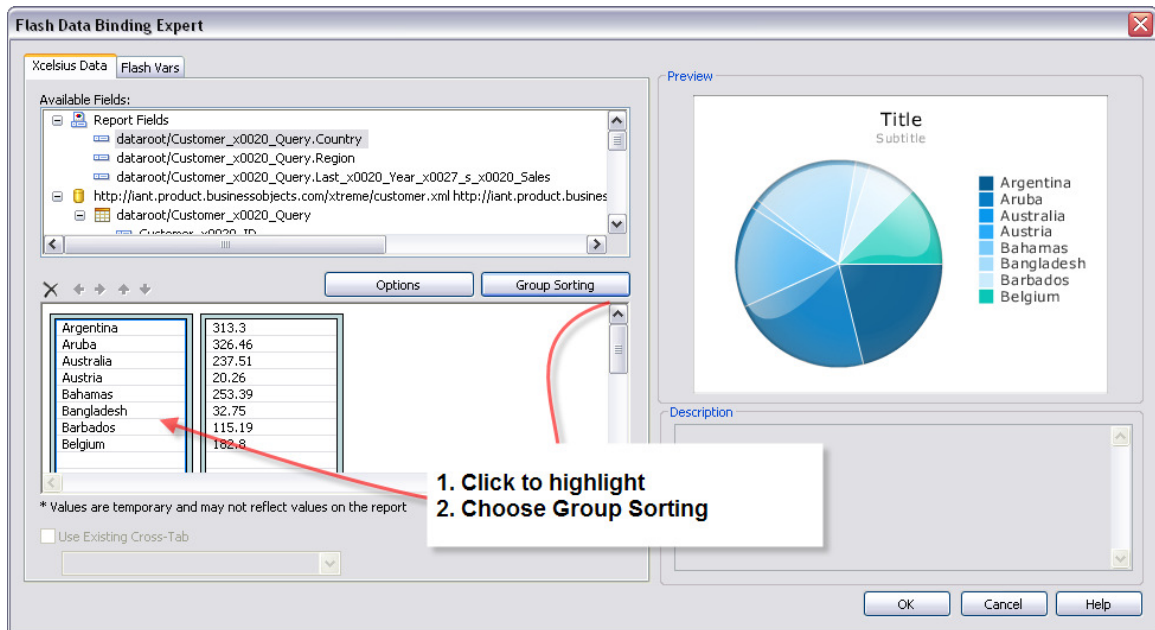
6. Click and drag the **{Customer.Last Year Sales}** field from the Available Fields to the Data Values area.
7. Select **OK**, then go to the Preview tab and note the resulting SWF with data populated from the report.

You have now created a simple Xcelsius chart using data pushed from the RPT. The next exercise will show you how to edit the display of the information within the chart.

Changing Display Information in a Chart

The data being sent is displayed in alphabetical order. To sort by top sales by country:

1. Right-click on the Xcelsius chart and select **Flash Data Expert**.
NOTE: If you still have mouse focus inside the SWF you will need to click on the canvas first to access this menu item.
2. Click the Row Label area and select **Group Sorting** to access the Top N options. You will use these options to limit the data being passed to this chart (see screenshot below).



3. Select the options to only return the Top 8 Countries based on Last Year's Sales from the Top N / Group Sort expert
NOTE: the value here is exposed as a formula, providing an easy way to control it by an Interactive Parameter at view time.
4. Select **OK**.
5. Go to the Preview tab of Crystal Reports to see your changes.

Now add a title and subtitle to the chart:

1. Select the **Flash Vars** tab in the Data Binding Expert.
2. Add a string value for both the Title and Subtitle parameters.
3. Select **OK**.
4. Go to the Preview tab of Crystal Reports to see your changes.

Once complete, your report should look like **Flash Integration Completed.rpt**

4.2 Sort Controls

Sort Controls allow your report users to sort all parameters in a report without a database connection.

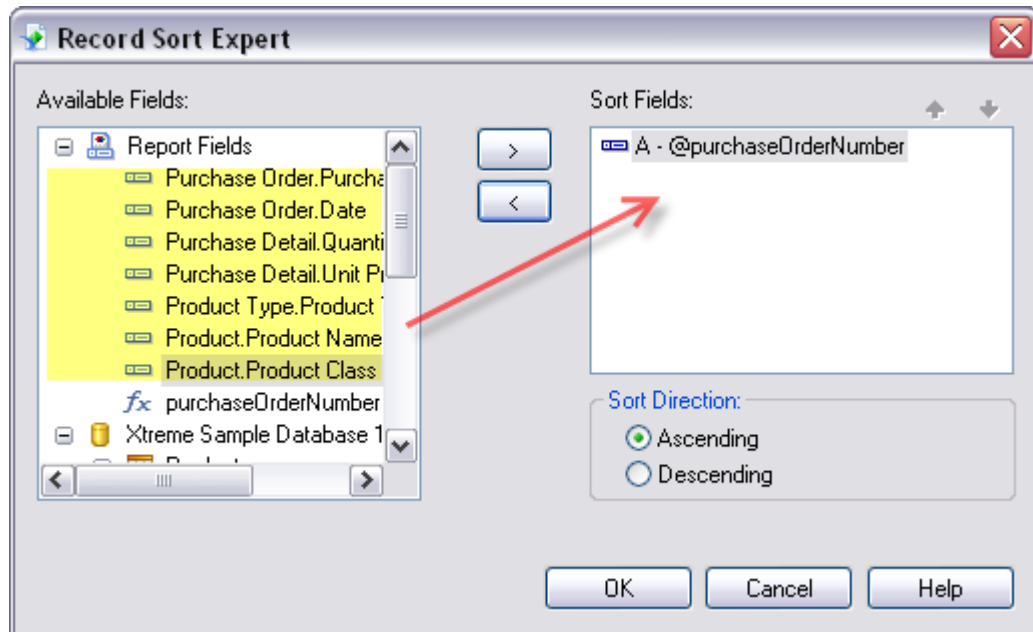
In this exercise your finance team requires additional analytical capabilities for their Purchase Order Report. They would like to be able to re-sort the report by any of the columns. With Crystal Reports 2008 you can modify the Purchase Order Report so all columns have corresponding Sort Controls as shown below.

Purchase Order Report

Purchase Order #	Date	Quantity	Unit Price	Product Class	Product Category	Product Name
1	01/22/2003	220	\$6.53	Accessory	Gloves	Active Outdoors Crochet Glove
2	01/22/2003	450	\$6.53	Accessory	Gloves	Active Outdoors Crochet Glove
3	01/22/2003	325	\$6.53	Accessory	Gloves	Active Outdoors Crochet Glove
4	01/22/2003	265	\$6.53	Accessory	Gloves	Active Outdoors Crochet Glove
5	01/22/2003	367	\$6.53	Accessory	Gloves	Active Outdoors Crochet Glove
6	01/22/2003	440	\$7.43	Accessory	Gloves	Active Outdoors Lycra Glove
7	01/22/2003	358	\$7.43	Accessory	Gloves	Active Outdoors Lycra Glove
8	01/22/2003	266	\$7.43	Accessory	Gloves	Active Outdoors Lycra Glove
9	01/22/2003	750	\$7.43	Accessory	Gloves	Active Outdoors Lycra Glove
10	01/22/2003	112	\$7.43	Accessory	Gloves	Active Outdoors Lycra Glove
11	01/22/2003	686	\$7.43	Accessory	Gloves	Active Outdoors Lycra Glove
12	01/22/2003	78	\$18.86	Accessory		
13	01/22/2003	80	\$18.86	Accessory		
14	01/22/2003	55	\$18.86	Accessory		
15	01/22/2003	169	\$18.86	Accessory		
16	01/22/2003	200	\$18.86	Accessory		
17	01/22/2003	168	\$18.86	Accessory		
18	01/22/2003	89	\$24.26	Accessory		
19	01/22/2003	125	\$24.26	Accessory	Helmets	Triumph Vertigo Helm et
20	01/22/2003	220	\$24.26	Accessory	Helmets	Triumph Vertigo Helm et
21	01/22/2003	150	\$24.26	Accessory	Helmets	Triumph Vertigo Helm et
22	01/22/2003	92	\$24.26	Accessory	Helmets	Triumph Vertigo Helm et
23	01/22/2003	187	\$24.26	Accessory	Helmets	Triumph Vertigo Helm et
24	01/22/2003	766	\$24.26	Accessory	Helmets	Triumph Vertigo Helm et
25	01/22/2003	224	\$24.26	Accessory	Helmets	Triumph Vertigo Helm et
26	01/22/2003	69	\$24.26	Accessory	Helmets	Triumph Vertigo Helm et
27	01/22/2003	110	\$2.03	Accessory	Locks	Guardian Chain Lock

Define Sorts

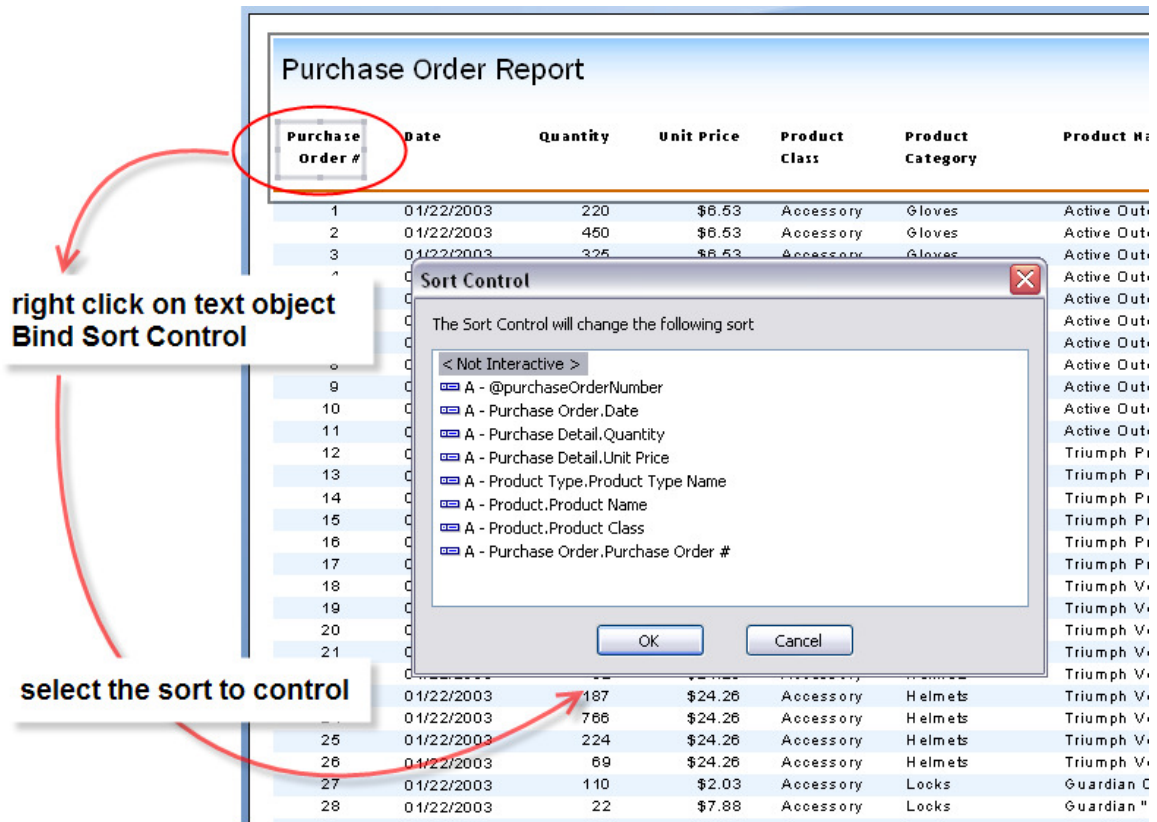
1. Open the **Purchase Order Report.rpt** report.
2. Define the appropriate sorts in the report before configuring Sort Controls. Choose **Report** then **Record Sort Expert** from the menu.
3. Ensure the following are defined as sorts in the report:
 - {@purchaseOrderNumber}
 - {Purchase Order.Date}
 - {Purchase Detail.Quantity}
 - {Purchase Detail.Unit Price}
 - {Product.Product Class}
 - {Product Type.Product Type Name}
 - {Product.Product Name}



Bind Sort Controls

You are now ready to bind text objects to the sorts as Sort Controls.

1. Right click on each text object and select **Bind Sort Control**.
2. Choose the sort that the object will control to bind all text objects (column headings) on the report to the record sorts you created.



Your finished report should look like **Purchase Order Report Completed.rpt**

Other Ideas

- Experiment with the on-canvas sort widgets to see how they manipulate the saved data in the report
- Try adding a Sort Control and binding it to a sort using the Insert → Sort Control menu option
- Experiment with binding different record sorts to Sort Controls:
 - Database Fields
 - Formula Fields
 - SQL Expression Fields
- Add groups and group summaries to your report and bind Sort Controls to them

4.3 Interactive Parameters

In this exercise you'll modify the Order History Report so that two record filter types (product category and order date range) are available in the new parameter panel for selection by report consumers.

Add a Report Parameter

1. Open the **Order History Report.rpt** report.
2. Create a new parameter called **Product Category** - From the **View** menu, select **Field Explorer**, right-click on **Parameter Fields** in the Field Explorer and choose **New**.
3. Set the **parameter properties** to match the screen below.

Create a new parameter and list of values.

Name: Product Category Type: String List of Values: Static

Value Field: Product Type Name Description Field: (None)

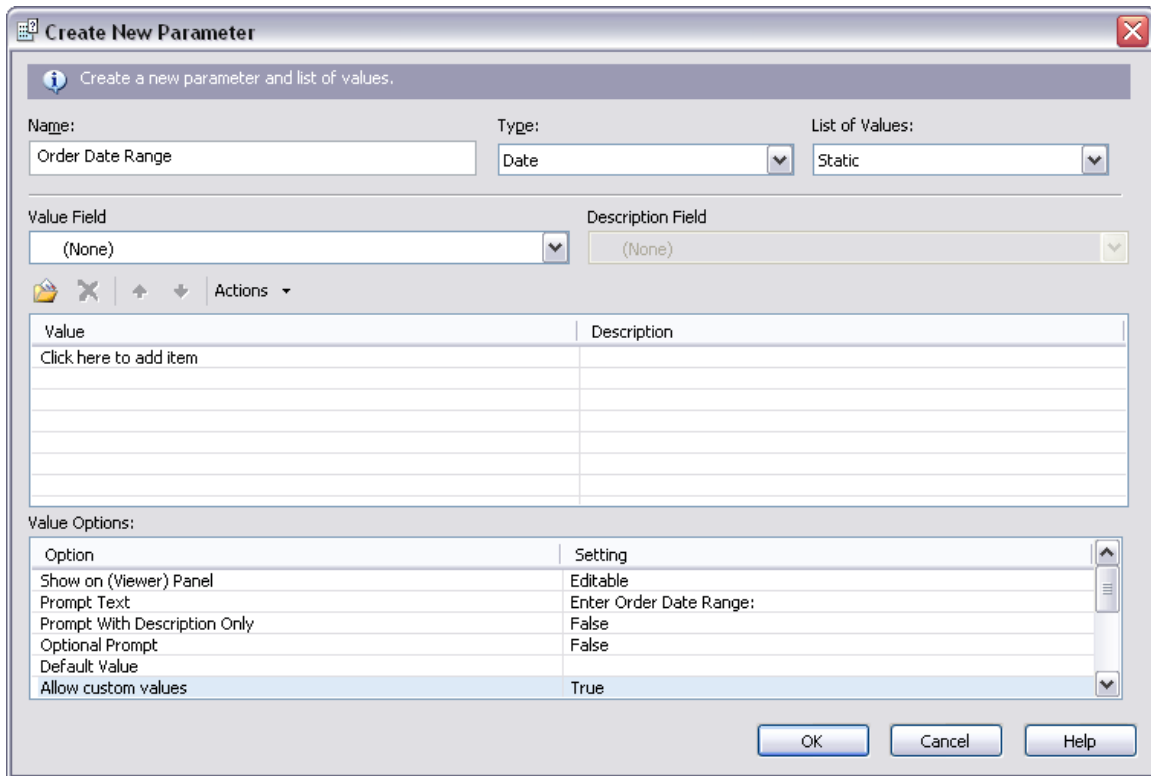
Value	Description
Value	
Competition	
Gloves	
Helmets	
Hybrid	
Kids	
Locks	
Mountain	
Saddles	
Click here to add item	

Value Options:

Option	Setting
Show on (Viewer) Panel	Editable
Prompt Text	Enter Product Category:
Prompt With Description Only	False
Optional Prompt	False
Default Value	
Allow custom values	True
Allow multiple values	False
Allow discrete values	True
Allow range values	False

OK Cancel Help

4. Repeat step 3 with a new parameter called **Order Date Range**.
5. Set Order Date Range's parameters to match the screen below.



Define Saved Data Selection Formula

To add a report filter go to **Report** → **Selection Formula** → **Saved Data** and in the **Formula Editor** enter {Product Type.Product Type Name} in {?Product Category} and {Orders.Order Date} in {?Order Date Range}

Other Ideas

- Create a report parameter to conditionally filter orders greater than \$1000.
- Add a dynamic grouping by using a new report parameter and formula field to enable the report consumer to change the grouping of a report dynamically. For example: Group by Order ID, or Group by Product Category.

4.4 Crosstab Improvements

In this task your finance department wants to enhance their current set of financial reports. One of the reports groups data by Account Type, Account Heading, Account name, and gives monthly actual and budget data, as well as a variance of the two.

Your job is to enhance this report to display actual, budget, and variance information for multiple months. The columns should be dynamic and the end user should be able to select a date range to determine how many columns to display.

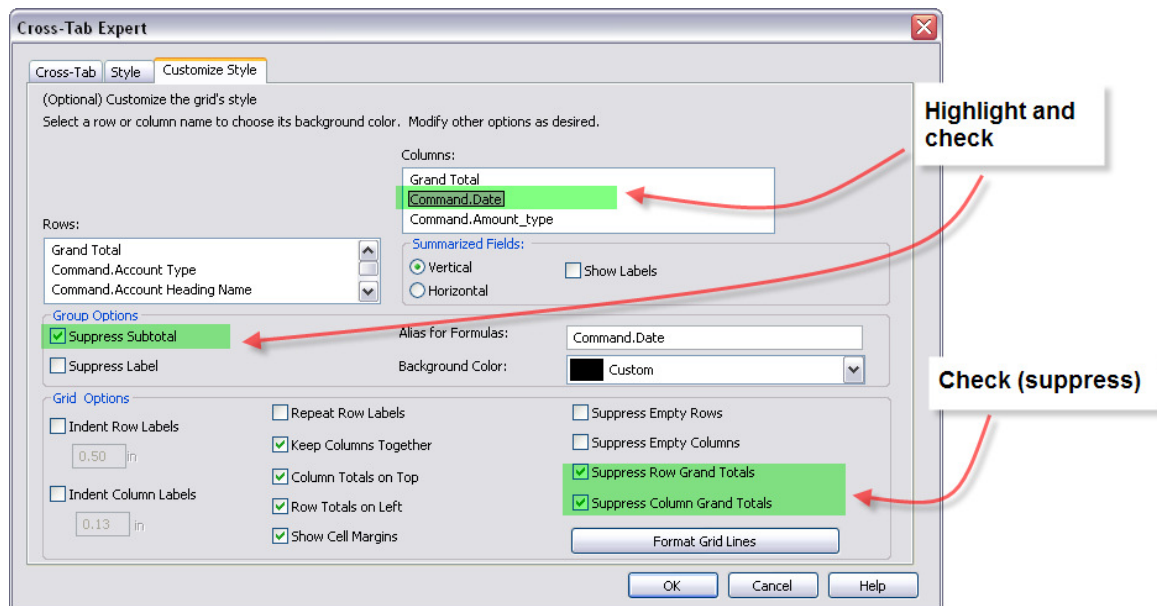
This advanced use case will show you how to modify the existing cross tab to simplify the report format. You'll then modify the revenue section of this report to incorporate calculations within across-tab.

Simplify the Report - Remove Extra Totals

Open the **Variance Cross Tab.rpt** report in the Crystal Reports Designer.

Right-click on the report and select the Cross-Tab Expert. Change the settings on the Customize Style tab to remove extra totals and to change formatting options to improve the look and feel of this financial report:

1. Check on **Indent Row Labels** and set it to 0.30.
2. Uncheck **Show Grid Lines** available from **Format Grid Lines** button.
3. Select OK to save these changes.



Add and Modify a Calculated Member (Single Non-Recurring Row)

1. Right click on **Sales Revenue** and choose **Calculated Member** → **Revenue->Sales Revenue**.
2. Right click on **Sales Revenue** again and choose **Difference of Revenue** → **Sales Revenue** → **Sales Returns and Revenue** → **Sales Revenue**.

Update the calculated member to display the correct calculation and show the correct header name.

3. Right click on **Difference** and select **Calculated Member** → **Edit Header Formula**.
4. Change the formula from **Difference** to **Net Sales**.

-
5. Right click on one of the summaries in the Net Sales row and select **Calculated Member → Edit Calculation Formula**. The formula that creates this Calculated Member will be displayed:

```
GridValueAt(GetRowPathIndexOf("Revenue", "Sales Revenue", "Sales Returns"),  
CurrentColumnIndex, CurrentSummaryIndex) -  
GridValueAt(GetRowPathIndexOf("Revenue", "Sales Revenue", "Sales Returns"),  
CurrentColumnIndex, CurrentSummaryIndex)
```

6. Change the formula to:

```
GridValueAt(GetRowPathIndexOf("Revenue", "Sales Revenue", "Bike Sales -  
Competition"), CurrentColumnIndex, CurrentSummaryIndex)  
+ GridValueAt(GetRowPathIndexOf("Revenue", "Sales Revenue", "Bike Sales - Hybrid"),  
CurrentColumnIndex, CurrentSummaryIndex)  
+ GridValueAt(GetRowPathIndexOf("Revenue", "Sales Revenue", "Bike Sales - Kids"),  
CurrentColumnIndex, CurrentSummaryIndex)  
+ GridValueAt(GetRowPathIndexOf("Revenue", "Sales Revenue", "Bike Sales -  
Mountain"), CurrentColumnIndex, CurrentSummaryIndex)  
+ GridValueAt(GetRowPathIndexOf("Revenue", "Sales Revenue", "Sales Gloves"),  
CurrentColumnIndex, CurrentSummaryIndex)  
+ GridValueAt(GetRowPathIndexOf("Revenue", "Sales Revenue", "Sales Helmets"),  
CurrentColumnIndex, CurrentSummaryIndex)  
+ GridValueAt(GetRowPathIndexOf("Revenue", "Sales Revenue", "Sales Locks"),  
CurrentColumnIndex, CurrentSummaryIndex)  
- GridValueAt(GetRowPathIndexOf("Revenue", "Sales Revenue", "Sales Returns"),  
CurrentColumnIndex, CurrentSummaryIndex)  
+ GridValueAt(GetRowPathIndexOf("Revenue", "Sales Revenue", "Sales Saddles"),  
CurrentColumnIndex, CurrentSummaryIndex)
```

7. Select **Save and Close** from the menu of the Formula Workshop dialog box.

The final Calculated Member (Net Sales) is now a complex summary where all Sales items are added and Sales Returns are subtracted:

	1/1/2005		2/1/2005	
	Actuals	Budget	Actuals	Budget
Revenue	\$267,910.03	\$250,882.44	\$321,321.77	\$163,889.
Sales Revenue	\$267,910.03	\$250,882.44	\$321,321.77	\$163,889.
Bike Sales - Cot	\$187,302.75	\$193,160.46	\$254,504.70	\$131,561.
Bike Sales - Hyl	\$15,764.61	\$1,387.85	\$23,611.07	\$357.
Bike Sales - Kid	\$3,547.69	\$4,385.28	\$4,381.00	\$4,061.
Bike Sales - Tot	856.24	\$4,278.82	\$31,381.18	\$20,317.
Bike Sales - Hyl	765.98	\$656.37	\$620.78	\$20.
Sales Helmets	\$3,506.74	\$4,936.60	\$2,381.74	\$3,849.
Sales Locks	\$741.26	\$1,393.32	\$429.05	\$617.
Sales Returns	\$14,336.10	\$1,113.79	\$3,421.75	\$3,027.
Sales Saddles	\$1,088.66	\$1,060.96	\$590.50	\$76.
Net Sales	\$239,237.83	\$248,654.86	\$314,478.27	\$157,834.
Expense	\$178,820.14	\$137,729.33	\$204,853.00	\$235,235.
Cost of Goods Sold	\$116,315.53	\$92,751.20	\$144,041.51	\$203,895.

Add a Calculated Member (Recurring Column)

Currently the data returned from the query is only for Actuals and Budget information. The financial report requires a Variance column (the difference between Actual and Budget).

Accomplish this using the same right click context menus as the first example.

1. Right click on **Actuals** for January and set your first value to be **Calculated Member** → **Select CDateTime (2005,01,01,00,00,00) → Actuals**.
2. Right click on **Budget** for January and choose **Calculated Member** → **Difference of CDateTime (2005,01,01,00,00,00) → Budget and CDateTime (2005,01,01,00,00,00) → Actuals**.

You've just created a non-recurring Calculated Member as a column.

3. Rename the column to "Variance" by right clicking on the **Difference** header and selecting **Calculated Member** → **Edit Header Formula**. Change "Difference" to "Variance" in the formula area.
4. Make the Calculated Member recurring by right clicking on the **Difference** header and selecting **Calculated Member** → **Edit Insertion Formula**.

- Change the existing formula – right click on one of the summaries in the Difference column and select **Calculated Member -> Edit Calculation Formula** and change the formula to read:

GetColumnGroupIndexof(CurrentColumnIndex) = 2 AND
GridRowColumnValue("Command.Amount_type") = "Budget"

The screenshot shows the Crystal Reports Formula Workshop interface. A table is displayed with columns for 1/1/2005 and 2/1/2005, each with sub-columns for Actuals, Budget, and Variance. A callout box points to the Variance column, stating: "Recurring 'Variance' column now appears after each 'Budget' column".

	1/1/2005			2/1/2005			2/1/2005	3/1/2005
	Actuals	Budget	Variance	Actuals	Budget	Variance	Actuals	Budget
Revenue	\$267,910.03	\$250,882.44	\$17,027.59	\$321,321.77	\$163,889.18	\$157,432.59		
Sales Revenue	\$267,910.03	\$250,882.44	\$17,027.59	\$321,321.77	\$163,889.18	\$157,432.59		
			(\$5,857.71)	\$254,504.70	\$131,561.07	\$122,943.63		
			\$14,376.76	\$23,611.07	\$357.21	\$23,253.86		
Bike Sales - Mo	\$40,856.24	\$42,778.82	(\$1,922.58)	\$4,381.00	\$4,061.47	\$319.53		
				\$31,381.18	\$20,317.15	\$11,064.03		

- Modify the calculation formula to be recurring by editing the calculation formula to match the one below, which makes the calculation formula relative; rather than absolute.

GridValueAt(CurrentRowIndex, CurrentColumnIndex-2, CurrentSummaryIndex)-
GridValueAt(CurrentRowIndex, CurrentColumnIndex-1, CurrentSummaryIndex)

- Select **Save and Close** from the menu of the Formula Workshop dialog box.

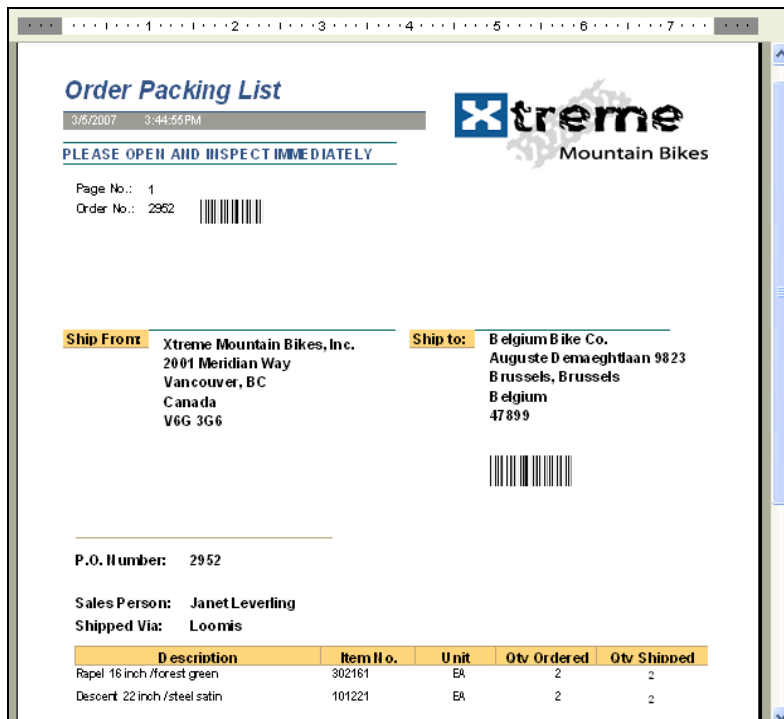
Other Ideas

- Create a blank 'spacer' row beneath Net Sales, before Expense.
- Create a Calculated Member for Total Operating Expenses, which is a subtotal of all Expense line items (it's okay to use subtotals).
- Suppress summaries for the following header rows:
 - Revenue
 - Sales Revenue
 - Expense
 - Cost of Goods Sold
 - General & Administrative Expenses
 - Payroll Expenses
- Create a blank 'spacer' row beneath Total Operating Expenses.
- Create a Calculated Member final line item for Net Income, which is the Net Sales minus Total Operating Expenses.

The finished report should look like **Variance Cross Tab Completed.rpt**

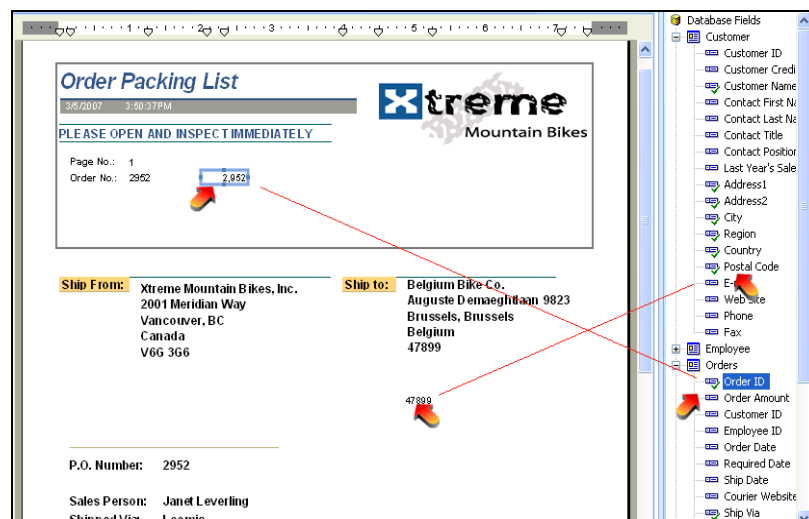
4.5 Barcodes

In this task you'll add a barcode field for the tracking fields Order Number and Postal Code. The desired output looks like this:



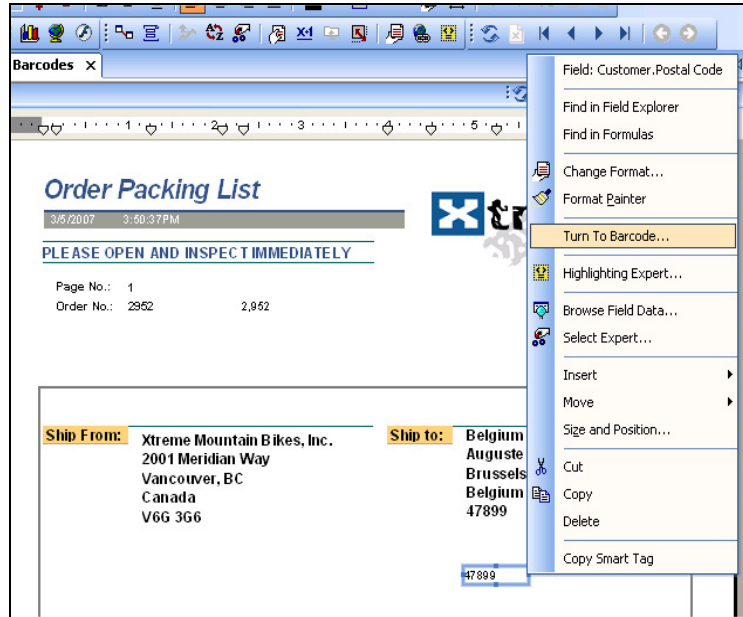
Open Report and Add Fields

1. Open the **Order Packing List.rpt** report in the Crystal Reports Designer.
2. Add **Orders.Order ID** and **Customer.Postal Code** to the **report canvas** from the Field Explorer.



Turn the New Fields to Barcodes

1. Right click on **Customer.Postal Code** on the report canvas and select **Turn to Barcode** (see the screenshot below).



2. Choose **Code 39 Full ASCII** from the dialog that appears.
3. Repeat steps 1 and 2 for **Orders.Order ID**.

NOTE: If your barcode shows as ##### you need to make the field wider.

Other Ideas

- Create barcodes based on formula fields.
- Use different barcode fonts.
- Try string fields, date/time fields, number fields.
- Export the report to PDF.

Order Packing List Completed.rpt reflects what the finished report will look like.

4.6 XML Exporting

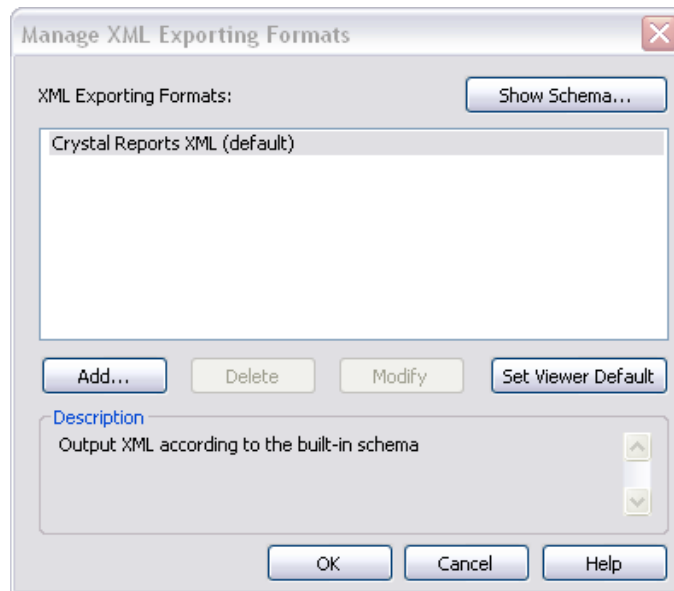
In this exercise you're a law enforcement employee. You want to submit a list of offences to an external party using a common interchange data format: Justice XML Data Model (JXDM).

To create JXDM-compliant XML, you add an XML transformation to your report to convert from Crystal Reports new data-oriented XML to JXDM.

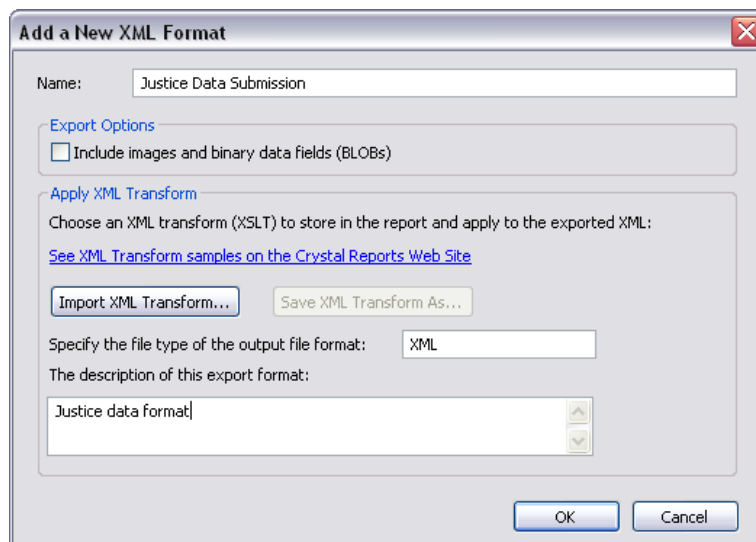
Add a New XML Export Format to the Report

Open **jxdml.xml** and save it to disk. Open the report **offenses.rpt** in Crystal Reports.

1. In the Crystal Reports Designer, select **Manage XML Exporting Formats...** from the **File** → **Export** menu. You should see the Manage XML Exporting Formats window, as below.



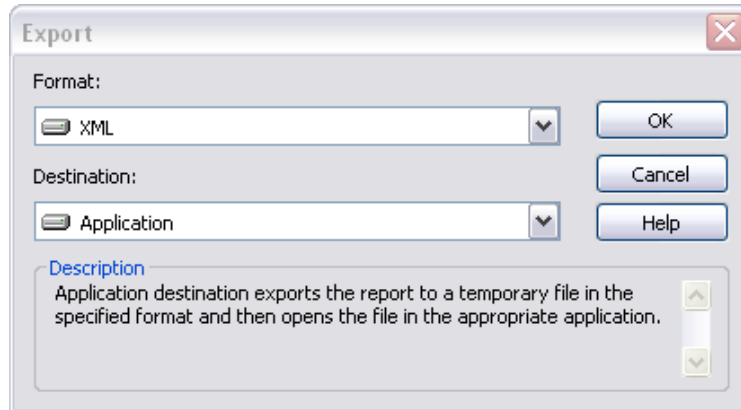
2. Press the **Add...** button to add the JXDM format.
3. Enter the information as shown below. Press the **Select XML Transform...** and select the **jxdm.xml** file.



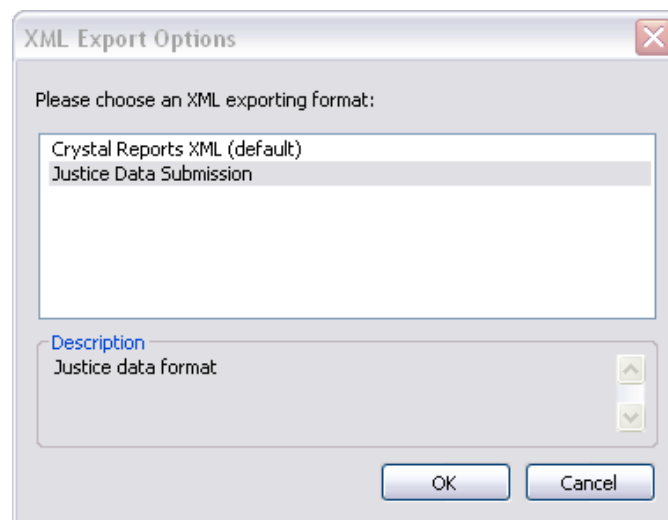
4. Press **OK** on the Manage XML Exporting Formats window to close it.

Export Report to XML Formats

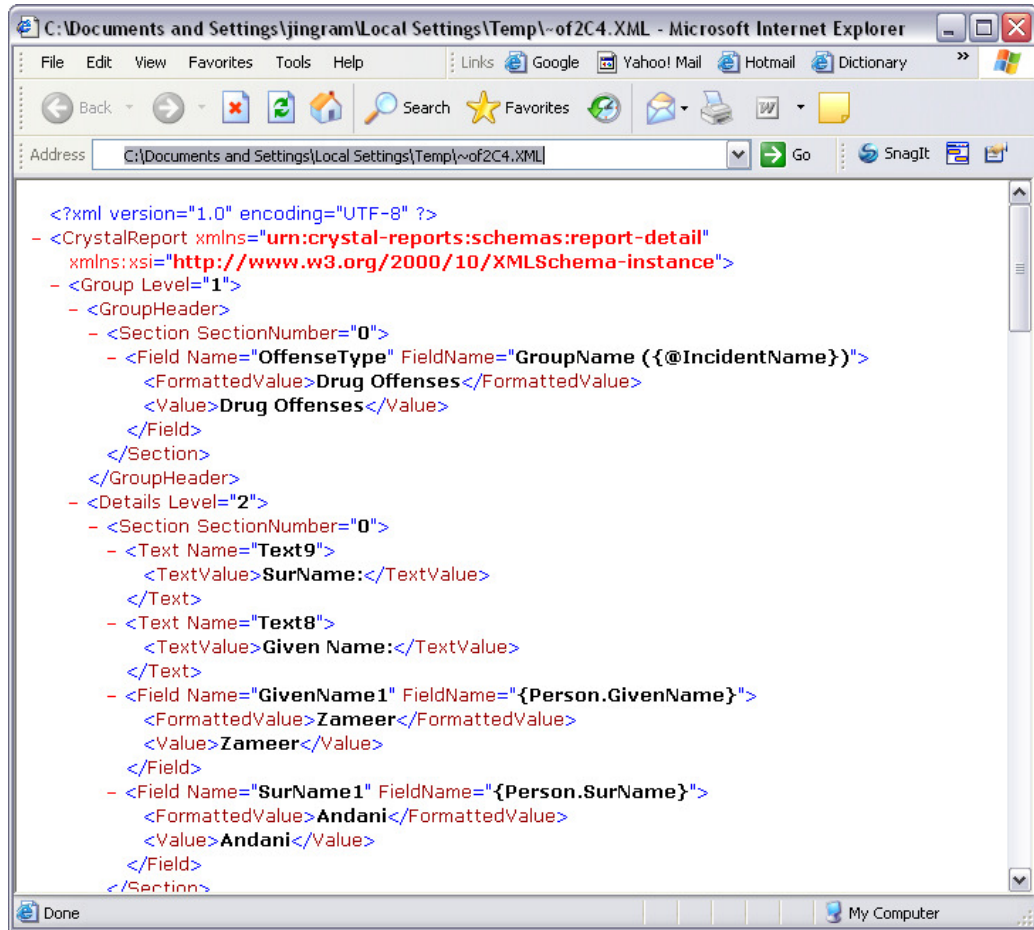
1. Select **File**→ **Export**→ **Export Report** to export the report to the generic XML format.
2. Select **XML** in the export dialog. Change the Destination to Application, then press **OK**.



The XML Export Options dialog box (below) will appear so you can choose the format of the output to produce



3. Select the **Crystal Reports Generic Data-Oriented XML format**. The report will be exported to XML launched in Internet Explorer.
4. Follow the same exporting procedure, but this time in the XML Export Options dialog, select **Justice Data Submission**. The output will appear as:



Other Ideas

- Inspect the `jxdm.xsl` file to learn more about producing text files with XSLT.
- Learn more about XML at <http://www.w3.org/XML/>.
- Learn more about XSL Transformations at <http://www.w3.org/TR/xslt>.

4.7 Web Service Data

In this example, your IT infrastructure contains valuable data that is stored on a mainframe which includes information produced by business logic. Your task is to produce reports using this information. The challenge is that there is no standard data connectivity that can access the information generated from the business logic. Crystal Reports 2008 allows you to produce the XML-format text files containing the information you need.

Create a Report on XML with HTTP

This exercise requires a web server with a virtual directory.

1. Place `customer.xml` and `customer.xsd` in the virtual directory (files are included in Reviewers Guide Files.zip).

-
2. Test if you can access the data by entering the URL to the **customer.xml** file in your browser. XML data files can be produced by database applications like Microsoft Access.

Other Ideas

- Try the web service report, **amazonwebservice with CR books.rpt** (included with the Reviewers Guide reports), which returns book and DVD queries from the Amazon web service.
- Try setting up IIS on Windows and create a virtual directory. Find a data set like *xtreme.mdb* and use Microsoft Access to export a few tables to XML files. Place them in the virtual directory.
- Try connecting to an external web service that offers data. www.xignite.com has a number of interesting financial-oriented web services as well as trial accounts. Crystal Reports has been tested with these services.
- Try reporting directly off of XML files.
- Advanced: Try reporting off of a web service secured with WS-Security. This requires setting up a WS-Security configuration file. The XML driver uses the Apache Axis 2 Web Services stack.