

Chapter 1

Transforming Raw Data into Meaningful Information

In This Chapter

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

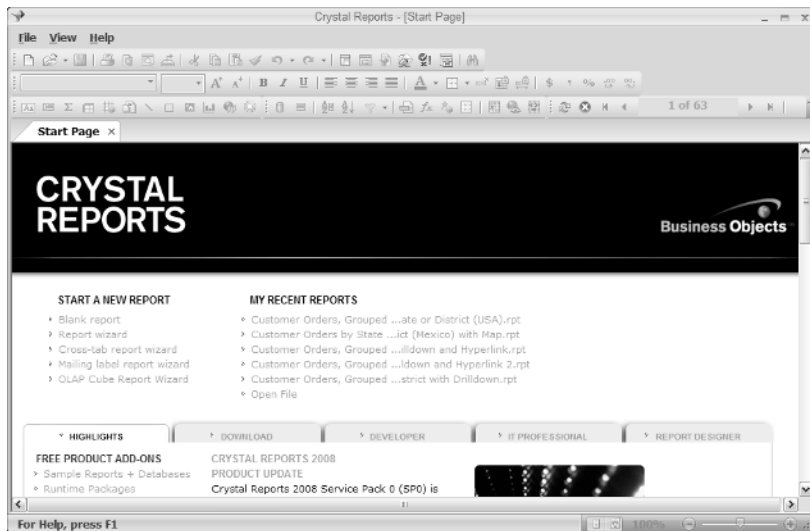
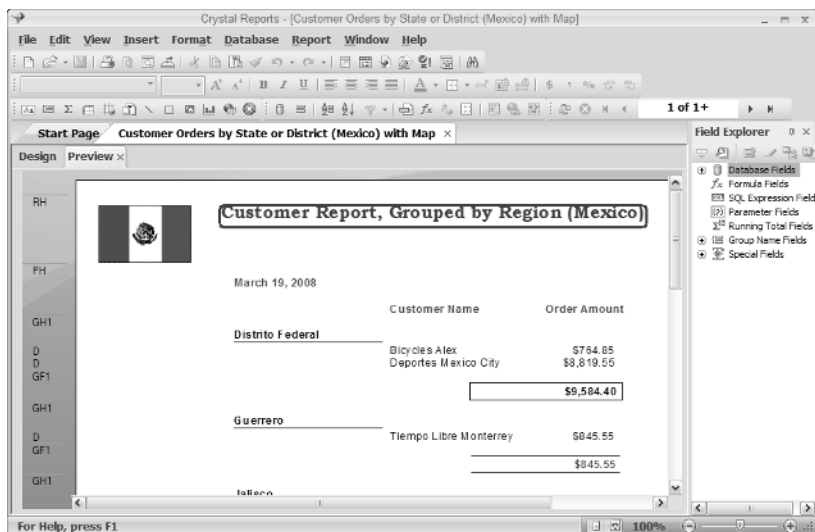


Figure 1-2:
Viewing a
report is
a snap.



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.