

***Crystal Reports***<sup>®</sup>  
**2008**  
FOR  
**DUMMIES**<sup>®</sup>

**by Allen G. Taylor**



WILEY

Wiley Publishing, Inc.



***Crystal Reports***<sup>®</sup>  
**2008**  
FOR  
**DUMMIES**<sup>®</sup>

**by Allen G. Taylor**



WILEY

Wiley Publishing, Inc.

## **Crystal Reports® 2008 For Dummies®**

Published by

**Wiley Publishing, Inc.**

111 River Street

Hoboken, NJ 07030-5774

[www.wiley.com](http://www.wiley.com)

Copyright © 2008 by Wiley Publishing, Inc., Indianapolis, Indiana

Published by Wiley Publishing, Inc., Indianapolis, Indiana

Published simultaneously in Canada

No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, scanning or otherwise, except as permitted under Sections 107 or 108 of the 1976 United States Copyright Act, without either the prior written permission of the Publisher, or authorization through payment of the appropriate per-copy fee to the Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923, (978) 750-8400, fax (978) 646-8600. Requests to the Publisher for permission should be addressed to the Legal Department, Wiley Publishing, Inc., 10475 Crosspoint Blvd., Indianapolis, IN 46256, (317) 572-3447, fax (317) 572-4355, or online at <http://www.wiley.com/go/permissions>.

**Trademarks:** Wiley, the Wiley Publishing logo, For Dummies, the Dummies Man logo, A Reference for the Rest of Us!, The Dummies Way, Dummies Daily, The Fun and Easy Way, Dummies.com, and related trade dress are trademarks or registered trademarks of John Wiley & Sons, Inc. and/or its affiliates in the United States and other countries, and may not be used without written permission. Crystal Reports is a registered trademark of Business Objects, SA. All other trademarks are the property of their respective owners. Wiley Publishing, Inc., is not associated with any product or vendor mentioned in this book.

**LIMIT OF LIABILITY/DISCLAIMER OF WARRANTY: THE PUBLISHER AND THE AUTHOR MAKE NO REPRESENTATIONS OR WARRANTIES WITH RESPECT TO THE ACCURACY OR COMPLETENESS OF THE CONTENTS OF THIS WORK AND SPECIFICALLY DISCLAIM ALL WARRANTIES, INCLUDING WITHOUT LIMITATION WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE. NO WARRANTY MAY BE CREATED OR EXTENDED BY SALES OR PROMOTIONAL MATERIALS. THE ADVICE AND STRATEGIES CONTAINED HEREIN MAY NOT BE SUITABLE FOR EVERY SITUATION. THIS WORK IS SOLD WITH THE UNDERSTANDING THAT THE PUBLISHER IS NOT ENGAGED IN RENDERING LEGAL, ACCOUNTING, OR OTHER PROFESSIONAL SERVICES. IF PROFESSIONAL ASSISTANCE IS REQUIRED, THE SERVICES OF A COMPETENT PROFESSIONAL PERSON SHOULD BE SOUGHT. NEITHER THE PUBLISHER NOR THE AUTHOR SHALL BE LIABLE FOR DAMAGES ARISING HEREFROM. THE FACT THAT AN ORGANIZATION OR WEBSITE IS REFERRED TO IN THIS WORK AS A CITATION AND/OR A POTENTIAL SOURCE OF FURTHER INFORMATION DOES NOT MEAN THAT THE AUTHOR OR THE PUBLISHER ENDORSES THE INFORMATION THE ORGANIZATION OR WEBSITE MAY PROVIDE OR RECOMMENDATIONS IT MAY MAKE. FURTHER, READERS SHOULD BE AWARE THAT INTERNET WEBSITES LISTED IN THIS WORK MAY HAVE CHANGED OR DISAPPEARED BETWEEN WHEN THIS WORK WAS WRITTEN AND WHEN IT IS READ.**

For general information on our other products and services, please contact our Customer Care Department within the U.S. at 800-762-2974, outside the U.S. at 317-572-3993, or fax 317-572-4002.

For technical support, please visit [www.wiley.com/techsupport](http://www.wiley.com/techsupport).

Wiley also publishes its books in a variety of electronic formats. Some content that appears in print may not be available in electronic books.

Library of Congress Control Number: 2008927910

ISBN: 978-0-470-29077-4

Manufactured in the United States of America

10 9 8 7 6 5 4 3 2 1



## *About the Author*

**Allen G. Taylor** is a 30-year veteran of the computer industry and the author of over 20 books, including *SQL All-in-One Desk Reference For Dummies*, *SQL For Dummies*, *Access 2003 Power Programming with VBA*, *Database Development For Dummies*, and *SQL Weekend Crash Course*. He lectures nationally on databases, innovation, and entrepreneurship. He also teaches database development internationally through a leading online education provider and teaches microprocessor architecture locally at Portland State University. You can contact Allen at [allen.taylor@ieee.org](mailto:allen.taylor@ieee.org).

## *Dedication*

This book is dedicated to my daughter, Jenny Taylor Warren, who has given me much excellent advice, as well as two outstanding grandsons.

## *Author's Acknowledgments*

Many people have contributed to the quality and content of this book. I would particularly like to recognize my Acquisitions Editor, Kyle Looper, for his overall management of the project and for keeping me honest, and my Project Editor, Rebecca Senninger, for the day-to-day coordination of the project.

I also appreciate the continued support of my family and the interest of my friends and colleagues. It would not have been possible to complete a project of this magnitude without the support of those close to me.

## **Publisher's Acknowledgments**

We're proud of this book; please send us your comments through our online registration form located at [www.dummies.com/register/](http://www.dummies.com/register/).

Some of the people who helped bring this book to market include the following:

### ***Acquisitions and Editorial***

**Project Editor:** Rebecca Senninger  
**Acquisitions Editor:** Kyle Looper  
**Senior Copy Editor:** Teresa Artman  
**Technical Editor:** Howard Hammerman  
**Editorial Manager:** Leah Cameron  
**Editorial Assistant:** Amanda Foxworth  
**Senior Editorial Assistant:** Cherie Case  
**Cartoons:** Rich Tennant  
([www.the5thwave.com](http://www.the5thwave.com))

### ***Composition Services***

**Project Coordinator:** Lynsey Stanford  
**Layout and Graphics:** Reuben W. Davis,  
Alissa D. Ellet, Melissa K. Jester,  
Christine Williams  
**Proofreaders:** Susan Moritz, Toni Settle  
**Indexer:** Infodex Indexing Services Inc.

---

## **Publishing and Editorial for Technology Dummies**

**Richard Swadley**, Vice President and Executive Group Publisher  
**Andy Cummings**, Vice President and Publisher  
**Mary Bednarek**, Executive Acquisitions Director  
**Mary C. Corder**, Editorial Director

## **Publishing for Consumer Dummies**

**Diane Graves Steele**, Vice President and Publisher  
**Joyce Pepple**, Acquisitions Director

## **Composition Services**

**Gerry Fahey**, Vice President of Production Services  
**Debbie Stailey**, Director of Composition Services

# Table of Contents

## ***Introduction..... 1***

About This Book.....	1
Conventions Used in This Book .....	1
What You're Not to Read.....	2
Foolish Assumptions .....	2
How This Book Is Organized.....	3
Part I: Reporting Basics .....	3
Part II: Moving Up to Professional-Quality Reports .....	3
Part III: Advanced Report Types and Features .....	3
Part IV: Crystal Reports in the Enterprise .....	3
Part V: Publishing Your Reports.....	4
Part VI: The Part of Tens .....	4
Icons Used in This Book.....	4
Where to Go from Here.....	5

## ***Part 1: Reporting Basics..... 7***

### **Chapter 1: Transforming Raw Data into Meaningful Information . . . . 9**

Major Features of Crystal Reports 2008.....	9
Formatting a report.....	10
Generating barcodes.....	11
Enhancing a report with formulas and custom functions.....	11
Getting visual with charts and maps .....	11
Xcelsius integration .....	12
Adobe Flash integration .....	12
Displaying a report.....	12
Distributing a report .....	12
Supplying Crystal Reports with data.....	13
The Lone Edition of Crystal Reports 2008.....	13
Viewing a Report .....	13
Reading a printed report .....	13
Viewing a report with Crystal Reports .....	14
Viewing a report on a LAN or on the Web.....	16

### **Chapter 2: Create a Simple Report Right Now! . . . . . 17**

First Things First: Finding the Sample Database.....	18
Starting Crystal Reports 2008.....	18
Creating a Report with the Blank Report Option.....	20
Allocating more space to the layout.....	24
Introducing your report.....	25
Choosing the fields that appear in your report.....	27

Improving the readability of page headers .....	29
Previewing the report .....	30
Page footers carry useful information .....	32
Wrapping things up with a report footer .....	34
Recording helpful information about your report .....	34
Printing a Report .....	36
Where to Go from Here.....	36

### **Chapter 3: Report Design Guidelines ..... 37**

Defining an Effective Report Design .....	37
Defining Your Audience.....	37
Defining the Report's Purpose.....	38
Choosing Content for Your Report .....	39
Choosing the Report Appearance.....	39
Making a good first impression .....	40
Deciding how best to present the information.....	40
Choosing graphic elements for your report .....	41
Style communicates meaning, too .....	41
Making sure your report conveys your message .....	42

### **Chapter 4: Starting Your Report ..... 43**

Using the Report Creation Wizard .....	43
Creating a report with the Standard Report Creation Wizard .....	44
Using other report-creation wizards.....	49
Starting with a Blank Report.....	49
Connecting Your Report to Its Data Source.....	50
Accessing database files directly .....	51
Connecting to ODBC data sources .....	51
Retrieving data with SQL.....	52
Reporting on data in OLE DB data sources.....	53
Which interface should you use? .....	53

## ***Part II: Moving Up to Professional-Quality Reports.....55***

### **Chapter 5: Pulling Specific Data from a Database ..... 57**

Get Data Quickly with Select Expert.....	57
Using Formulas to Retrieve Data.....	64
Using Parameter Fields to Retrieve Data at Runtime .....	66
Step 1: Creating a report that shows everything.....	67
Step 2: Giving the user the power to decide what to show .....	70
Speed retrievals with indexes .....	72
Changing parameter values to change the report .....	72
Troubleshooting Tips When Retrieving Data .....	73



**Chapter 6: Sorting, Grouping, and Totaling Report Data .....75**

Sorting Report Data .....	75
Sorting based on multiple fields.....	77
Sorting and performance.....	81
Adding Sort Controls to a Report .....	82
Grouping Related Items.....	85
Calculating Percentages .....	89
Drilling Down for Detail.....	90
Keeping Track of Things with Running Totals.....	94
Troubleshooting Sorting, Grouping, and Totaling Problems.....	97
Sorting problems and how to solve them .....	98
Unusual grouping options .....	98
Getting the right totals .....	99

**Chapter 7: Mastering Report Sections .....101**

Changing the Size of a Section.....	101
Formatting with the Section Formatting Menu .....	103
Using Section Expert for Easy Section Formatting .....	104
Common tab, Section Expert .....	105
Paging tab, Section Expert .....	106
Color tab, Section Expert .....	107
Placing Groups Where You Want Them.....	110
Starting each group at the top of its own page .....	110
Printing totals at the bottom of a page.....	112
Restarting page numbering at the beginning of each group.....	113
Hiding Details with Summary and Drill-Down Reports .....	113
Generating Barcodes .....	114
Creating Mailing Labels .....	117
Saving Money on Postage with a ZIP Sort.....	120

**Chapter 8: Enhancing Your Report's Appearance .....123**

Absolute Formatting.....	124
Setting the fonts and their formatting for emphasis.....	124
Adding graphical elements for emphasis.....	128
Conditional Formatting Using the Format Editor.....	130
Creating Emphasis with Highlighting Expert .....	132
Adding Pictures to Your Report .....	134
Aligning Preprinted Forms .....	136
Adding Text from a File .....	136
Formatting Options.....	137
Special Fields Contain Report Metadata .....	139
Raising a Red Flag with Report Alerts .....	139
Using Report Templates to Save Time and Effort .....	142
Applying a template to a report .....	143
Applying a template to an existing report.....	143
Applying a template to a report you're creating .....	145

***Part III: Advanced Report Types and Features ..... 147*****Chapter 9: Displaying Your Top Ten (Or Top N) with Group Sort . . . 149**

Sorting Groups Based on Performance .....	149
Starting a Top N Report .....	150
Displaying a group total .....	154
Hiding the details .....	155
Removing page breaks .....	157
Going with the Percentages .....	160
What if you want the top 17 instead of the top 5? .....	161
A Choice of Group Sorts .....	164
Troubleshooting Group Sort Problems .....	165

**Chapter 10: Adding Formulas to Reports ..... 167**

Formula Overview and Syntax .....	167
Lessening the Workload with Functions .....	168
Creating a Custom Function in Formula Workshop .....	169
Formula Editor .....	173
Formula Expert .....	175
SQL Expression Editor .....	177
Selection formulas .....	177
Formatting formulas .....	181
Changing and Deleting Formulas .....	182
Data Types .....	182
Simple data types .....	182
Range data types .....	184
Array data types .....	184
Variables in Formulas .....	185
Declaring a variable .....	185
Assigning a value to a variable .....	186
Control Structures .....	186
If-Then-Else .....	186
Select Case .....	187
For loop .....	187
While Do loop .....	188
Do While loop .....	189

**Chapter 11: Creating Reports within a Report ..... 191**

Combining Unrelated Reports .....	191
Underlay formatting for side-by-side location of subreport .....	195
Drilling down in a subreport .....	196
Linking a Subreport to a Primary Report .....	197
On-Demand Subreports Boost Efficiency .....	203
Passing Data between Reports .....	204
Troubleshooting Subreport Problems .....	205

**Chapter 12: Combining Report Elements with OLE .....207**

Overview of OLE.....	207
Static OLE Objects .....	208
Inserting a static OLE object into a report.....	208
Making a static OLE object editable .....	210
Embedded OLE Objects .....	212
Embedding an OLE object into a report .....	212
Linked OLE Objects .....	214
Embedding or Linking an Object Taken from a File .....	217
Integrating Shockwave Flash Objects into Your Reports.....	217

**Chapter 13: Creating and Updating OLAP Reports .....219**

What's OLAP, and Why Might You Need It? .....	219
Who uses OLAP?.....	220
Creating multidimensional views .....	220
Connecting to an OLAP data source .....	221
OLAP Reporting with Crystal Reports .....	221
Operating on OLAP grid objects.....	222
Creating a three-dimensional report.....	222
Updating an OLAP Report .....	232
Formatting Data in an OLAP Report .....	233
Changing a dimension's background color .....	234
Creating an alias for a dimension .....	235
Formatting grid lines.....	236
Labeling dimensions .....	237
Changing Data Appearance in an OLAP Report .....	238
Showing and hiding dimensions.....	239
Adding totals to an OLAP grid .....	240
Pivoting an OLAP grid.....	240
Reordering fields .....	241
Sorting data.....	242
Filtering data .....	243
Making calculations .....	243

**Chapter 14: Using Cross-Tab Reports to Mine Your Data .....245**

Creating a Cross-Tab Object to Summarize All Report Data .....	245
Summarizing the Contents of a Group with a Cross-Tab .....	249
Making Calculations within a Cross-Tab Row or Column .....	255
Enhancing the Appearance and Readability of a Cross-Tab Object .....	256
Changing the width and height of cross-tab cells .....	256
Formatting entire rows and columns.....	257
Formatting individual fields .....	257
Suppressing selected cross-tab data .....	258
Printing cross-tabs that span multiple pages .....	258



**Chapter 15: Enhancing Reports with Charts ..... 259**

Using Chart Expert.....	259
Type tab.....	260
Data tab.....	260
Axes tab.....	261
Options tab.....	262
Color Highlight tab.....	263
Text tab.....	263
Creating a Chart .....	263
Drilling down from a chart .....	266
Changing a chart.....	267
Choosing the Best Chart Type for Your Data .....	267
Side-by-side bar chart.....	267
Percent bar chart .....	268
Line chart .....	268
Area chart.....	269
Pie chart .....	270
Doughnut chart.....	270
3-D riser chart .....	271
3-D surface chart .....	272
XY scatter chart.....	272
Radar chart .....	273
Bubble chart .....	273
Stock chart .....	274
Numeric axis chart.....	275
Gauge chart.....	276
Gantt chart .....	276
Funnel chart .....	277
Histogram .....	278
Different Chart Layouts for Different Data Types .....	278
Seeing How Chart Placement Affects the Data It Represents.....	280
Troubleshooting Chart Problems .....	281
Selecting data to make a chart readable and meaningful .....	281
The placement of chart elements matters .....	282

**Chapter 16: Adding Geographic Detail with Maps ..... 283**

Choosing the Right Crystal Reports Map .....	283
Map layouts.....	284
Map types .....	284
Map placement .....	286
Creating a Map Step by Step .....	286
Creating an advanced layout map.....	286
Creating a Group layout map .....	288
Creating a Cross-Tab layout map .....	289
Creating an OLAP layout map.....	290
Including maps in subreports .....	291
Changing maps .....	291
Troubleshooting Map Problems.....	291

**Chapter 17: Interactivity Features .....293**

Crystal Xcelsius Overview .....	293
Adding Xcelsius Capability to a Report .....	294
Creating an SWF file with Crystal Xcelsius.....	295
Embedding your Crystal Xcelsius model in a Crystal report .....	298
Enhancing a Report with the Tasteful Use of Flash .....	300
Viewing Flash visualizations .....	300
Dynamic interaction with a report using a Parameter panel.....	300

***Part IV: Crystal Reports in the Enterprise.....303*****Chapter 18: Crystal Reports Server .....305**

Connecting to Data Sources.....	306
Connecting directly or indirectly .....	306
Using Business Views to simplify connectivity .....	306
Formatting Reports with Crystal Reports Developer.....	307
Providing Platform Services .....	307
Publishing and distributing reports.....	307
Providing security .....	308
Managing the system .....	308
Useful Management Tools .....	309
Application Services.....	309
Web Services.....	309
Viewing and Interacting with Reports .....	310

**Chapter 19: BusinessObjects Enterprise Repository .....311**

Adding Folders to Your Repository .....	312
Storing Your Valuables in BusinessObjects Enterprise Repository .....	312
Adding text and bitmapped objects to the Repository.....	313
Adding custom functions to the Repository.....	313
Adding SQL commands to the Repository .....	314
Using Repository Objects in a Report .....	314
Adding text objects and images .....	314
Adding custom functions .....	315
Adding SQL commands .....	315
Modifying a Repository Object .....	315
Deciding Whether to Update Reports Automatically .....	317
Deleting Objects from the Repository.....	318

**Chapter 20: Navigating with Report Parts .....319**

Understanding Report Parts Navigation .....	319
Using Report Parts to Navigate a Report.....	320
Using the Report Parts Drill-down method.....	321
Using the Another Report Object method .....	325

***Part V: Publishing Your Reports .....327*****Chapter 21: Sending Your Reports Out into the World .....329**

Printing Your Report.....	329
Faxing a Report.....	330
Exporting a Report.....	331
Export format types .....	331
Export destinations.....	334
Troubleshooting Output Problems.....	342

**Chapter 22: Displaying Reports Online .....343**

Exporting to a Static HTML Page .....	344
Adding a Hyperlink to a Report.....	346
Distributing Reports via crystalreports.com .....	349
Integrating with salesforce.com .....	350
Publishing to crystalreports.com with Crystal Reports Desktop Publisher .....	351
Interactive Report Viewing with Crystal Reports Viewer .....	354
Opening a report in Crystal Reports Viewer .....	355
Navigating a report.....	355
Printing a report .....	359
E-mailing reports to your friends and co-workers .....	360
Sharing reports in a variety of formats.....	360
Searching a haystack for that elusive needle .....	361
Accessing reports on crystalreports.com.....	361

**Chapter 23: SQL Expression Fields .....363**

Creating an SQL Statement .....	363
Modifying an SQL Statement.....	366

***Part VI: The Part of Tens .....369*****Chapter 24: Ten Things to Do Before You Create a Report .....371****Chapter 25: Ten Ways to Give Your Reports More Pizzazz .....375*****Index.....379***

# Introduction

---

**C**rystal Reports 2008 is the latest in a long and celebrated series of report writers for personal computers. Crystal Reports is by far the bestselling report writer package in the world, even though you might not know it by name. (It's been bundled with many of the most popular applications without being acknowledged by name. For example, a version of Crystal Reports is currently bundled into Microsoft's Visual Studio .NET.) However, Crystal Reports 2008 is available as a standalone product. And if you want to produce a high-quality report quickly, Crystal Reports is the top choice to do the job.

## *About This Book*

*Crystal Reports 2008 For Dummies* is a book that gets you using Crystal Reports quickly and effectively. This book covers all the major capabilities of Crystal Reports but doesn't bog you down in intricate detail. The objective is to give you the information you need to produce the types of reports that most people need most of the time. I also get into some out-of-the-ordinary report types that you might be called upon to generate on occasion.

Use this book as a handy reference guide. Each chapter deals with an individual feature that you might need at one time or another. Pull out the book, read the chapter, and then do what you need to do. In many cases, step-by-step procedures walk you through commonly needed operations. You might find it worthwhile to put the book beside your computer and perform the operations while you read about them.

Anyone who might be called upon to produce a report based on database data can profit from the information contained in this book. It's also valuable for managers who might never produce a report but who oversee people who do. This book tells you what's possible, what you can do easily, and what takes a little more effort to accomplish. This knowledge can help you estimate how long it should take to produce reports of various types.

## *Conventions Used in This Book*

When an instruction in the book refers to a command path — for instance, “Choose File⇨Save” — that simply means to click your mouse button on File on the main menu, and then choose Save from the submenu that drops down from it.

Anything you see that is printed in a monospaced font is code, or something you'll run across in the course of programming a database. `This is a monospaced font`. Crystal Reports executes code that you enter as formulas or SQL statements.

## *What You're Not to Read*

You can certainly choose to read this book from cover to cover, working through the examples, although you don't have to. Regardless of whether you read it all the way through in order, think of this book as a handy quick reference by your side when you want to perform a particular operation you haven't used in a while (or ever).

An upcoming section of this introduction explains the icons you'll normally run across, and there is a good reason for paying attention to each of them. However, consider yourself exempted from the requirement to read anything that appears by a Technical Stuff icon.



Material placed next to one of these icons might be interesting to techies like me (and like some of you out there) but generally isn't necessary for a full understanding of how to use Crystal Reports.

## *Foolish Assumptions*

I've never met you, but I have to make a few assumptions about you and what you know. For example, I assume that you know how to use a personal computer and that you're somewhat familiar with Microsoft Word. If you know how to navigate Microsoft Word, you already know almost all there is to know about navigating Crystal Reports. The user interfaces of the two products are similar.

I assume that you've seen directory trees before, such as those extensively used in Microsoft Windows. You know that if you see a plus sign (+) to the left of a node that shows a folder (or other) icon, it means that you can click the plus sign to expand that node to see what the node contains. Crystal Reports treats directory trees in a similar way.

I assume you know how to perform a drag-and-drop operation with your mouse. In Crystal Reports, when you click an object and start dragging it, your progress is shown by a rectangular placement frame. When you release the mouse button to drop the item, the placement frame is replaced by a duplicate of the item that you dragged.



---

## *How This Book Is Organized*

This book contains six major parts. Each part contains several chapters.

### *Part I: Reporting Basics*

Part I introduces you to Crystal Reports and the art of report creation. You find out what a report should accomplish and what it should look like. Then you fire up Crystal Reports and use it to create a simple report based on data held in a database.

### *Part II: Moving Up to Professional-Quality Reports*

You can do many things beyond the basics to make reports more focused, more readable, and easier on the eye. This part gives you the information you need to do all those things.

### *Part III: Advanced Report Types and Features*

Part III gets into serious report creation. With the information in this part, you can zero in on exactly the data you want and display it in the most understandable way. You'll be able to nest one report within another, pull report elements from multiple non-database sources, present multidimensional data in OLAP cubes, illustrate points with charts and maps, and create stunning visuals with Xcelsius and Flash. With these tools, you can produce reports fit for the eyes of the organization's CEO.

### *Part IV: Crystal Reports in the Enterprise*

BusinessObjects Enterprise is a companion product to Crystal Reports that controls and secures the distribution of reports. With it, you can make your reports accessible to people on your local area network (LAN), or on the World Wide Web. BusinessObjects Enterprise is also the home of the Repository, which is a great place to store formulas or custom functions so they can be used again.

## *Part V: Publishing Your Reports*

After you create a report, you'll want to make it available to the people who need it. Crystal Reports makes it easy for you to distribute your report for viewing, whether to colleagues in your organization or to Internet users around the world. In addition, you can publish your reports using traditional methods. You can print it; export it to a file, or fax it to people far away. After you complete report development, distribution is easy.

Although Crystal Reports does a great job when used all by itself, you can also incorporate it into applications written in a computer language. The Crystal Reports SQL Expression Fields facility gives you direct control over the data in a report's underlying database. Because a version of Crystal Reports is included as an integral part of the Microsoft .NET application development environment, you can incorporate the power of Crystal Reports into applications you write in Visual Basic, Visual C++, Visual C#, or any language compatible with the .NET framework. This gives the applications you write the sophistication of the world's leading report writer.

## *Part VI: The Part of Tens*

It's always good to remember short lists of best practices. That's what The Part of Tens is all about. Listed here are pointers that help you produce outstanding reports with minimum effort, in the shortest possible time.

### *Icons Used in This Book*



Tips save you a lot of time and keep you out of trouble.



Pay attention to the information marked by this icon because you might need it.



As I mention earlier, Technical Stuff icons denote detail that I find interesting (and you might, too). However, if you don't, no big deal. These nuggets aren't essential to gain an understanding of the topic being discussed. Skip them if you like.



Heeding the advice that this icon points to can save you from major grief. Ignore it at your peril.

---

## *Where to Go from Here*

Now you're ready to start finding out about using Crystal Reports 2008 to create professional-quality reports based on data stored in your databases. After all, Crystal Reports 2008 is the latest version of the most-popular report writer in the world. You can use it to quickly whip out simple reports, or you can take a little longer and generate a world-class executive report.

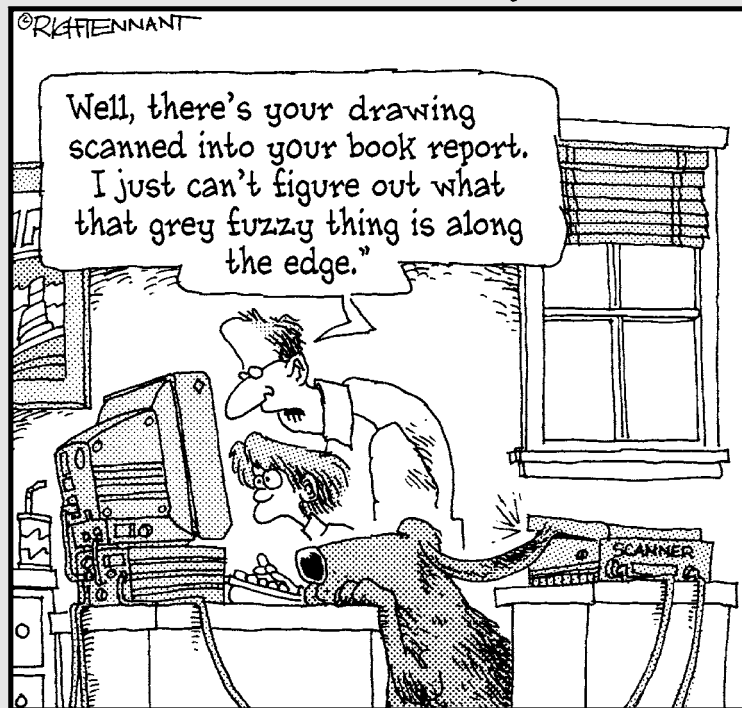


# Part I

# Reporting Basics

## The 5<sup>th</sup> Wave

By Rich Tennant



## *In this part . . .*

**T**here's data in them thar databases, where it's not doing anyone any good by itself. And your manager wants a coherent report, based on that data, on her desk by the close of business today. What should you do? Panic? Consider joining the Foreign Legion?

You don't need to do anything that drastic. The chapters in this part tell you how to quickly crank out the report your boss so desperately needs. This part offers you just what you need to know to put the needed information on the boss' desk before the lights go out tonight. And you'll start to build your reputation as a person who can deliver the goods when the pressure is on.

## Chapter 1

# Transforming Raw Data into Meaningful Information

---

### *In This Chapter*

- ▶ Outlining the major features of Crystal Reports 2008
  - ▶ Viewing an existing report
- 

Computers can store and process enormous amounts of data, and with the relentless advance of technology, those capabilities will soon become even more mind-boggling. Even now, the major challenge of getting value from computer systems isn't to make them more powerful but rather to harness the power they already have and in a way that delivers useful information to people.

Megabytes or gigabytes of raw data are neither meaningful nor useful to people. Instead, you need organized information, distilled and focused on answering specific questions. In businesses and enterprises of all kinds, organizing and presenting information has traditionally been the job of documents called *reports*. These documents generally comprise multiple pages that can include text, numbers, charts, maps, and illustrations. The best reports convey the facts needed to make the best decisions, unobscured by a clutter of data irrelevant to the task at hand.

*Crystal Reports*, a leading report-writing application package for more than a decade, is by far the most commonly used report writer in the world. Many people have used Crystal Reports unknowingly for years because it's often integrated with other applications and not specifically identified by name.

## *Major Features of Crystal Reports 2008*

Crystal Reports 2008 includes all the features that made Crystal Reports XI (its predecessor) a worldwide bestseller, plus it offers exciting new features that save you time and effort while you develop your reports. Crystal Reports 2008 is tightly integrated so that all the individual components of the system

work together seamlessly to support report creation, modification, and distribution. And the tight integration extends beyond Crystal Reports 2008 to BusinessObjects Enterprise, making the sharing of reports across large enterprises not only feasible but downright convenient.

The Explorers and Experts within Crystal Reports provide highly intuitive visual tools that step you through creating a report. Features such as the Repository (which applies to enterprise installations) and report templates allow users throughout the organization to reuse components or entire reports. There is never any need to reinvent the wheel. If a component in the Repository or a report template comes close to meeting your requirements but doesn't meet them exactly, you can easily make minor modifications and have a usable report quickly, which is a vast improvement over creating an equivalent component or report from scratch.

## *Formatting a report*

The primary job of a report writer, such as Crystal Reports, is to take data from a database and put it into a pleasing, logical, and understandable format for viewing. With Crystal Reports, you are well equipped to give your reports the appearance you want — without having to become a formatting guru.

Crystal Reports offers both absolute and conditional formatting:

- ✓ *Absolute formatting* enables you to put text, titles, charts, maps, columns of figures, cross-tabs, and graphics pretty much anywhere you want on the screen. You can handle preprinted forms. You can optimize for screen display or for printing on paper. This is close to the ultimate freedom in report creation — but not quite.
- ✓ *Conditional formatting* takes you one step further toward the ultimate: Using it, you can change the format of the data you're displaying in response to the content of the data itself. With conditional formatting, every time the data in a report changes, a formula that you include in the report can make the appearance of the report change accordingly.

Chapter 8 covers absolute and conditional formatting.

One especially useful feature of Crystal Reports 2008 — carried over from earlier versions — is the Report Alert. Suppose that a value being displayed crosses a critical threshold that requires immediate action on the part of the report's target audience. When that threshold is crossed, not only is its value displayed, but also a Report Alert dialog box pops up that can't be ignored.

Another labor-saving feature is Template Expert, which enables you to create and save a report template for later use. Imagine how much time you'll save if you have to quickly format multiple reports with a common look. Turn to Chapter 8 for more about Template Expert.



## ***Generating barcodes***

Go anywhere today, and you are bound to see barcodes. Barcodes identify every product for sale in just about any store. They identify items of inventory in a company's warehouse. They identify the furniture in your office. They even identify the cows on dairy farms. The day may not be far off when they identify people. Now you don't need expensive, special purpose equipment to generate barcodes. Crystal Reports 2008 provides you with that capability, at a fraction of what it would normally cost. Actually, if you already own Crystal Reports, all it costs you is the label stock and the ink it takes to print on it. See Chapter 7 to find out how to include barcodes in your reports.

## ***Enhancing a report with formulas and custom functions***

Did I mention that conditional formatting makes use of formulas to change the format of a report? Well, you can use formulas for far more than that. A *formula* is like a little computer program that can do computations or other manipulations of data before displaying the result. This makes Crystal Reports more than merely a report writer that puts your data in a nice format. By using formulas, you can make your report select specific records (or groups of records) and display them the way you want, controlling that process by declaring and using variables in your formulas. All the common flow-control structures (If-Then-Else, Select Case, For, While Do, and Do While) are available.

And after you create a useful formula to use later, you can save it as a custom function. Custom functions are added to the standard functions that come with Crystal Reports, keeping them available in one place.

I discuss formulas in Chapter 10.

## ***Getting visual with charts and maps***

Crystal Reports has excellent capabilities for the graphical display of data. All the most commonly used chart types are available, so you can display your data in the most meaningful way. If you have geographical data, Crystal Reports can display it in maps that show countries, regions, provinces, or cities. A variety of methods are available to associate values with specific regions, including colors, symbols of various sorts, and even charts.

Chapter 15 shows how you can include a chart in your report; Chapter 16 covers maps.

## ***Xcelsius integration***

The Xcelsius design tool is a companion product that integrates tightly with Crystal Reports. You can use it to create What-if scenarios in which a change of input parameters causes an immediate change in visual indicators. You can instantly see the result of a proposed change, before you make it. Turn to Chapter 17 for more information about Xcelsius.

## ***Adobe Flash integration***

You can also include Flash animation files within a Crystal report, including dynamic charts, graphics, and even video. Data in the report can be displayed in a dynamic manner, using Flash. Crystal Reports 2008 makes it easy to include Flash content in your report. Chapter 17 gives some pointers on adding Flash animations to a Crystal report.

## ***Displaying a report***

Crystal Reports is designed for distribution in today's highly connected business environment. You can build reports that are optimized for viewing on computers attached to your organization's local area network (LAN). You can also put a report on the Web for folks viewing via Web connection and browser.

## ***Distributing a report***

You can get your report into the hands of its intended recipients in many ways — print and deliver, fax directly from your computer to a fax machine anywhere in the world, or export the report to a file.

If you choose the latter approach, Crystal Reports supports many output file formats, including HTML for viewing over the Web. At least one of these formats is bound to be readable by the people in your audience. The one caveat here is that if you export a report to any format other than the Crystal Reports native format (.rpt), you might lose some of the report's formatting in the process. You can even export directly to an application, such as Microsoft Word or Lotus Domino. In such a case, Crystal Reports launches the target application and opens your report in it.

## *Supplying Crystal Reports with data*

As important as the output formats of a report are, the inputs to the report are equally important. Crystal Reports shines in this area, too. It accepts data from a wide variety of data sources, including personal computer databases (such as Microsoft Access) as well as enterprise-wide client/server databases (such as Oracle, IBM DB2, and Microsoft SQL Server). In fact, Crystal Reports can accept data from any ODBC-compliant database or any data source that complies with the Microsoft OLE DB standard. Essentially, if your data exists in a commonly used modern data source, Crystal Reports can use it.

## *The Lone Edition of Crystal Reports 2008*

Whereas previous versions of Crystal Reports came in multiple editions, each aimed toward a different audience, Crystal Reports comes in only one edition, which contains the full feature set. Now, you will never be disappointed to find that the edition you bought doesn't do everything you want. You never need to upgrade as your requirements grow. One product does it all.

## *Viewing a Report*

The majority of this book tells you how to create a new report from data in a database file, using Crystal Reports. It also tells you how to modify a report so you can create a new report (similar to, but distinct from, the existing one). These are concerns of the report designer. But what if you just want to *view* a report that has already been designed?

The world has many more people viewing reports than creating reports: maybe even you! No problem. Before I launch into telling you how to create reports in subsequent chapters of this book, I briefly describe the simple process of viewing reports that already exist.

## *Reading a printed report*

Reading a printed report is obviously the simplest (but also the most limited) way to get the information you want. It doesn't take a lot of technical sophistication to read text and view charts and maps on a sheet of paper. People were doing so long before computers came along.

For some kinds of information, however, printed reports aren't as valuable as those you can view online. For example, printed reports aren't updated when the database from which they were derived is updated. Thus, printed reports might contain obsolete — thus misleading — information. This is a factor you must always bear in mind when basing decisions on printed reports.

## *Viewing a report with Crystal Reports*

As you might expect, you can do more than just create or modify a report with Crystal Reports software: You can also view an existing report. This has some major advantages over reading a printed report, provided that you have Crystal Reports software installed on your computer:

- ✓ **The report is connected to the source database while the report is being viewed.** This is an obvious advantage. If the data in the database has changed since the last time you viewed it, you can refresh the report before you view it again by pulling current information from the database. Crystal Reports automatically checks the database to see whether it has been updated since the last time your report was run. If so, it asks whether you want to refresh the report with current data.
- ✓ **You can use the drill-down capability of Crystal Reports to selectively view the detail underlying summary reports.** This enables you to get an overview of the subject by viewing the summary, and then drill down into the specific parts that interest you for more detail. (For more on drill-down, see Chapter 6.)
- ✓ **Viewing a “live” report gives you access to the way Crystal Reports uses hyperlinks.** You can follow a hyperlink from one part of a report to another part, from one report to another report on the same computer, or from one report to a report on another computer on your network.
- ✓ **You can view reports that include color graphics or color text.** For the many people who don't have high-speed color printers, this provides a way to access the full richness of a report's contents.

To view an existing report (on a computer with Crystal Reports installed), follow these steps:

### **1. Launch Crystal Reports from your computer's Start menu.**

Crystal Reports appears, displaying the Start Page, as shown in Figure 1-1. You can choose to start a new report or open an existing report. Several existing reports that have been used recently are listed, or you can go to a larger list of report files if you don't see the one you want in the list. In addition, use any of the several tabs in the lower part of the screen to access a variety of helpful resources.

## 2. Select the report that you want to view and then click OK.

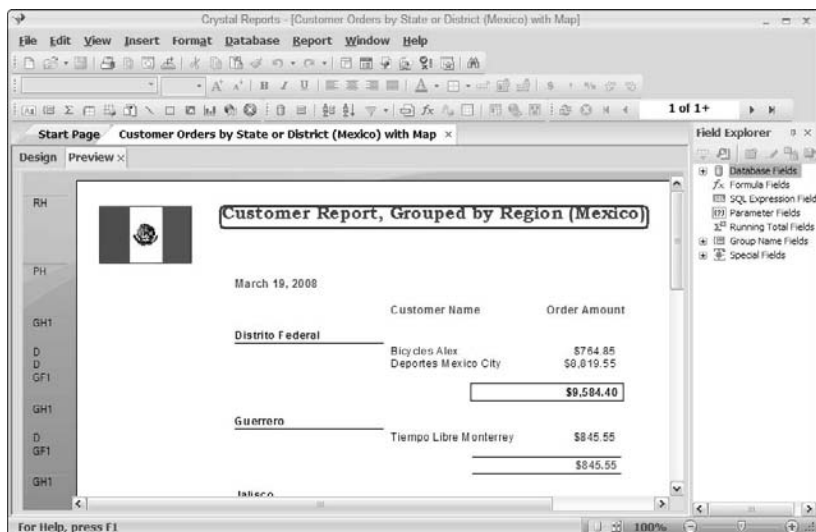
If you don't see the report you want, click Open File and use the Open dialog box to select any report available on the system.

Crystal Reports retrieves and displays the report, as shown in Figure 1-2.

**Figure 1-1:**  
The Start  
Page offers  
several  
options.



**Figure 1-2:**  
Viewing a  
report is  
a snap.



**3. Move through the report.**

Scroll around the report, and move back and forth among its pages. You can drill down into any summary report that supports drill down. If the report contains hyperlinks, you can follow them to other locations in the report or in other reports.

**4. When you're finished viewing the report, choose File→Close to close it.**

## *Viewing a report on a LAN or on the Web*

You can use Crystal Reports Server (a separate product) to display your reports to 20 simultaneous users on a LAN, or use BusinessObjects Enterprise to distribute the report to thousands of enterprise users or millions of users on the World Wide Web. Users on a LAN that's directly connected to Crystal Reports Server can use the free Crystal Reports Viewer to access the reports they need.

Users on the Web can view reports with a standard Web browser, such as Internet Explorer or Firefox.