

SEAGATE CRYSTAL REPORTS EVALUATOR'S GUIDE

SEAGATE CRYSTAL REPORTS 6.0

Evaluator's Guide

Seagate Software
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WELCOME TO SEAGATE CRYSTAL REPORTS 6.0

The Seagate Crystal Reports Evaluator's Guide is designed to introduce you to Seagate Crystal Reports 6.0. It will help you understand the features and advantages of using Seagate Crystal Reports, what's new in version 6.0, and it will guide you, step-by-step, through some of the operations you can perform with the product. After installing the product, you can use this guide to get a hands-on feel for it by completing the Test Drives in chapters 3, 4, 5, and 6.

About This Guide

The Seagate Crystal Reports 6.0 Evaluator's Guide is organized into the following chapters, each of which is designed to describe or demonstrate the capabilities of the product:

- The Seagate Crystal Reports Advantage
- Test Drive: Creating Reports
- Test Drive: Deploying Reports to the Web
- Test Drive: Integrating Reports into Web-deployed Applications
- Test Drive: Integrating Reports into Visual Basic Applications
- Appendix A: Seagate Crystal Reports Features List
- Appendix B: Contacting Seagate Software

Installing Seagate Crystal Reports

Seagate Crystal Reports has been designed for installation on several Microsoft Windows platforms. You can use Windows 3.1, Windows 95, or Windows NT 3.51 and higher as your operating system.

Windows 3.1 or NT 3.51

To install Seagate Crystal Reports, complete the following steps:

1. Insert the Seagate Crystal Reports CD or diskette in the appropriate drive.
2. Make sure that the Windows Program Manager is active.
3. Select Run from the File menu. The Run dialog box appears.
4. Type the following text in the Run dialog box:

x:\setup

where x represents the appropriate drive letter. For example, if your CD is in drive d:, type

d:\setup

5. When the Seagate Crystal Reports splash screen appears, select 16- or 32-bit as the installation type according to your operating system. The End User License Agreement appears.
6. If you agree to the terms of the license agreement, click I Agree to continue installing the product. The Enter the Installation Key dialog box appears.
7. Enter the product key code in the dialog box (the 12-digit key code is printed on the CD sleeve).
8. Click OK. The Installation dialog box appears.
9. Follow the directions on the screen to set up the program.

During the installation procedure, you will be given the choice to have Setup complete an automatic installation or a custom installation. If you select Automatic Installation, Setup installs all of the Seagate Crystal Reports files to the drive you specify. If you select Custom Installation, you will be given the opportunity to select which components of the Seagate Crystal Reports application files are installed on your system.

Windows 95 or NT 4.0

To install Seagate Crystal Reports, complete the following steps:

1. Select Run from the Start menu. The Run dialog box appears.
2. Complete steps 4–8 above.

During the installation procedure, you will be given the choice to have Setup complete an automatic installation or a custom installation. If you select Automatic Installation, Setup installs all of the Seagate Crystal Reports files to the drive you specify. If you select Custom Installation, you will be given the opportunity to select which components of the Seagate Crystal Reports application files are installed on your system.

THE SEAGATE CRYSTAL REPORTS ADVANTAGE

The amount of data being generated in worldwide business activities is growing at a staggering rate. Making business decisions based on this data can be extremely valuable, but the data must first be filtered into meaningful information—a daunting task. Without powerful query and reporting tools, it's difficult to organize, analyze, or present this information effectively. We designed Seagate Crystal Reports to address these challenges.

Seagate Crystal Reports is a desktop query and reporting tool; it accesses more than 30 data sources, has powerful data analysis capabilities, and produces an unlimited variety of presentation-quality reports with an ease that its users rave about. Because of its modular design, the Crystal Report Engine can be used to integrate reporting into database applications; it is distributed with a free runtime. Now, Seagate Crystal Reports can be used for advanced web reporting as well.

A range of people use Seagate Crystal Reports: business professionals who want to report or query directly from data sources, IS professionals who need to provide reports to business users, and independent software vendors, corporate software developers, and VARs who need to include reporting in database applications.

Reporting and Business Intelligence

The Business Intelligence sector is estimated to grow almost 50% each year through 1999, according to the Gartner Group.

Data analysis, reporting, and query tools can help business users wade through a sea of data and synthesize valuable information from it—today these tools collectively fall into a category called “Business Intelligence.”

Business Intelligence (BI) includes any technology that lets business users access and analyze data to add value to their organizations through effective business decisions. Two key factors drive the need for Business Intelligence systems:

- Organizations need to exploit their corporate data for competitive advantage.
- Corporate data is available, and it needs to be used effectively.

According to the results of a Gartner Group survey conducted in March 1996, approximately 63% of Business Intelligence analysis is achieved through querying and reporting from data sources. The Gartner Group estimates that, through 1998, the number of people using query and reporting tools as a component of Business Intelligence will grow by 120%.

The need for query and reporting as a function of BI is increasing. Because Seagate Crystal Reports provides robust functionality for reporting applications, it has become the most widely used tool of its kind for Business Intelligence applications worldwide.

The Reporting Tool of Choice

Seagate Crystal Reports has been chosen by over 160 of the industry’s leading software vendors such as Microsoft®, Oracle®, Netscape®, and PeopleSoft® for inclusion in their shrink-wrapped applications. It is also the world’s most widely used reporting tool, available in seven languages, with over 3 million licenses shipped around the world (IDC, 1997). The Crystal Reports file format (*.RPT) has become an industry standard for reporting—many Global 2000 companies rely on the *.RPT format for their reports.

Implemented extensively in both horizontal and vertical markets, Seagate Crystal Reports has been adopted by many major accounting and help desk vendors in their respective industries.

Two Component Architecture

Design presentation-quality reports and integrate reporting functionality into your applications.

Seagate Crystal Reports is a combination of two components: the Crystal Report Designer, which builds, manipulates, and formats reports, and the Crystal Report Engine, which processes reports and then prints or exports them to a specified destination.

Crystal Report Designer

Create almost any report you can imagine.

Based on a free-form drawing model, the Crystal Report Designer is the front end of Seagate Crystal Reports. With the Report Designer, you can take advantage of easy data selection, WYSIWYG report layout, sophisticated formatting tools, and a wide range of data analysis and manipulation tools to create presentation-quality report masterpieces.

Crystal Report Engine

The Crystal Report Engine comes with a royalty-free runtime.

The printing and exporting heart of Seagate Crystal Reports is the Crystal Report Engine, a true Dynamic Link Library (DLL) that you can integrate dependably into Windows-based and web-based applications. As a developer using Visual Basic, Visual C++, Visual InterDev, Delphi, INFORMIX-NewEra, Visual dBASE, C, C++, or any other programming language that can access a DLL, you can add sophisticated reporting capabilities to your applications without the time-consuming task of writing your own code from scratch.

Available in both 16- and 32-bit versions, Seagate Crystal Reports runs on Windows 3.1, Windows for Workgroups, Windows 95, and Windows NT 3.51+. All reports created with Seagate Crystal Reports are compatible across 16- and 32-bit environments.

Technology Leadership

"Top-notch web publishing and developer features keep Seagate Software's Crystal Reports at the top of the pile. Overall, Seagate Crystal Reports 6.0 offers more than all its rivals and does so at an excellent price."

Timothy Dyck, PC Week, 1997

In addition to being the first Windows-based query and reporting tool, Seagate Crystal Reports has led the way in reporting innovation since its introduction:

- First Report Engine DLL, complete with a free runtime
- First report writer to include integrated e-mail
- First report writer with VBX / OCX / ActiveX controls
- First report writer with compiled reports—executable versions of reports
- First report writer with 24-hour report scheduling
- First 32-bit Windows-based report writer
- First report writer with HTML exporting and web-based ActiveX Viewer Control
- First report writer to report from special data sources such as Microsoft Internet Information Server Web Logs, Microsoft Exchange Folders, and Windows NT Event Logs
- First OLAP-aware report writer, capable of reporting from Arbor Essbase data

True to form, Seagate Software continues to lead the industry by recognizing the Web as a key information infrastructure for reporting applications. Seagate Crystal Reports 6.0 now offers the same leading functionality for integrating reporting into web-based applications that has always been available for the desktop.

Reporting Technology Designed for the Web

Access the most advanced web reporting capabilities available in the industry and transfer the reporting skills you already have to web projects.

Many reporting tools claim to be web-enabled, but a reporting tool truly designed for the Web needs to do more than just export to HTML. Seagate Crystal Reports 6.0 goes far beyond the HTML export capabilities that we introduced in April 1996; we've created a reporting tool designed for the

Web that maintains Seagate Software's technological leadership through superior web reporting functionality. It's also designed to build on your existing development skills. Seagate Crystal Reports offers the following technological advantages:

- The ability to leverage existing reporting skills and knowledge
- Smart Navigation™ for the Web
- A thin-client, thin-wire architecture
- Smart Viewers
- Hassle-free cross-platform deployment
- Optional dynamic refresh capability
- Web application deployment with an Active Server Component and Visual InterDev Design-time ActiveX Control

Leverage Existing Reports

Seagate Crystal Reports 6.0 gives you the tools to complete your Web project using skills and knowledge you already have.

If you're using Seagate Crystal Reports, you already have many of the ingredients you need to deploy reports within your organization on the Web. Existing reports created with any version of Seagate Crystal Reports can be easily transferred—just link them to your web server, install and configure the Crystal Web Report Server (included in the box with Seagate Crystal Reports 6.0), and you're done! No web reporting tool available today gives you this kind of power, convenience, or flexibility.

While you may have had to learn new programming languages and development skills to be successful on the Web, you can leverage the reporting skills you already have if you're using Seagate Crystal Reports. And you can also leverage your existing Crystal Reports.

Smart Navigation™ for the Web

Now it's fast and easy to find information, whether it's on the desktop or in a browser. Rather than having to page through an entire report, you can quickly navigate to specific details via a new page-on-demand interface that presents a summary of the report. Pull reports from the web server to the browser, one page at a time, then drill down for more detail on graphs, group totals, and embedded hyperlinks. Automatically generated group

trees provide an index to reports so you can quickly jump, with a single mouse click, to the section of the report you need to analyze.

Thin-wire Architecture for a Thin-wire World

Even if you're deploying large reports to your intranet, the "thin-wire" architecture of the Crystal Web Report Server ensures superior response times and reduces web traffic. Page-on-demand access to reports lets users download only the specific pages of a report which they need to see. An ISAPI/NSAPI-compliant component, the Crystal Web Report Server is compatible with popular NT web servers including Microsoft Internet Information Server and Netscape Enterprise Server.

Smart Viewers

Smart Viewers are lightweight add-ins (less than 300KB) for ActiveX and Java that let you view reports in their native *.RPT format.

Distributing reports via the Web doesn't mean you need to compromise when it comes to the presentation quality of your reports. Seagate Crystal Reports 6.0 has Smart Viewers—thin-client add-ins that enable you to add functionality to web reports without the hassles of application setup on client desktops. With Smart Viewer/ActiveX and Smart Viewer/Java, you can view reports in native Crystal Reports format inside web browsers supporting ActiveX or Java. In addition, Smart Viewers for HTML Frames or plain HTML provide platform independence by letting users view any Crystal Report on any web browser, running on any operating system.

Hassle-free Cross-platform Deployment

Cross-platform deployment is headache-free: you choose your web software, end users choose the browser they prefer, and Seagate Crystal Reports 6.0 does the rest.

The Crystal Web Report Server detects which browser is being used and automatically downloads the appropriate Smart Viewer to the client. If the browser supports ActiveX or Java, the Smart Viewer/ActiveX or Smart Viewer/Java is downloaded. If the browser supports neither ActiveX nor Java, the Smart Viewer/HTML is downloaded. Reports can be deployed, hassle-free, to any platform.

Optional Dynamic Refresh Capability

If you want, you can give users more control over reports by turning on or off the capability to rerun reports on demand for up-to-the-minute current information.

Web Application Deployment

Get the same flexible reporting power in your web-deployed applications that you enjoy on the desktop.

Seagate Crystal Reports 6.0 includes the Crystal Active Server Component, which lets you integrate the Crystal Report Engine directly into Active Server Pages (ASPs). A Design-time ActiveX Control for Microsoft Visual InterDev is also included to make integrating reports into ASPs as simple as pointing and clicking. The Crystal Active Server Component and Design-time ActiveX Control for Microsoft Visual InterDev lets you integrate the Crystal Report Engine into your web-deployed applications.

Advanced Developer Features

Add superior reporting functionality to your applications faster and easier than ever.

Seagate Crystal Reports is well-known among Windows developers. In version 6.0, we've added some innovative features that significantly extend the functionality of Seagate Crystal Reports and make it the premier choice for developers who need to integrate sophisticated reporting into their applications.

Smart Runtime Preview Window

Make the Seagate Crystal Reports Preview Window become a more integral part of your application.

Now reports no longer need to be static objects within your application. Make your reports come alive with the smart Preview Window; it provides unprecedented interactivity by offering more control to users. The result? Live reports and superior control over your application design. The smart runtime Preview Window includes the following features:

Make your application respond to user-initiated events.

Event and Call-back Support When a user clicks on an element in the Preview Window, your application can present additional report details, launch another report, execute application code, or do whatever you choose.

Drill Down Provide drill down capabilities to any report that uses the smart runtime Preview Window. Reports can be as detailed as you want.

Give your end users a better way to interact with data.

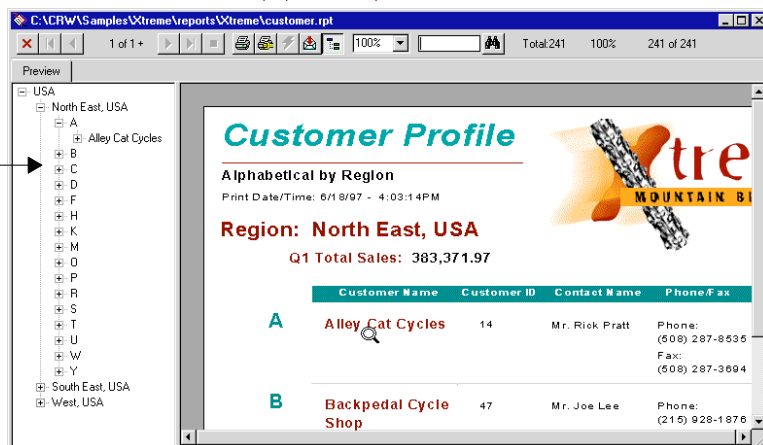
Smart Navigation for the Desktop Similar to Smart Navigation for the Web, Smart Navigation for the desktop offers powerful new tools to quickly navigate to the exact information you're looking for. Automatically generated group trees provide an index to reports so users can quickly jump to any section of a report.

Provide users with more control over the Preview Window.

Customizable Preview Window Controls Include features such as a printer setup button, a variable zoom control, a refresh button, and search capabilities in your application. Enable any or all of these new features, or continue using the current Preview Window—the choice is yours.

Customizable Preview Window Controls

Smart Navigation Group Tree



Automation Server

Gain greater control over the Crystal Report Engine.

Seagate Crystal Reports 6.0 contains an Automation Server that provides easy to use, object-oriented access to the entire Crystal Report Engine via over 500 properties, methods, and events. If you're creating a project with Visual Basic, Visual C++, Visual InterDev, or Office 97, this extensive support gives you the tools to tightly integrate and customize reports within your application.

The Automation Server also contains an Active Server Component which is used in conjunction with Microsoft IIS and Visual InterDev to drive the Crystal Report Engine from Active Server Pages (ASPs).

User-defined Functions in Visual Basic and Other Languages

Add custom formulas to reports without being limited to a specific programming language.

In earlier versions of Seagate Crystal Reports, only C and C++ could be used to create User-Defined Functions (UDFs). In version 6.0, however, you can write your own formulas in any programming language that supports the Component Object Model (COM), including Visual Basic, Visual J++, Visual C++, and Delphi. Now it's fast and easy to perform customized calculations within your reports by writing your own functions.

A Year 2000 User Function Library Included

A Year 2000 User Function Library (UFL) is also included to convert 19xx dates into 20xx dates, based on a user-controlled sliding date.

Improved Support for Apex True DBGrid 5.0

Now when you generate a report from Apex True DBGrid 5.0, grid formatting information is retained, including font types, styles, and sizes. And you don't need to make any changes to your application. Just install the latest versions of the Crystal ActiveX Control and the Apex True DBGrid ActiveX Control, and your data will be printed better than ever before.

Make the reports within your application accurately reflect the original format of the data within a grid

Customer ID	Customer Name	First Name	Last Name	Title
1	City Cyclists	Chris	Christianson	Sales Manager
2	Patchfinders	Owner	Manley	Sales Representative
3	Bike-A-Holics Anonymous	Gary	Jannis	Sales Associate
4	Psycho-Cycle	Anthony	Mast	Sales Representative
5	Sporting Wheels Inc.	Patrick	Reyes	Sales Associate
6	Rockhocks For Jocks	Heather	O'Levy	Sales Representative
7	Power Cycles	Ann	Smith	Sales Agent
8	Spokes 'N' Wheels Ltd.	Kenneth	Chester	Sales Representative
9	Trail Blazer's Place	Anthony	Burns	Owner
10	Roady Rims Company	Anthony	Shoemaker	Sales Agent
11	Clean Air Transportation Co.	Sam	Carter	Sales Associate
12	Hooked on Helmets	Gary	Wade	Owner
13	C-Gate Cycle Shoppe	Matthew	Banks	Owner
14	Alley Cat Cycles	Ken	Pratt	Owner
15	The Bike Cellar	Christopher	Carmino	Sales Manager

First Name	Last Name	Title
Chris	Christianson	Sales Manager
Owner	Manley	Sales Representative
Gary	Jannis	Sales Associate
Anthony	Mast	Sales Representative
Patrick	Reyes	Sales Associate
Heather	O'Levy	Sales Representative
Ann	Smith	Sales Agent
Kenneth	Chester	Sales Representative
Anthony	Burns	Owner
Anthony	Shoemaker	Sales Agent
Sam	Carter	Sales Associate
Gary	Wade	Owner
Matthew	Banks	Owner
Ken	Pratt	Owner
Christopher	Carmino	Sales Manager

Connect to data sources on the fly.

"A powerful stand-alone report generator suitable for end users, Seagate Crystal Reports is also a development tool in its own right."

PC Direct, March 1996

Report From Application Data

The new Active Data Driver in Seagate Crystal Reports 6.0 allows you to create a report template that you can use within your Visual Basic application. Then, at runtime, use Active Data Objects (ADO), Remote Data Objects (RDO), or Data Access Objects (DAO) to bind your report to any runtime data source, including grid data. Or use the Crystal Data Object (CDO) to report off memory blocks by binding to application memory. Your application is more tightly integrated with data so it only needs to connect to the data once.

Select Your Favorite Development Environment

Integrate the powerful functionality of the Crystal Report Engine with any of the controls or class libraries included in Crystal Reports 6.0:

- ActiveX (OCX) Control (16- and 32-bit)
- Visual Basic Custom Control (VBX)
- Microsoft Foundation Class Library with AppWizard for Visual C++
- Delphi Visual Component Library (VCL)
- INFORMIX-NewEra Class Library
- Automation Server and Object Library

When your application runs, it links to the Crystal Report Engine to access report processing, printing, and exporting functionality. Reporting can be simple, producing only a single report that is sent to a printer or Preview Window with no options available to the user. Or, it can be complex, letting the user change such things as record selection, sorting, grouping, and export options.

To obtain a complete listing of controls, methods, functions, and properties available for Seagate Crystal Reports 6.0, visit the Seagate Software web site at <http://www.seagatesoftware.com/crystalreports/evalguide/>.

Deliver Information the Way YOU Want It

"In more than 20 years of database work, I've not seen a better reporting tool."

Tim Parker, SCO World Magazine,
June 1997

You don't have to adapt your report to the limitations of your reporting tool.

Although database programs often include their own report writers, they typically require extensive knowledge of the database with which they are bundled. With Seagate Crystal Reports, however, even inexperienced users can quickly create stunning reports with Report Experts that guide them through the report creation process.

Access Data Easily

You can access data from virtually any PC, SQL, ODBC-compliant, groupware, or Microsoft® BackOffice™ data source. A wide range of built-in tools let you accomplish unlimited types of data analysis. Choose your data sources and create customized reports for any query.

Meet all your client/server database access and analysis requirements.

New native database drivers for Oracle 8, Informix, ACT!3.0, and the IBM DB2 family (DB2, DB2/2, DB2/400, DB2/6000) make Seagate Crystal Reports the only tool you need to transform data from over 30 different relational databases to information-rich reports. And with the addition of a native driver for Arbor Essbase, version 6.0 can now report off multidimensional (OLAP) databases.

Design Reports Quickly

Report Experts make it easy to produce informative, visually appealing reports. A drag-and-drop interface, the option to edit reports while viewing live data, and an interface designed to make common reporting tasks highly efficient all help you design reports more productively.

Distribute Reports Widely

You can integrate reports into all Windows programming environments and distribute them through popular communication infrastructures, such as e-mail and the Web.

Build Any Report You Can Imagine

Place the data in your report wherever you want and customize it to look any way you choose; reports can be as simple or as complex as your needs demand. You don't need to adjust your projects around what Seagate Crystal Reports can do. In version 6.0, you have a variety of report types from which to choose:

Subreports

Replace several reports by creating one main report that contains embedded subreports. Each subreport can access a different data source.

Web Reports

Publish new and existing reports to the Web by exporting directly to HTML format, or use the Crystal Web Report Server to deploy reports in *.RPT format to the Web.

Form-style Reports

Print precisely onto pre-printed forms using guidelines, text objects, and free-form object placement.

Cross-tab Reports

Use cross-tab reports to present summary information clearly and replace numerous columnar reports.

Conditional Reports

Generate reports that show different results depending on the parameters you set.

Design reports in a drawing-style interface

Toggle group tree on or off

Place graphs beside data

All report elements are objects

Use multiple sections to present data from different data sources

World Sales Report
Print Date/Time: 6/12/97 - 6:33:57 PM
Page 1 of 1

Top 5 Countries' Sales

Country	Total Sales
USA	\$2,132,869
Canada	\$146,106
Italy	\$73,379
UK	\$44,872
Switzerland	\$44,122
Others	\$166,836

Total Sales Amounts

Amount Range	Count
\$1,000,000 plus	1
\$500,000 to \$999,999	1
\$250,000 to \$499,999	1
\$100,000 to \$249,999	1

For Help, press F1

Records: 63 100%

Brought to You by Seagate Software

"[Seagate Crystal Reports] is one of the most versatile reporting packages you can buy."

PC Direct, March 1996

A world leader in Business Intelligence tools.

Seagate Crystal Reports is made by Seagate Software, one of the world's largest software companies; it is backed by Seagate Technology, a Fortune 500 company with over \$9 billion in annual revenues. With over 3 million licenses shipped, Seagate Crystal Reports is a key component of Seagate Software's data access and analysis strategy to offer a complete Business Intelligence solution to the Global 2000 that scales from the desktop to the enterprise.

Now it's your turn . . .

It's no secret. Using the right tool for the job makes things easier. If you spend less time learning how to use your tools and adapting to their limitations, you have more time to be creative.

You have the jobs that need doing and we have the right tool. But don't just take our word for it. See for yourself. Reach into the Seagate Crystal Reports toolbox and learn what reporting can be. Try it once and you'll see what we mean.

. . . because the best creations are built with the best tools. With Seagate Crystal Reports 6.0, your toolbox just got way bigger.

TEST DRIVE: CREATING REPORTS

With Seagate Crystal Reports, creating a professional-looking report is fast and easy. Even if you've never used the product before, using a Report Expert lets you develop a sophisticated report in minutes.

In this test drive you'll learn how to create a report showing sales by region for 1996 by completing a few short tasks that highlight some of the primary features of Seagate Crystal Reports. The tasks you will complete include the following:

- Creating a report
- Manipulating data
- Adding a graph
- Creating a formula
- Adding conditional formatting
- Adding a style
- Inserting a subreport

Creating a Report

To help you quickly create professional-quality reports, Seagate Crystal Reports includes Report Experts that walk you through the report generation process step-by-step, giving you “paint-by-number” solutions to complex reporting problems.

In most cases, Report Experts present you with a series of tabs. Each tab requests information about one aspect of the reporting process. You work through the tabs, selecting only those tabs necessary for the reporting task at hand. When the final tab is completed, the Report Expert generates the report. After you complete each exercise, you can preview your report to see how it develops.

To start Seagate Crystal Reports 6.0, complete the following steps:

1. In Windows 95 and NT 4.x, click Start and then select the program from the Seagate Crystal Reports program folder.

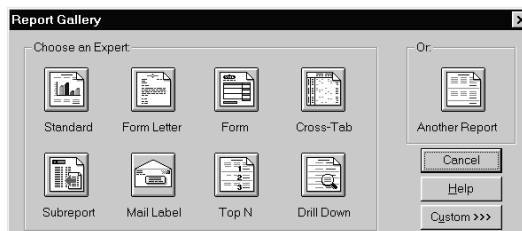
—OR—

In Windows 3.1 and NT 3.51, double click the Seagate Crystal Reports Icon in the Program Manager.

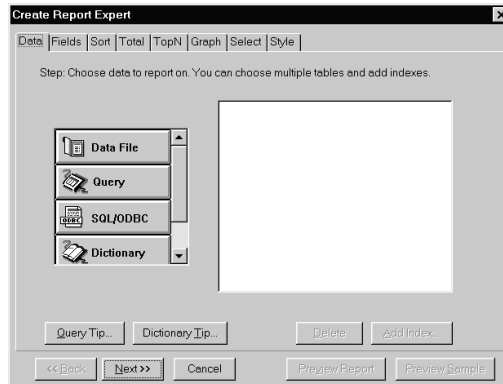
In this section, you’ll create a sales report that shows total sales for 1996 for each region. Only the top 5 regions and distributors in each region will be shown; the rest will be placed in a group called “Others”.

To create a report, complete the following steps:

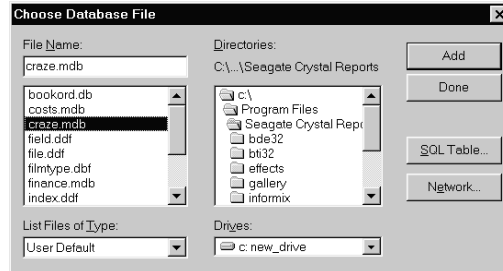
1. Select New from the File menu. The Report Gallery appears.



2. Select Top N from the Report Gallery. The Create Report Expert dialog box appears.



3. Click Data File. The Choose Database File dialog box appears.

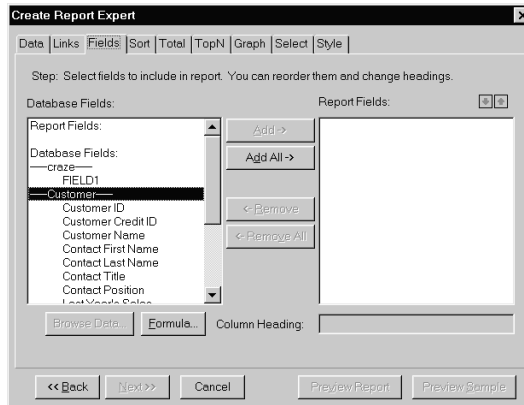


4. Highlight craze.mdb and click Add. The Select Tables dialog box appears.

This dialog box lets you select the tables you want to link in a report. You can then display the links graphically.

5. Select Customer.
6. Click OK.
7. Click Done to close the Choose Database File dialog box.

8. Select the Fields tab in the Create Report Export dialog box.
9. Highlight the Customer table and double-click to display the fields in the table.



10. Drag the Customer Name field and the Last Year's Sales field to the Report Fields text box.

The Report Expert creates column headers for you, using the field names as a default. If you want to rename a column, type the new name in the column heading field.

11. Click Preview Report to view the report.

You have now selected the type of report you want to generate, identified the fields to be included in your report, and assigned names to the column headings.

Note

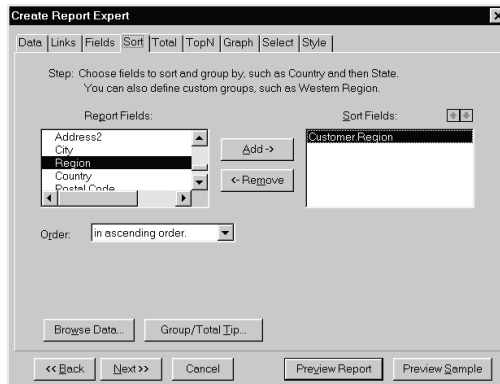
To modify the report further at any time, you can return to the Report Expert by selecting Report Expert from the Report menu.

Manipulating Data

Now that you've created a basic report, you can manipulate the data to modify the report any way you want. You may want to filter data to include only those distributors in a certain country, for example, or you may need to present subtotals in a certain order, list companies by region, or highlight certain totals according to their amounts.

To manipulate the data in your report, complete the following steps:

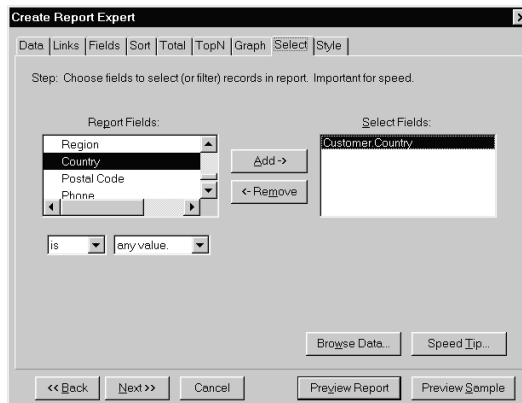
1. Select Report Expert from the Report menu. A Confirm Command dialog box appears.
2. Click Yes. The Create Report Expert appears.
3. Select the Sort tab in the Create Report Expert.
4. Drag the Region field to the Sort Fields text box.



5. Click the Order drop-down box and select “in ascending order.”
6. Select the Total tab. The Expert automatically selects Last Year’s Sales.
7. Select the TopN tab and select TopN and Sum of Customer.Last Year’s Sales where N is 5 from the Sort All drop-down box.

The Others option at the bottom of the dialog box indicates that those regions that are not in the top 5 of last year's sales will be aggregated into a group called Others.

8. Select the Select tab.
9. Highlight the Country field and drag it to the Select Fields text box.
10. Select “equal to” in the second drop-down box under the Report Fields text box. A drop-down list box appears to the right.
11. Select “USA” from this drop-down box on the far right.



You've now created a filter that excludes all records for customers outside the USA. These excluded records will remain on the database server, which reduces traffic and processing time when you preview the report.

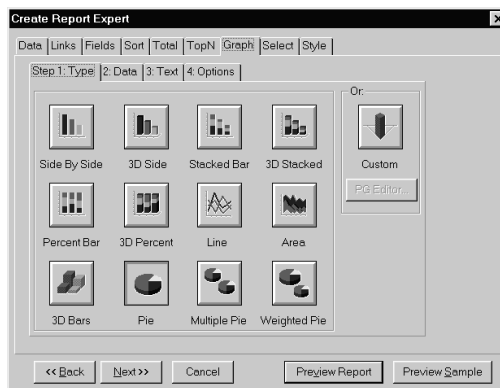
Adding a Graph

Seagate Crystal Reports contains a powerful graphing tool that converts data into graphs so you can include intuitive, presentation-quality graphs in any report. These graphs can be completely customized using the Perspective Graph Editor (PG Editor), and they can be inserted into many sections of your report. Simply select the style of graph you want and the Report Export automatically creates it for you.

In this exercise, you can create a pie graph that represents the regional subtotals of last year's sales for the top five regions as a percentage of total sales in the USA. Then you can insert the graph into your report.

To add a pie graph to your report, complete the following steps:

1. Select the Graph tab in the Create Report Expert. Select the Pie graph from the twelve different graph styles shown in the Graph Gallery.



2. Select the Data tab in the Graph Gallery. The Report Expert automatically creates a graph based on the data in Sum of Customer.Last Year's Sales because it is the only numeric field in your report.
3. Click Preview to view the report.

Adding a Style

To make your report more appealing, you can add a variety of elements such as borders, underlines, and logos. By using the style features in the Create Report Expert, you can add style attributes to any report.

To add a style to your report, complete the following steps:

1. Select the Preview tab in the report window.
2. Select Report Expert from the Report menu. A Confirm Command dialog box appears.

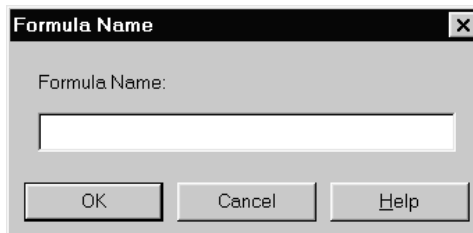
3. Click Yes.
4. Select the Style tab in the Create Report Expert.
5. Select Red/Blue Border in the Style text box.
6. Type “Sales by Region” in the Title field.
7. Click Preview Report to view the report.

Creating a Formula

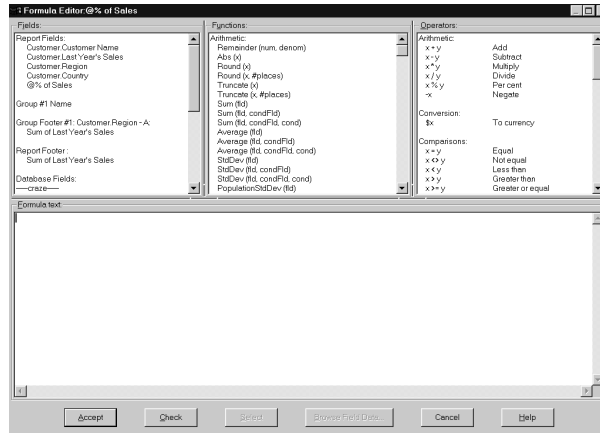
In many cases, the data you want to appear in your report already exists in fields within database tables. Sometimes, however, you need to put data in your report that does not exist in any of the data fields. In such cases, you must create a formula. For example, to calculate each distributor’s sales for last year as a percentage of total sales for the region, you need to know the subtotal of sales for the region as well as the sales for each individual distributor in that region.

To create a formula, complete the following steps:

1. Select the Design tab in the report window at the top left corner of the report.
2. Select Formula Field from the Insert menu. The Insert Fields dialog box appears. Select the Formula tab to make it active.
3. Click New. The Formula Name dialog box appears.



4. Name the formula “% of Sales” and click OK. The Formula Editor appears.



The Formula Editor lets you create, test, and modify your formula.

5. Enter the following formula in the Formula Editor window by double-clicking each field in the Formula Editor list boxes:

{Customer.Last Year's Sales}% Sum({Customer.Last Year's Sales},{Customer.Region})}

- Double-click Customer.Last Year's Sales from the Fields list.
- Double-click x%y percent from the Operators list.
- Double-click Sum of Last Year's Sales from Group Footer #1 in the Fields list.

The operator that you have selected automatically formats the result of the formula to print as a percentage.

When you select items from the list boxes, they are automatically entered in the formula window complete with brackets, punctuation, and other syntax items. If you enter your formula manually using the keyboard, you have to make certain you enter those syntax items yourself. It is safer and faster to build a formula by choosing list-box items.

Scroll through the Functions list box to see the wide range available to you. Functions are built-in procedures or subroutines used to evaluate, calculate, or transform data; they make it easy for you to create formulas without coding. The Formula Editor includes financial functions that let you place arrays and ranges in formulas. You can even extend functions with your own custom functions by creating them with any COM-compliant language such as Visual Basic, Visual C++, and Delphi.

6. Click Check. The Formula Editor checks the formula syntax and identifies any errors.
7. Click OK.
8. Click Accept. The Formula Editor closes.
9. Click Insert to place the field object in your report. When you move the cursor, it changes to a grey field object box.
10. Position the field object box in the Details section of your report to the right of the Last Year's Sales column. Click to insert.
11. Click Close. The Insert Fields dialog box closes.
12. Select the Preview tab in the report window.

You have calculated the percentage contribution of each distributor to total sales for the region. Because Seagate Crystal Reports is a multi-pass report writer, you can perform a wide range of calculations on values that you derive from data in your database.

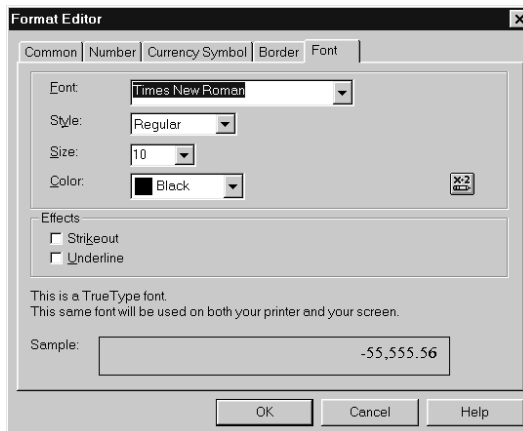
Adding Conditional Formatting

To manipulate the formatting in different sections of your report, you can use formulas created in the Formula Editor to control field and object attributes such as color, font, border, underline, and strikeout. Using formulas, you can conditionally format data based on whatever criteria you select.

In the following exercise you can use a formula to display percentages of last year's sales in red if they are greater than 20% and in blue if they are equal to or below 20%.

To apply conditional formatting to your report, complete the following steps:

1. Select the Preview tab in the report window. A preview of your report appears.
2. Position the cursor over any entry in the % of Sales column and click to select it. A rectangle appears around that entry and the rest of the column becomes shaded to indicate that the entry is selected.
3. Click the right mouse button. The shortcut menu for that column appears.
4. Select Change Font from the shortcut menu. The Format Editor appears.



5. Click the Conditional Formatting icon. The Format Formula Editor appears.
6. Enter the following formula in the Formula Text dialog box:
If {@% of Sales} > 20 then Red else Blue

You can quickly add fields, even fields that refer to other formulas ({% of Sales}) and functions (Red and Blue), by selecting them from the drop-down lists.

7. Click Check to verify that your formula doesn't contain any errors. If it is correct, click OK.
8. Click Accept to close the Format Formula Editor.

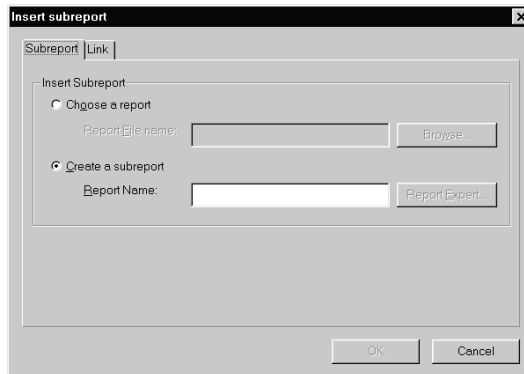
9. Click OK to close the Format Editor.
10. Select the Preview tab in the report window to view the report.

Inserting a Subreport

By inserting a subreport into a container report, you can access a variety of data sources simultaneously and include these reports together in one report. Now one report can include multiple reports at the same time to make analyzing information easier and quicker. You'll find this feature especially helpful if you have data in different systems that have logical relationships but no database links. Subreports let you link these different sources so related data can be presented in a meaningful way in a single report.

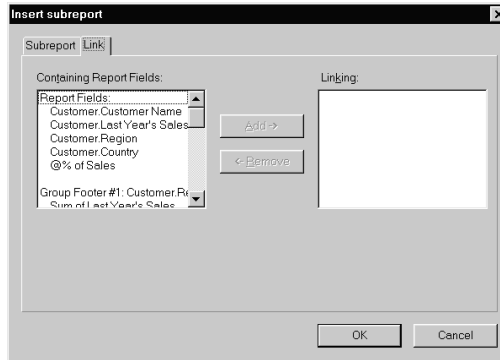
To insert a subreport into your report, complete the following steps:

1. Select the Design tab in the Report window.
2. Select Subreport from the Insert menu. The Insert Subreport dialog box appears.



3. Click the Choose a Report radio button.
4. Click Browse to see the list of existing reports. Select the Reports folder. Select the craze folder.

5. Highlight “adsubres.rpt”.
6. Click Open. The Open dialog box closes.
7. Select the Link tab in the Insert Subreport dialog box.



8. Highlight the Customer Name field and click Add. The field is added to the Linking dialog box.
9. Click OK to close the Insert Subreport dialog box. A gray rectangle representing the subreport is displayed on the screen. Drag the rectangle to the details section of the container report and click to insert it. The subreport is inserted into the container report.
10. Resize the details section by placing the mouse cursor over the lower border and dragging it down.
11. Highlight the subreport and drag it to the center of the details section.
12. Click Preview to display the new report with the inserted subreport.

Using subreports has many advantages. For example, you can insert a subreport into a container report to stand on its own, or you can link a subreport to any common field in the container report. By inserting and linking subreports, you can create limitless report combinations.

Summary

In this Test Drive, you created a report and added a variety of design elements to it. You can see how the Report Experts methodically guide you through the process of creating a report from scratch. Once you have created ad hoc reports and queries, you can spend more time customizing them to suit your needs. With a bit of imagination and planning, you can create almost any report or query quickly and easily with Seagate Crystal Reports 6.0.

TEST DRIVE: DEPLOYING REPORTS ON THE WEB

With its platform independence, the Web has become an important infrastructure for delivering information throughout organizations. Using a variety of innovative technologies, Seagate Crystal Reports now gives you the power to deploy sophisticated web-based reports to web browsers with ease.

In this chapter, you will test drive XtremeNet, a sample intranet site for a fictitious mountain bike manufacturer called Xtreme Mountain Bikes. The content of XtremeNet includes a number of reports created with Seagate Crystal Reports 6.0. The tasks you will complete include the following:

- Opening XtremeNet
- Resizing the report frame
- Changing the report size
- Using the drill down function
- Using the search function
- Refreshing and printing
- Switching between Smart Viewers

Before You Begin

Confirm that you have installed **all** of the Seagate Crystal Reports Web Reporting components on your computer.

Confirm that you have **at least one** of the following servers installed on your computer:

- Microsoft Internet Information Server 3.0
- Netscape FastTrack
- Netscape Enterprise Server

Opening XtremeNet

To open XtremeNet, complete the following steps:

1. Open your Internet Explorer browser (version 3.02 or above).
2. Type in the following URL:

http://servername/xtremehtm/

where servername is the name of the web server on which you have installed the Crystal Web Report Server.

The introductory page to XtremeNet appears.

3. Click the link to Log on to XtremeNet.

A log on page appears; access rights vary by user. Mark Ellison, President, for example, can access all areas of the site, while Caroline Patterson, Receptionist, can only view the Company Information section of the site.

4. Log in as Mark Ellison. You don't need to enter a password.

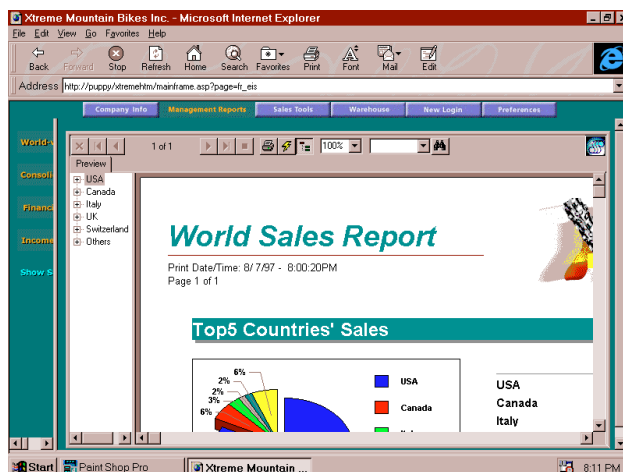
A Company Information page appears with a letter from Mark Ellison displayed in the right hand frame. On the left, a listing of all the reports available is displayed. You can click whichever report you want to see.

5. Using the navigation buttons on the top of the page, select the Management Reports section of the Intranet.
6. Select the World Wide Sales Report from the list of reports on the left side of the page.

If this is the first time you're requesting a report from the Crystal Web Report Server, it will detect that you're using Internet Explorer as your browser and automatically send the Smart Viewer/ActiveX to the client.

If the browser you were using did not support ActiveX, you would be sent either the Java, HTML Frames, or plain HTML Smart Viewer, depending on the technology supported by your browser. The Smart Viewers are lightweight controls: Smart Viewer/ActiveX is less than 200KB in size, while Smart Viewer/Java is less than 300KB.

The Crystal Web Report Server downloads only the first page of the World Wide Sales report, and a group tree, which is generated automatically to act as an index to the report. In browsers which support ActiveX or Java, the report is viewed in its native *.RPT file, so the presentation quality of your report is not compromised. If neither ActiveX nor Java is supported, the page is rendered in HTML.



Note	The Show Source button reveals the code that created each page.
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Resizing the Report Frame

To resize the frame showing the report, complete the following steps:

1. Position the mouse pointer over the vertical line that separates the frames in your viewer and drag the line to the left to increase the space available for viewing your report.
2. Repeat step 1 above with the vertical line that separates the group tree and the report details.
3. Position the mouse pointer over the group tree icon.



Clicking the group tree icon toggles the group tree on and off. Leave the group tree on for fast and easy navigation to the section of the report you're interested in, or turn it off to increase the screen space available for viewing your report. For the remainder of this test drive, leave the group tree on.

Changing the Report Size

To change the size of your report, complete the following steps:

1. In the drop-down box, select Page Width as the zoom factor.
2. Type 90% in the box. The report scales to 90% of the actual size.

Using the Drill-down Function

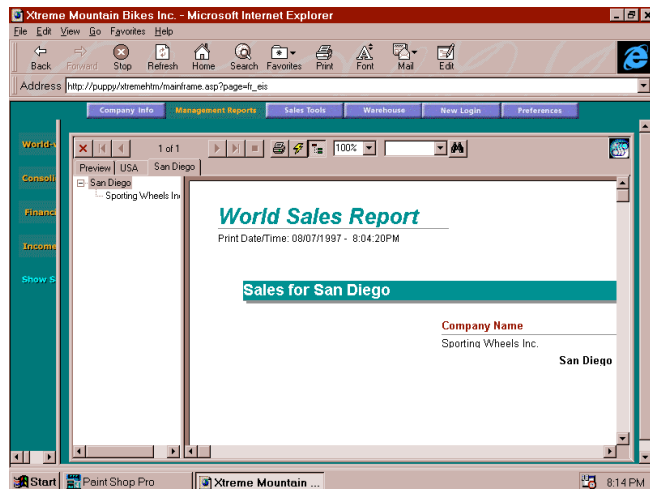
To see the detailed sales numbers for distributors in San Diego, complete the following steps:

1. Position the mouse pointer over the section of the graph that represents sales for USA. The pointer changes to a magnifying glass, which indicates that you can drill down on a particular item to view additional details.
2. Double-click USA.

To ensure a faster response time and minimize web traffic, the Smart Viewer issues a group on demand request to the Crystal Web Report Server. Only those pages that contain the sales information for USA are downloaded to your browser.

3. Click the + next to CA in the group tree.
4. Click San Diego.

The page containing the San Diego details was sent back from the server during the previous step, so the response time is very short.



Using the Search Function

To find details for a particular distributor using the search function, complete the following steps:

1. Type “Sporting Wheels” in the Search window.
2. Click the search icon. The web server automatically returns the page containing the details for Sporting Wheels in San Diego, California.



You've now used three different methods to search for information within your report: drill down, navigating using the group tree, and the search mechanism. These three navigation techniques are part of Smart Navigation, a new navigation paradigm which makes it fast and easy to find detailed information within a report.

Refreshing and Printing

To refresh and print your report, complete the following steps:



1. Click the refresh icon. The Crystal Web Report Server re-runs the report against the current data in the database and returns the refreshed report.

The web site administrator can turn the dynamic refresh capability on or off as desired. By turning it on, users can update the data in a report as required; by turning it off, web server traffic can be controlled.



2. Click the Print icon. The report is printed from your printer.

Switching Between Smart Viewers

If you need to switch between Smart Viewers for any reason, you can click the Preferences button to specify which Smart Viewer is being used to render reports in your browser.

Note

The option to change Smart Viewers has been added to XtremeNet so that you can compare them. Under normal circumstances, this feature would not be required because the Crystal Web Report Server would automatically detect the browser being used and then send down the appropriate Smart Viewer.

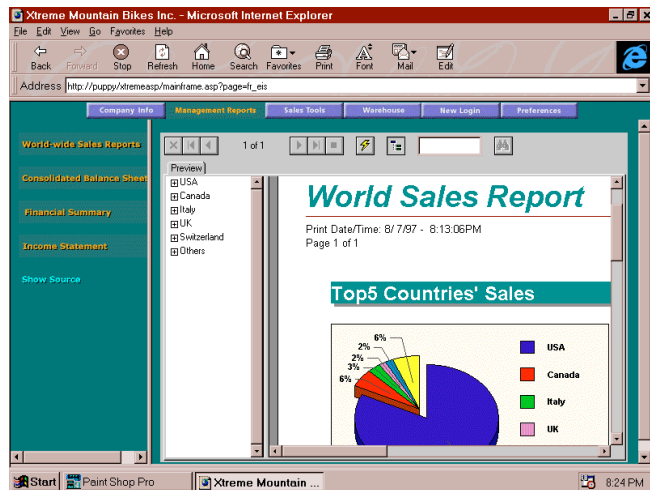
Smart Viewer/Java

To switch to the Smart Viewer/Java, complete the following steps:

1. Click the Preferences button on the navigation bar at the top of the browser.

2. Select Java from the drop-down box and click Save Preferences.
3. Click Management Reports on the navigation bar at the top of the browser.
4. Click the World Wide sales report to see it rendered within the Smart Viewer/Java.
5. Use the group tree to navigate to various sections of the report.
6. Drill down on the pie chart. The mouse pointer changes to a cross-hair to indicate that you can drill down for additional levels of detail.

Each of the navigation options issue the same group on demand request as in the previous Smart Viewer/ActiveX example so that only the pages that are required are sent down from the server.

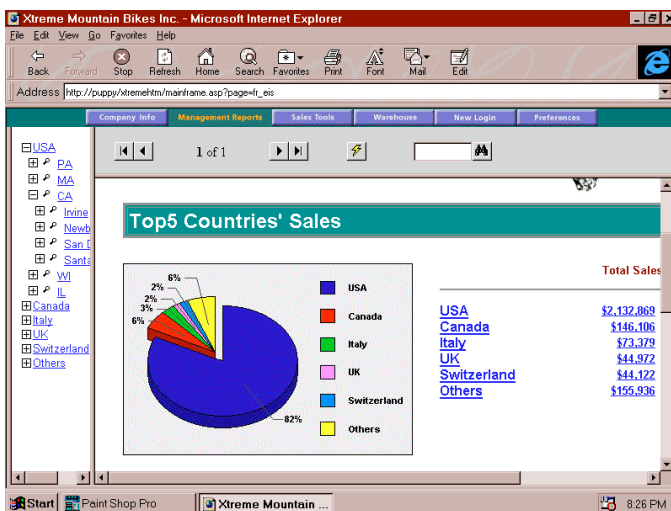


A difference between the Smart Viewers is that Java does not support printing or zooming capabilities.

Smart Viewer/HTML

To switch to the Smart Viewer/HTML Frames, complete the following steps:

1. Click Preferences in the navigation bar at the top of the browser.
2. Select the Smart Viewer/Frames.
3. Click Save Preferences.
4. Click Management Reports on the navigation bar at the top of the browser.
5. Click on the World Wide Sales report to see it rendered within the Smart Viewer/HTML.



Despite a reduction in the presentation quality of the report due to it being translated to HTML, Smart Navigation, the group tree, and group on demand are still functional. Drill down has been replaced by hot links. Even if end users have browsers that support neither ActiveX nor Java, they can still quickly and easily navigate to the detailed information they need.

Summary

In this Test Drive, you deployed a web-based report on an intranet created for a fictional mountain bike manufacturer. You were able to manipulate the report using features such as search, drill down, refresh, and print. With Smart Viewers for Active X, Java, and HTML, Seagate Crystal Reports 6.0 lets you deploy sophisticated web-based reports to popular web browsers, hassle-free.

TEST DRIVE: INTEGRATING REPORTS INTO WEB-DEPLOYED APPLICATIONS

Desktop software applications often need reporting capabilities, and web-based applications are no exception. With Seagate Crystal Reports, you can integrate advanced reporting functionality into applications designed specifically for the Web.

In this test drive, you will integrate reporting functionality into a web-deployed application. The tasks you will complete include the following:

- Creating a web reporting application
- Adding an Active Server Page
- Creating a report using an active data source

Before You Begin

Confirm that you have the following software installed on your machine:

- Microsoft Internet Information Server 3.0
- Microsoft Internet Explorer 3.02 with AuthenticCode 2.0
- Microsoft Active Server Pages
- Microsoft Front Page Server Extensions
- Microsoft Visual InterDev

Creating a Web Reporting Application

To create a web reporting application, complete the following steps:

1. Start Microsoft Visual InterDev.
2. Select New from the File menu.
3. Select the Web Project Wizard.
4. Name the project “Eval” and specify a directory for the project.
5. Click OK.
6. Select the web server you want to use and click Next.
7. Change the name of the web if you like, and click Finish. InterDev creates a new web project.
8. Click “+” in the left-hand Workspace window to expand the tree for the newly created project.

Adding an Active Server Page

1. Select Add To Project from the Project menu.
2. Select New.
3. Select Active Server Page (default) and name it “Eval.”
4. Click OK. InterDev adds a new ASP to your project.

Integrating Reporting into Web-deployed Applications

5. Right click the following line:

<!-- Insert HTML here -->

6. Select Insert ActiveX Control.
7. Select the Design-time tab.
8. Select CrystalReport.DTC.
9. Click OK. The Crystal Design-time Control is displayed.

The Use Existing Report check box is on and grayed out. In the second half of this test drive you will create a report from scratch using an Active Data Object (ADO).

10. Click the x on the caption bar to close the Properties window.
11. Click Browse and select a the wwsales.rpt report in the \program files\seagate crystal reports\reports\xtreme directory.
12. Click the x on the caption bar to close the Design-time Control.

Eval.asp and rptserver.asp have been added to the project. The source code (in yellow) has been generated by the Design-time Control.

Note	The caption bar close button is the only mechanism available to close a Design-time ActiveX Control.
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13. Right-click on eval.asp in the left-hand Workspace window and select Browse With.
14. Click Yes to save changes.
15. Select Microsoft Internet Explorer. The report appears within the Smart Viewer/ActiveX inside the browser.

Creating a Report Using an Active Data Source

To create a new report using an Active Data Object (ADO) and the Xtreme system data source, complete the following steps:

1. Select Add To Project from the Project menu.
2. Select Data Connection.

3. Select the Machine Data Source tab.
4. Select Xtreme Sample Data and click OK. A data connection called DataConn is added to the project.
5. Select Add to Project from the Project menu.
6. Select New.
7. Select Active Server Page (default) and name it “Eval2.”
8. Click OK. An additional ASP is added to the project.
9. Right-click the following line:
<!-- Insert HTML here -->
10. Select Insert ActiveX Control.
11. Select the Design-time tab.
12. Select CrystalReport.DTC.
13. Click OK. The Crystal Design-time Control is displayed. This time, however, the Select Existing Report check box is cleared.
14. Close the Properties window.
15. Select the Employee table from the Table Name list box.
16. Select Last Name, First Name, and Birth Date from the Columns list box.
17. Name the report eval.rpt and click the x on the caption bar to close the Design-time control.

A new report called eval.rpt has been created and added to the project. The code in the right-hand window has also been created to use the new report. You can edit the report with the Crystal Report Designer by double-clicking on the report in the Workspace window.
18. Right-click eval2.asp in the Workspace window and select Browse with. The new report is displayed in the browser. The data source is the Active Data Object referencing the xtreme data source.

Summary

In this Test Drive, you created a web reporting application and used Microsoft Visual InterDev to add an Active Server Page with reporting functionality to your application. By integrating these capabilities into your web applications, you can include advanced reporting with your custom-built web projects.

TEST DRIVE: INTEGRATING REPORTS INTO VISUAL BASIC APPLICATIONS

Applications created with Visual Basic often include reporting capabilities. Seagate Crystal Reports has always made it possible to add reporting functionality into Visual Basic applications, but new capabilities, such as event support and reporting from runtime data sources offer a wider range of options to developers than ever before.

In this test drive, you will complete the tasks necessary to create a simple reporting application using Microsoft Visual Basic 5. The tasks you will complete include the following:

- Creating a reporting application with Visual Basic 5
- Turning on and off Preview Window capabilities
- Adding an event
- Creating a user-defined function
- Adding a user-defined function to a report
- Reporting from a runtime data source

Creating a Reporting Application with Visual Basic 5.0

Seagate Crystal Reports 6.0 takes advantage of new features in Visual Basic 5. To complete the following tasks, Visual Basic 5 must be installed on your computer.

Creating a New Visual Basic Project

To create a reporting application, complete the following steps:

1. Start Visual Basic 5. The New Project dialog box appears.
2. Select the New (default) tab.
3. Highlight Standard.EXE and click Open. A new form appears.
4. Select References from the Project menu. The References dialog box appears.
5. Select Crystal Report Engine 6.0 Object Library.
6. Click OK.
7. Double-click CommandButton on the toolbar to insert a button onto the form.
8. Change the caption to “View Report” in the Properties Window.
9. Double-click the button to open the Code Window.

Creating Code for the Application

To add code to the application, complete the following steps:

1. Above the private Sub declaration, insert the following code:

```
Dim app As CRPEAuto.Application  
Dim rep As CRPEAuto.Report
```

Creates the CRPE Application Object; opens the report and presents it in the Preview window.

2. Below the private Sub declaration, insert the following code:

```
ChDir "C:\Program Files\Seagate Crystal  
Reports\reports\xtreme"  
Set app = CreateObject("Crystal.CRPE.Application")  
Set rep = app.OpenReport("wwsales.rpt")  
rep.preview
```

Previewing the Report

1. Select Start from the Run menu to run the application.
2. Click View Report. The report appears.

New in version 6.0.

Notice that the report has a variable zoom was previously available only in the Preview tab of the Crystal Report Designer.

Turning On and Off Preview Window Capabilities

To turn on and off Preview window capabilities, complete the following steps:

1. Close the Preview window and the Form.
2. Add the following code to the original application above the Sub declaration:
dim winop As CRPEAuto.PrintWindowOptions
3. Add the following code to the original application above rep.Preview
Set winop = rep.PrintWindowOptions

Dimensions the object for setting options in the Preview Window.

```
winop.HasGroupTree = True  
winop.HasSearchButton = True  
winop.CanDrillDown = True  
winop.HasCloseButton = True  
winop.HasPrintSetupButton = True  
winop.HasRefreshButton = True
```

Turns on all the new controls in the Seagate Crystal Reports 6.0 Preview window.

4. Select Start from the Run menu to run the application.
5. Click View Report. The report appears.
6. Drill down on the pie graph.

7. Expand and contract the group tree by clicking on the categories along the left side of the window.

Adding an Event

You can add events to your application by adding new dimensions and calls to your reporting application. Events can be anything that the user does to prompt the application for information.

Note	Events are supported with the 32-bit version of Seagate Crystal Reports 6.0 Professional and Visual Basic 5.0 only.
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To add an event to the application, complete the following steps:

1. Close the Preview window and the Form.
2. Add the following code to the original application above the Sub declaration:

```
Dim view As CRPEAuto.view  
Dim WithEvents win As CRPEAuto.Window
```

3. Replace rep.Preview with the following code:

```
Set view = rep.Preview  
Set win = view.Parent
```

Note	In step 2 above, you are modifying an existing line of code to include "Set View".
-------------	--

Creating a DrillOnGroup Event

Event support lets you create any number of user-initiated events to present specific information, such as message boxes. In actual applications for example, the information returned as the result of an event could be used as the parameter field for another report.

To create a DrillOnGroup event, complete the following steps:

1. Place the cursor below End Sub.
2. From the Object drop-down list box, select Win.

The window object contains most of the new events.

The Preview window will call back into "win" to process the event.

3. From the Procedure drop-down list box, select DrillOnGroup.
4. Within the created Sub, type the following code:
**MsgBox ("You are about to drill down into a group.
The top level group is "+ GroupNameList(0))**
5. Select Start from the Run menu to run the application.
6. Click View Report.
7. Drill down on the pie graph. The event is fired.

Creating a Print Button Event

To create a Print Button event, complete the following steps:

1. Place the cursor below End Sub.
2. Type the following code into the original application.

Creates a simple message box event for the Print button.

```
Private Sub win_PrintButtonClicked(useDefault As Boolean)  
  
MsgBox ("Print Button Event!")  
  
End Sub
```

3. Select Start from the Run menu to run the application.
4. Click View Report
5. Click the Print icon. The event is fired.
6. Click Cancel to close the Print dialog box.

Creating a User-defined Function

To perform a custom calculation within your report, you can create a User-defined Function (UDF) in Visual Basic and add it to the User Function Library (UFL) in Seagate Crystal Reports.

To create a UDF, complete the following steps:

1. Select New Project from the File menu.

This function converts the database date field to long date format.

2. Click ActiveX DLL.
3. In the Project window, rename the project from Project 1 to “CRUFLMyLibrary”.
4. In the Properties window, rename the class module from Class1 to “MyFunctions”.
5. Insert the following code into the code window:

```
Public Function DateToString (date1 As Date) As String
```

```
    DateToString = Format (date1, "Long Date")
```

```
End Function
```

6. Select Save Project from the File menu. Save the Class files and the Project files in the Temp directory (c:\temp).
7. Select Make CRUFLMyLibrary.DLL from the File menu. A new DLL called “CRUFLMyLibrary” is created.
8. Place the library in the Seagate Crystal Reports directory.

Adding a User-defined Function to a Report

You can use the MyFunction DLL in any application just as you would use any other DLL.

To use the MyFunction DLL, complete the following steps from within the Crystal Report Designer:

1. Select New from the File menu. The Report Gallery appears.
2. Select Standard from the Report Gallery. The Create Report Expert dialog box appears.
3. Click Data File. The Choose Database File dialog box appears.
4. Select xtreme.mdb from the Seagate Crystal Report directory.
5. Click Add. The Select Tables dialog box appears.
6. Select Employee.
7. Click OK.

8. Click Done to close the Choose Database File dialog box.
9. Select the Fields tab in the Create Report Export dialog box.
10. Highlight the Employee table and double-click to display the fields in the table.
11. Drag the Birth Date field to the Report Fields text box.

The Report Expert creates column headers for you, using the field names as a default. If you want to rename a column, type the new name in the column heading field.

12. Click Formula. The Formula Name dialog box appears.
13. Name the formula “LongDate” and click OK. The Formula Editor appears.
14. Double click MyLibraryMyFunctionDateToString near the bottom of the Functions list box.
15. Double-click the BirthDate field in the Fields list box.
16. Click Accept.
17. Add the @LongDate formula to the report fields.
18. Click Preview Report. The report appears.

Reporting from Runtime Data Source

In this section of the test drive, you will use the new Active Data Driver to report from a runtime data source. In this case, the runtime data source is a memory block; you will use a Crystal Data Object (CDO) to create a runtime report template that will use the data from the applications memory to create a report.

DAO, RDO, and ADO are Visual Basic data sources.

DAO (Data Access Object) is used for accessing local MS PC databases.

RDO (Remote Data Object) is used for accessing remote databases, such as SQL Server and ODBC on a server.

ADO (Active Data Object) replaces both DAO and RDO, but it is available in 32-bit only and does not ship with Visual Basic.

CDO (Crystal Data Object) lets you create a runtime report template which is used for accessing memory blocks.

Creating a New Definition in Seagate Crystal Reports

To create a new definition, complete the following steps from within the Crystal Report Designer:

1. Select New from the file menu. The Report Gallery appears.
2. Select Standard from the Report Gallery.
3. Select Active Data as the data source. The Select Field Definition File dialog box appears.
4. Click New. The Database Definition Tool dialog box appears.
5. Type the following information in the dialog box:
Field Name: Company
Field Type: String
Length: 30
6. Click Add.
7. Type the following information in the dialog box:
Field Name: Country
Field Type: String
Length: 30
8. Click Add.
9. Click the x in the upper right-hand corner of the Database Definition Tool to close it. A Confirm alert appears.
10. Click Yes. The Save File As dialog box appears.
11. Name the Definition "MyDefinition.ttx" (*.ttx is the file format for runtime report templates) and click Save.
12. Click OK.
13. Click Add
14. Click Done
15. Select the Fields tab and insert the Company and Country fields.

16. Select the Sort tab.
17. Sort on Country in ascending order.
18. Click Preview Report. The report appears. Note that there is no real data yet. This will be provided by the application later.

Note	Do not save the report with data.
-------------	-----------------------------------

19. From the File menu, clear the Save Data with Report option.
20. Select Save from the File menu. Name the report “Report1.RPT” and save the report in the Temp directory (c:\temp).

Reporting From Application Memory

To report from application memory, complete the following steps:

1. Start Visual Basic 5. The New Project dialog box appears.
2. Select the New (default) tab.
3. Highlight Standard.EXE and click Open. A new form appears.
4. Select References from the Project menu. The References dialog box appears.
5. Select Crystal Report Engine 6.0 Object Library.
6. Click OK.
7. Double-click CommandButton on the toolbar to insert a button onto the form.
8. Change the caption to “View Report” in the Properties Window.
9. Double-click the button to open the Code Window.
10. Above the private Sub declaration, insert the following code:

Declares the objects needed for the application.

```
Dim app As CRPEAuto.Application
Dim rep As CRPEAuto.Report
Dim db As CRPEAuto.Database
Dim tbls As CRPEAuto.DatabaseTables
Dim tbl As CRPEAuto.DatabaseTable
Dim CDOSet As Object
Dim Rows(5, 2) As Variant
```

11. Below the private Sub declaration, insert the following code:

```
Set CDOSet =  
CreateObject("CrystalDataObject.CrystalComObject")
```

Creates field names for the data object.

```
CDOSet.AddField "Company Name"  
CDOSet.AddField "Country"
```

Populates the data object with sample data.

```
Rows(1, 0) = "Microsoft"  
Rows(1, 1) = "USA"
```

```
Rows(2, 0) = "Netscape"  
Rows(2, 1) = "USA"
```

```
Rows(3, 0) = "BC Telecom"  
Rows(3, 1) = "Canada"
```

```
Rows(4, 0) = "Great Plains Software"  
Rows(4, 1) = "USA"
```

```
CDOSet.AddRows Rows
```

Opens the report template (report1.rpt) and sets the data source to the data object.

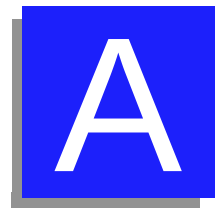
```
Set app = CreateObject("crystal.crpe.application")  
Set rep = app.OpenReport("c:\temp\report1.rpt")  
rep.Database.Tables(1).SetPrivateData 3, CDOSet
```

```
rep.Preview
```

12. Click Run to run the application.
13. Click View Report. The report appears; it now uses data from the application as a data source.

Summary

In this Test Drive, you were introduced to the way you can create reporting applications with Visual Basic 5 and Seagate Crystal Reports 6.0. You can see how using the Preview window, adding events, creating UDFs, and reporting from runtime data sources makes reporting applications more powerful for you and more interactive for your users.



APPENDIX A: SEAGATE CRYSTAL REPORTS FEATURES LIST

Feature	16-Bit Standard	32-Bit Standard	16-Bit Professional	32-Bit Professional	New in 5.0	New in 6.0
Report Navigation						
Smart Navigation™, Group Tree, Drill down, Search	•	•	•	•		•
Rapid Application Development						
Active Data Driver support for runtime data sources			•	•		• (DAO, ADO, RDO, CDO)
Automation Server (OLE) Interface			•	•		• VB4 Pro, VB5
Crystal Active Server Component				•		•
Event/call-back support			•	•		•
Visual Basic Custom Control (VBX)	• (>35)		• (>80)			
ActiveX (OCX) control	• (>35)	• (>35)	• (>90)	• (>90)	• (some new)	
Delphi control (VCL)	• (>35)	• (>35)	• (>90)	• (>90)	• (some new)	
Report Engine DLL functions	• (>35)	• (>35)	• (>110)	• (>110)	• (some new)	

Appendix A: Seagate Crystal Reports Features List

Feature	16-Bit Standard	32-Bit Standard	16-Bit Professional	32-Bit Professional	New in 5.0	New in 6.0
MFC Class Library with AppWizard				• (>110)	• (some new)	
INFORMIX-NewEra Class Library			•	•	•	
Web Reporting						
Dynamic data refresh capability				•		•
Page-on-demand				•		•
HTML translator				•		•
ActiveX and Java add-ins				•		•
Export to HTML	•	•	•	•	•	
Crystal Web Report Server				•		• (ISAPI/NSAPI compliant)
Web Application Development						
Crystal Active Server Component				•		•
Visual InterDev Design-time ActiveX Control				•		• (Microsoft IIS)
General Features						
User-defined functions written in any COM-compatible language	Read only	Read only	•	•		•

Feature	16-Bit Standard	32-Bit Standard	16-Bit Professional	32-Bit Professional	New in 5.0	New in 6.0
Enhanced Data Dictionaries	Read only	Read only	•	•	•	
SQL database access			•	•		
Report options saved with report	•	•	•	•		
Fully customizable Runtime Preview Window			•	•		•
Drill down in Runtime Preview Window	•	•	•	•		•
Pre-defined (sample) reports	• (>30)	• (>30)	• (>162)	• (>162)	•	
12 Pre-defined (sample) Microsoft® BackOffice™ Reports			•	•	•	
Compiled reports	•	•	•	•		
Parameter fields	•	•	•	•	•	
Apex True DBGrid 5.0 support			•	•		•

Native PC Database and File Access

ACT! 2.0	•	•	•	•		
ACT! 3.0	•	•	•	•		•
Clipper (NTX)	•	•	•	•		
Btrieve (all indices, requires DDFs)	•	•	•	•		
dBASE (NDX, MDX, BDE)	•	•	•	•		

Appendix A: Seagate Crystal Reports Features List

Feature	16-Bit Standard	32-Bit Standard	16-Bit Professional	32-Bit Professional	New in 5.0	New in 6.0
FoxPro 2.6 (IDX, CDX)	•	•	•	•		
Microsoft Access 1.0–2.5, 7.0 (Jet/DAO)	•	•	•	•		
Microsoft Access Queries (Jet/DAO)	•	•	•	•		
Microsoft Visual FoxPro 2.6	•	•	•	•		
Paradox 3.5–4.5 (Native), 3.5–7.0 (BDE)	•	•	•	•		
Native Client/Server and Network Data Access						
Arbor Essbase			•	•		•
Centura (formerly Gupta) SQLBase			•	•		
IBM DB2, DB2/2, DB2/400, DB2/6000			•	• (NT only)		•
Informix			•	•		•
Microsoft Exchange			•	•	•	
Microsoft Internet Information Server			•	•	•	
Microsoft Systems Management Server			•	•	•	
Microsoft SQL Server (Native and Intersolv DataDirect)			•	•	• (Native is new)	

Feature	16-Bit Standard	32-Bit Standard	16-Bit Professional	32-Bit Professional	New in 5.0	New in 6.0
Microsoft Windows NT Event Logs				• (NT only)		
Oracle 7.x, 8.x			•	•		• (8.0 is new)
Sybase SQL Server 10 & 11			•	•	• (Native is new)	
Web server activity logs (NCSA format)			•	•	•	

ODBC Data sources (ODBC Drivers Included)

ASCII	•	•	•	•		
dBASE		•		•		
IBM DB2/2				• (NT only)		
Informix			• (Inet5)	• (Inet5, 7)	•	
Lotus Notes 3.x			•			
Microsoft Access 1.0–2.5, 7.0, 8.0	•	•	•	•		7.0, 8.0
Microsoft Access Queries	•	•	•	•		
Microsoft Excel (XLS) 4.0–5.0, 7.0, 8.0	•	•	•	•		7.0, 8.0
Microsoft FoxPro		•		•		

Appendix A: Seagate Crystal Reports Features List

Feature	16-Bit Standard	32-Bit Standard	16-Bit Professional	32-Bit Professional	New in 5.0	New in 6.0
Microsoft SQL Server			•	•		
Microsoft Visual FoxPro 3.0	•	•	•	•	•	
Oracle			•	•		
Paradox		•		•		
Sybase SQL Server 10 & 11			•	•		
ODBC Data Sources (ODBC Drivers Not Included)						
Computer Associates CA-Open Ingres			•	•		
Pervasive (formerly Btrieve) NetWare SQL			•	•		
Sybase SQL Anywhere 5.0 (Watcom 5)			•	•		
All other ODBC-compliant sources			•	•		
Additional SQL Features and Tools						
SQL Query Tool	Read Only on .qry files	Read Only on .qry files	•	•	•	
SQL Pass-through			•	•		
Security Pass-through			•	•		
Stored procedure support (Access via ODBC, Oracle 7.2, Sybase, SQL Server, Watcom/SQL Anywhere)			•	•	• (Native Oracle)	

Feature	16-Bit Standard	32-Bit Standard	16-Bit Professional	32-Bit Professional	New in 5.0	New in 6.0
New Data Dictionary interface			•	•	•	
Database driver conversion	•	•	•	•		
Sort data on SQL database servers			•	•		
Documentation						
Expanded User's Guide	•	•	•	•	•	
Online Technical Reference	•	•	•	•	•	
Online User's Guide	• (CD)	• (CD)	• (CD)	• (CD)	•	
Report Types						
Subreports	•	•	•	•	•	
Multiple Section Reports	•	•	•	•	•	
Form-style Reports	•	•	•	•	•	
Conditional Reports	•	•	•	•	•	
Mail Merge Documents	•	•	•	•	•	
Enhanced Cross-tab Reports	•	•	•	•	•	
Form Letters	•	•	•	•	•	
Query Reports			•	•	•	
Mailing Labels	•	•	•	•		

Appendix A: Seagate Crystal Reports Features List

Feature	16-Bit Standard	32-Bit Standard	16-Bit Professional	32-Bit Professional	New in 5.0	New in 6.0
Top N Reports	•	•	•	•		
Drill Down	•	•	•	•		
Report Design Control						
Drawing-style Interface	•	•	•	•	•	
Format Editor	•	•	•	•	•	
Conditional Formatting	•	•	•	•	•	
Text Objects	•	•	•	•	•	
Subreport Objects	•	•	•	•	•	
Cross-tab Objects	•	•	•	•	•	
Underlay Sections	•	•	•	•	•	
Multiple Detail Sections	•	•	•	•	•	
Guidelines & Vertical Rulers	•	•	•	•	•	
Enhanced Undo & Redo	•	•	•	•	•	
OLE Drag & Drop Between Windows	•	•	•	•	•	
Report Experts						
15 Report Experts (total)	•	•	•	•	• (3 new)	
Select Expert	•	•	•	•		

Feature	16-Bit Standard	32-Bit Standard	16-Bit Professional	32-Bit Professional	New in 5.0	New in 6.0
Section Expert	•	•	•	•	•	
Group Expert	•	•	•	•	•	
Form Letter Expert	•	•	•	•	•	
Subreport Expert	•	•	•	•	•	
Ability to Return to Report Experts	•	•	•	•	•	
For Presentation-Quality Reports						
Line drawing, box drawing, and graphic image support (BMP, GIF, TIFF, PCX, TGA)	•	•	•	•		
BLOB Bitmap Support	•	•	•	•		
Integrated Graphing	•	•	•	•		• (enhanced)
Graphing on Subtotals, Groups, and Formulas	•	•	•	•	• (3 new)	
ActiveX (OLE) Container	•	•	•	•	•	
OLE 2.0 Support	•	•	•	•		
Formula Control of Formatting	•	•	•	•	•	
Data Manipulation						
Multi-pass reporting with powerful grouping and sorting	•	•	•	•	•	•

Appendix A: Seagate Crystal Reports Features List

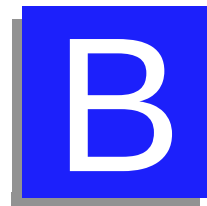
Feature	16-Bit Standard	32-Bit Standard	16-Bit Professional	32-Bit Professional	New in 5.0	New in 6.0
Formula Editor with >160 built-in functions and operators for manipulating data	•	•	•	•	• (30 new)	
Unlimited grouping and sorting	•	•	•	•		
Sorting on groups	•	•	•	•		
Custom (named) grouping	•	•	•	•		
Top N, bottom N sorting	•	•	•	•		
Extensible formula language (user-defined DLL functions)	•	•	•	•		
Include graphs in reports using any of 80 fully integrated and customizable styles	•	•	•	•	• (32-bit is new)	
Report Distribution						
Microsoft Mail Support	•	•	•	•		
Microsoft Exchange Support	•	•	•	•	•	
Lotus cc:Mail Support	•	•	•	•		
Lotus Notes Support	•		•			
Internet/Intranet Export (HTML 3.0, Internet Explorer 2.0, and Netscape 2.0) for automatic Web publishing	•	•	•	•	•	
Export to ODBC			•	•	•	

Feature	16-Bit Standard	32-Bit Standard	16-Bit Professional	32-Bit Professional	New in 5.0	New in 6.0
Export to RTF	•	•	•	•	•	• (enhanced)
Export formats for Lotus 1-2-3, WordPerfect, Word, Excel, and text	•	•	•	•		
Export and/or e-mail reports with saved data for mobile or remote analysis	•	•	•	•		
Compiled reports for free distribution of executable reports	•	•	•	•		
Web report deployment				•		•

System Requirements

Seagate Crystal Reports 6.0 System Requirements*			
	Operating System	RAM	Hard Disk Space
16-Bit Standard	Microsoft Windows 3.1, Windows NT 3.51, or Windows NT 4.0	Minimum: 8 MB (16 MB for Windows NT 3.51 or higher) Recommended: 16MB (32 MB for Windows NT 3.51 or higher)	Minimum: 18 MB Maximum: 75 MB
	Microsoft Windows 3.1, Windows NT 3.51, or Windows NT 4.0	Minimum: 18 MB Maximum: 108 MB	
32-Bit Standard	Microsoft Windows 95, Windows NT 3.51, or Windows NT 4.0	Minimum: 8 MB (16 MB for Windows NT 3.51 or higher) Recommended: 20 MB (32 for Windows NT 3.51 or higher)	Minimum: 21 MB Maximum: 90 MB
	Microsoft Windows 95, Windows NT 3.51, or Windows NT 4.0	Minimum: 21 MB Maximum: 148 MB	

* If your system does not meet these requirements, Seagate Crystal Reports 6.0 may not run correctly.



APPENDIX B: CONTACTING SEAGATE SOFTWARE

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About Seagate Software

Seagate Software, a wholly-owned subsidiary of Seagate Technology, Inc., develops software tools and applications for information management and infrastructure management, including network, systems, and storage management. Its industry-leading software solutions are developed as integral components of a total data management product strategy supporting all major operating environments. Seagate Software has established strategic relationships with Microsoft, Novell, IBM, HP, and other industry pacesetters, and markets its products worldwide through distributors, value-added resellers, system integrators, retailers, OEMs, and large corporate users.



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