

## Crystal Reports Web Alternatives

So far, this book has discussed many techniques for creating sophisticated reports with the Crystal Reports 10 designer. Part III of the book discusses methods for integrating those reports into your custom Windows applications with Visual Basic and Visual Studio .NET. However, business organizations, both large and small, continue to turn to web-based technology for both internal corporate intranets and the Internet. Accordingly, providing a way to display your reports in a web browser is crucial.

Crystal Reports 10 continues in this web-based direction by providing various options for placing your reports on the Web, depending on Crystal Reports edition, your particular web environment, and your budget (many options require upgrades or additional licenses). From simple HTML exports to a multitier, multiserver enterprise-wide implementation of Crystal Enterprise Premium, you have many choices to consider when looking toward web distribution and customization of Crystal Reports.

If you're familiar with Crystal Reports 9, you may feel that the core Crystal Reports 10 designer (covered in Part I of this book) has undergone too few changes to deserve a "full version number increase." While this is a valid argument, the new version of Crystal Enterprise has gone through major enhancements and is certainly worthy of the full version number increase. These new features, as well as a release schedule that coincided with the Crystal Reports 10 release, lend themselves to a more integrated Crystal Reports/Crystal Enterprise 10 package. There are, as before, various versions of Crystal Enterprise, including Embedded Edition (formerly known as RAS Edition), Crystal Enterprise Express Edition (formerly known as Standard Edition), and Crystal Enterprise Professional and Premium Editions.

Both improved Java and .NET support are included with Crystal Reports 10. Both Crystal Reports and Crystal Enterprise Java interfaces have been improved to support JSP/J2EE-based web reporting deployments. Microsoft's emerging ASP.NET is supported more fully with both Crystal Reports and Enterprise. And, there are still "legacy" web alternatives as well, including the COM-based Report Designer Component that supports standard web connectivity via Active Server Pages on a Microsoft Internet Information Server.

These different options give you even more choices than before (and, potentially introduce additional levels of confusion) on how to place a Crystal Report on the Web—either on your internal corporate intranet or on the entire Internet:

- **Export static reports to HTML format (covered in this chapter)** In this case, you just export your report to one of several different HTML formats, much as you would export a Word or Excel file. Viewers can simply open the HTML file in their browser, or the file can be placed on a web server for viewing.
- **Use the Crystal Enterprise Embedded Edition with Microsoft Active Server Pages (covered in Chapter 22) or Java Server Pages** This method, formerly known as the Crystal Enterprise RAS Edition, provides a high level of web integration for reports and is the “entry point” into Crystal Enterprise report integration. The product can be used out of the box or can be customized via ASP or JSP custom coding. This method offers several advantages over older web integration methods, such as the ability to separate the RAS SDK and RAS Server onto two separate machines for more efficient report processing, and the ability to create or modify reports on the fly in web pages and then save the resultant .RPT files on disk. Crystal Enterprise Embedded Edition is included only with Crystal Reports 10 Developer and Advanced Developer Editions.
- **Use the Java Reporting Component and Java Viewer SDK (covered in Chapter 23)** This reporting engine provides many (but not all) of the capabilities of other Microsoft-oriented reporting engines for web customization. Using Java Server Pages, this approach allows connecting to a report directly, or through an existing Crystal Enterprise installation.
- **Use Visual Studio .NET with Web Forms (covered in Chapter 22)** Visual Studio .NET (VS.NET) incorporates a special version of Crystal Reports as its included reporting tool. The VS.NET object model exposes Crystal Reports functionality, allowing complete control of reports at run time in a web browser. Crystal Reports 10 Developer and Advanced Developer editions expand on VS.NET functionality by adding additional capabilities and features to the base VS.NET Crystal Report functionality.
- **Use the Report Designer Component (RDC) with Microsoft Active Server Pages (covered in Chapter 22)** This method, which was the state-of-the-art method prior to Visual Studio .NET and Crystal Enterprise, provides a high level of web integration for reports, virtually identical to the level of flexibility allowed with Visual Basic. This method, however, does not take advantage of the multitier, shared processing capability of Crystal Enterprise editions. Despite Business Objects’ advice to migrate from the RDC to .NET or Crystal Enterprise editions, converting existing RDC web applications to these new methods may require a fair amount of redesign, so you may still consider using this method. It is covered in this section for those that wish to continue using this “legacy” method of web integration.
- **Using Crystal Enterprise (covered in Chapters 24, 25, and 26)** Crystal Enterprise provides a rich, multitier/multiserver method of hosting real-time and automatically scheduled Crystal Reports on the Web. You can use the standard out-of-the-box

user interface provided by Crystal Enterprise, or you may completely customize the user interface using HTML and various development technologies, such as Crystal Server Pages, ASP.NET, or JSP.

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## Crystal Reports Web Alternatives Compared

Each of the Crystal Reports web approaches listed in the preceding section has advantages and disadvantages, depending on whether out-of-the-box user interfaces are sufficient, your level of web-development expertise, corporate development standards, the sophistication of your reports, how fluid the data you want to present is, the number of users you want to serve, and your budget. It's helpful to examine your reporting requirements, expertise level, and hardware and software environment before you decide on a particular web reporting direction. Choosing one method won't necessarily preclude you from switching later. For example, it's perfectly acceptable to design a simple report that you initially just export to HTML, and then later decide to give web viewers real-time access to it via the RDC or various Crystal Enterprise editions. However, if you design a very interactive report with drill-down capabilities, you won't achieve the desired level of interactivity with a simple HTML export—you'll need to use the RDC, the Java Reporting Component, or a Crystal Enterprise edition.

If you just want to occasionally allow a simple, non-interactive report to be viewed in a web browser, you may consider simply exporting to HTML right from Crystal Reports (discussed later in this chapter). This simple approach won't allow interactivity with your report (drill-down, on-demand subreports, or use of the group tree) and won't show data in real time. But, a simple detail or summary report that can be viewed in a few pages can easily be opened directly in a web browser. A viewer simply uses an open command from the browser's File pull-down menu to view the HTML file directly from a local or network drive without a web server, or they can click a link or enter the correct URL to view the exported file from a web server.

If you want to provide more interactivity, or your report viewers need access to "live" real-time reporting, you need to choose between the remaining methods (RDC, VS.NET, Java Reporting Component, or Crystal Enterprise Embedded Edition). Crystal Enterprise Embedded Edition provides an out-of-the-box user interface that requires no custom coding. Also, you can achieve an even higher level of report control and customization by using programming interfaces with these methods. Because the object models exposed by these options are very robust, you can control almost every aspect of the report at run time, including section formatting, setting formulas, and changing fonts, colors, and other formatting from within your code. Then you have the Crystal Enterprise 10 Express, Professional, and Premium editions. These options take web reporting to yet another level with multitier, multiserver capabilities and automated scheduling and maintenance. While there's a benefit to having more choices than ever, there's potentially a higher level of confusion as well. The question that may very well arise: "Which of these methods should I use?"

If you already have an existing RDC-based web application in place with a Microsoft web server, you may simply wish to continue to use it with the new version of the RDC and updated version 10 reports. While Business Objects recommends that you update these applications to CE Embedded Edition, you will need to undertake an additional learning curve to convert your RDC ASPs to CE—they don't run under CE Embedded as-is.

If you are developing new applications or want to take advantage of CE Embedded Edition features (such as moving the report processing server to another computer separate from your web server, or developing interactive “design reports on the fly” applications), you’ll probably lean toward a Crystal Reports Developer or Advanced Developer with CE Embedded solution. Understand, however, that the Crystal Enterprise Embedded Edition included with Crystal Reports is an entry-level version that doesn’t provide the scalability or expansion capability of the full versions of Crystal Enterprise. Your development efforts won’t be lost, though, as you can migrate your CE Embedded applications to higher levels of Crystal Enterprise 10 should the need arise.

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**CAUTION** *“Edition Confusion” seems to be an ever-increasing circumstance of purchasing Crystal Reports and Crystal Enterprise. With each new release, Business Objects adds editions and Crystal Reports/Crystal Enterprise bundles that make choosing the best option for your web reporting needs a more complicated process. Read through various chapters of this book and make sure you understand your web reporting options before making a final software or bundle purchase.*

The CE Embedded option in Crystal Reports 10 Developer and Advanced Developer Edition offers the ability to go beyond the single-tier limitations of the RDC/Active Server Page methodology. By having the option of separating the web server from the computer that actually processes reports, you gain the ability to support larger and more complex reports without degrading the performance of your web server (which, in general, is designed to serve up web pages, not to process large database queries). Crystal Enterprise Express, Professional, and Premium go even further, by allowing more granular separation of the various report processing and viewing steps (Crystal Enterprise Professional and Premium can take this separation of components to a possibly absurd level). Different computers on the network can be tasked with formatting reports, running database queries, managing report caches to send already-generated report pages to the web browser, and so forth.

If this “sharing of the reporting load” methodology isn’t enough benefit, Crystal Enterprise Professional and Premium also allow automatic scheduling, e-mailing, or file transfer of reports (CE Express also provides some, but not all, of these advanced distribution features). These features allow you to schedule reports to run either on a one-time basis or on some recurring basis, such as once a day, once a week, and so on. The result can be viewed in a web browser, exported to an alternate file format (such as Acrobat. PDF, Excel, or Word), and attached to an e-mail message or sent to an alternate location via File Transfer Protocol. When viewers launch Crystal Enterprise in their browsers, they can look at a report’s history and view any of the previously scheduled reports without requiring a database query to be run.

And finally, Crystal Enterprise includes its own Software Development Kit that can be used with various development environments to allow complete customization of the Crystal Enterprise user interface, access to Enterprise’s scheduling capabilities, and control of report customization at run time. And, you can even add more Crystal Enterprise functionality by implementing “report design or modification on the fly” with Crystal Enterprise implementations.

If you have an existing RDC-based web reporting environment that suits you well and is not overburdened by excessive use, you may want to consider continuing to use this solution (especially if any additional features of Crystal Enterprise won’t be justified by the time, effort, and expense required to convert). If you have established Visual Studio .NET as

your new corporate standard, you'll obviously want to look at the additional features that Crystal Reports 10 Developer and Advanced Developer Editions provide, as well as exploring use of the Crystal Enterprise Embedded SDK from within VS.NET. But, if you want to automate report scheduling, support a larger number of users on an Enterprise basis, or automatically export reports to different file formats and deliver via e-mail or FTP, you'll want to explore the fuller versions of Crystal Enterprise.

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**NOTE** Complete information on Crystal Enterprise 10 Professional Edition, including detailed information on Crystal Enterprise usage and implementation, can be found in Chapters 24, 25, and 26.

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## Exporting to Static HTML

More and more, organizations are looking to distribute Crystal Reports to a large audience in a web format, through a company intranet or the Internet. To provide this capability, you need to convert your report to Hypertext Markup Language (HTML) format—the “markup language” understood by web browsers. If you've decided to provide only static, non-interactive reports in a web browser, you simply need to export the report from Crystal Reports, just as you'd export to a Word document or an Excel spreadsheet.

Simply start Crystal Reports and open or create the report you want to export to HTML. Remember that whatever is visible on your screen is what will be exported to HTML. If you want to export the main report, make sure the Preview tab is clicked. If you want to export just a drill-down tab, select the correct drill-down tab before exporting. Then, choose File | Export from the pull-down menus, or click the Export button in the Standard toolbar. Figure 21-1 shows a sample report, consisting of a report containing a title surrounded by a border on all four sides, and a drop shadow and chart placed alongside data with the “underlay” section formatting option.

When you choose the Export command, the resulting dialog box allows you to choose the format and destination of your report. You'll be concerned with the two HTML format options available in the Format drop-down list: HTML 3.2 and HTML 4.0. The different versions refer to the different extensions of the HTML language that Crystal Reports can use. To determine which version of HTML you want to use, experiment with your own exports and the browsers that your report viewers will use. Typically, version 4 (dynamic HTML) will better represent the actual formatting of the report in the web browser. However, older versions of a web browser (Internet Explorer or Netscape Navigator/Communicator versions prior to 4) may not be able to properly interpret DHTML. If you're using an older version of these browsers, you may see better results with HTML 3.2.

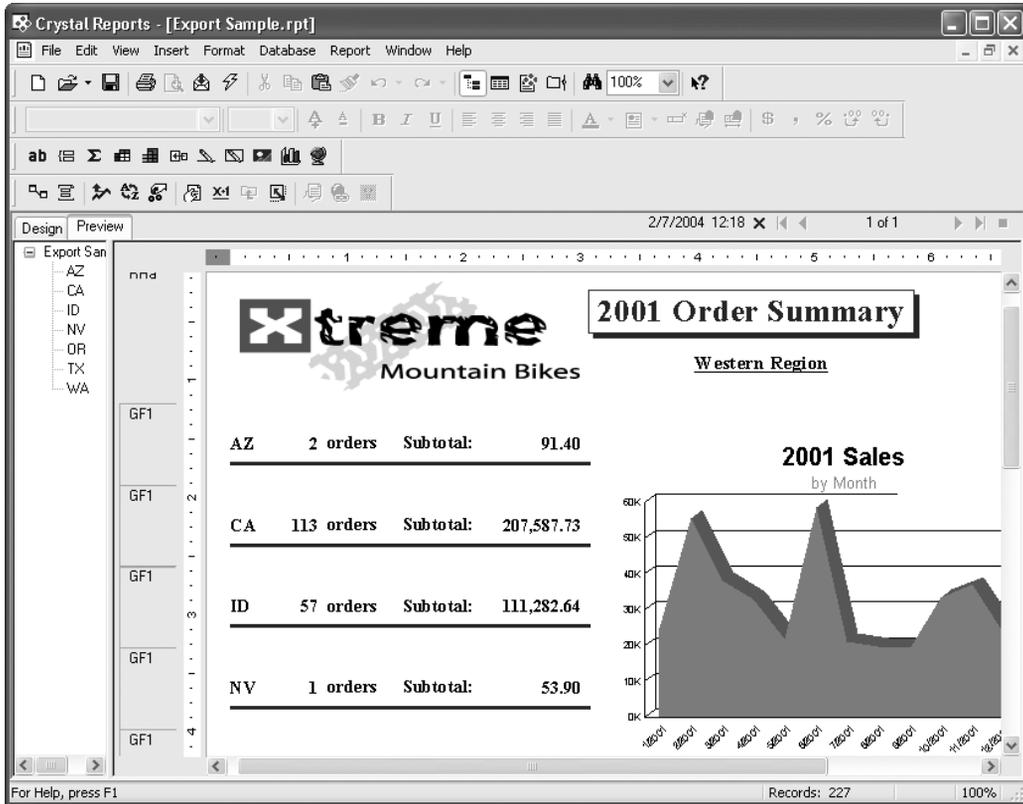
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**NOTE** The HTML export drivers are not installed by default when you install Crystal Reports. If you see a small number 1 beside the export format (indicating “install on first use”), you'll be prompted to insert the Crystal Reports program CD the first time you export to HTML.

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No matter what destination you ultimately choose from the Destination drop-down list, Crystal Reports must write the HTML code and any associated graphics files (for charts,



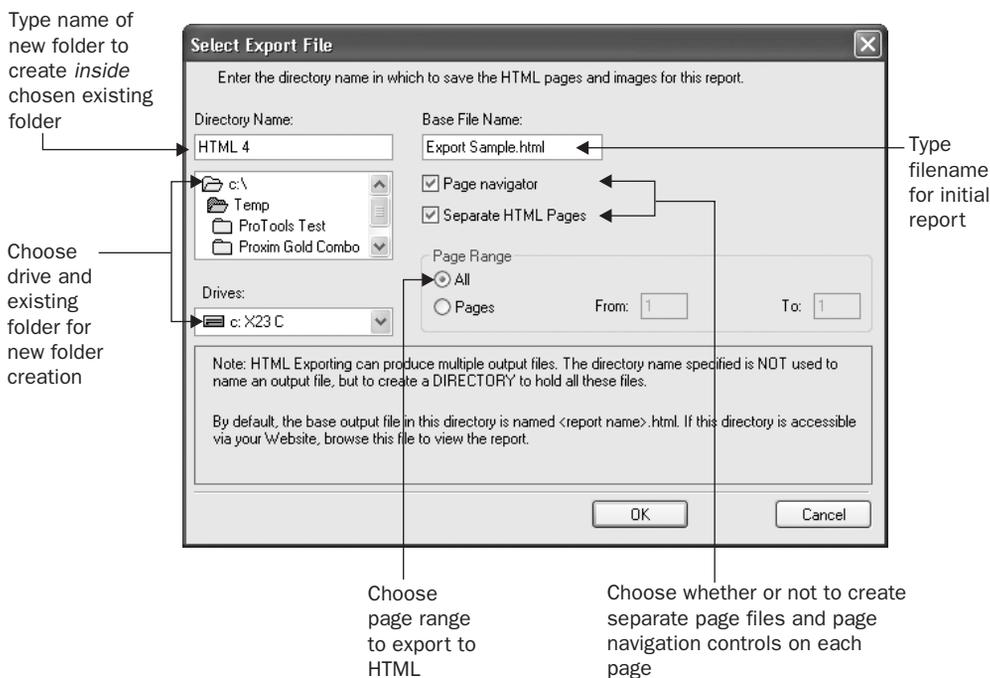


**FIGURE 21-1** Sample report with special formatting features

maps, and bitmaps) to a disk folder. You will be asked to make several choices about how and where you want your report exported, as illustrated in Figure 21-2.

Crystal Reports will create a whole new directory to contain the HTML and graphics files that will make up your report. The drive and folder boxes will let you choose an existing directory *under which* a new directory will be created. Type the name of the new directory in the Directory Name box (Crystal Reports will name the new directory HTML by default). If you wish to place the HTML in a specific folder referred to by a web “home” page, make sure you export to the predetermined folder on the web server referred to by the page. Crystal Reports will place the name of the report into the Base File Name box by default. You may want to change this filename to something your web server expects (for example, DEFAULT.HTM), if you are exporting to a web server folder.

You may also use the Page Navigator and Separate HTML Pages check boxes (which typically are helpful only with reports that are more than one page in length). If you check Separate HTML Pages, Crystal Reports will export sequentially numbered HTML pages, one for each page in the report. For example, if you’re exporting a drill-down tab that consists of four pages, and you choose DEFAULT.HTM as the base filename, the first page of the report will be exported to DEFAULT1.HTM, the second to DEFAULT2.HTM, the third to DEFAULT3.HTM,



**FIGURE 21-2** Export to HTML dialog box

and the fourth to DEFAULT4.HTM. If you don't check this box, all three report pages will be combined into one larger DEFAULT.HTM.

**CAUTION** *This numbering behavior when using the page navigator may cause unintended results by appending numbers onto each HTML file. Keep this behavior in mind if your web server expects a default filename, such as DEFAULT.HTM. You may wish to actually export your report with a different filename and create a DEFAULT.HTM file that immediately redirects the viewer to the "number 1" exported filename.*

If you check Page Navigator, Crystal Reports will place First, Next, Previous, and Last navigation hyperlinks at the bottom of each page that is exported. If you export to separate HTML pages, these links will navigate to the proper separate HTML page. If you don't export to separate HTML pages, the navigation links will still appear inside the one large HTML page, simply moving the viewer to different locations within the one HTML page.

Once you've specified all export options, click OK. If the folder you specified doesn't exist, Crystal Reports will automatically create it. If the folder already exists and contains an HTML file with the same name as you specified, you'll be prompted to overwrite the existing file. In addition to the HTML report file, Crystal Reports will create uniquely numbered .PNG graphics files—one for each bitmap, chart, or map contained in the report.

When you point your browser to the folder and view the HTML file, you'll see the exported report in the browser window, as shown in Figure 21-3.

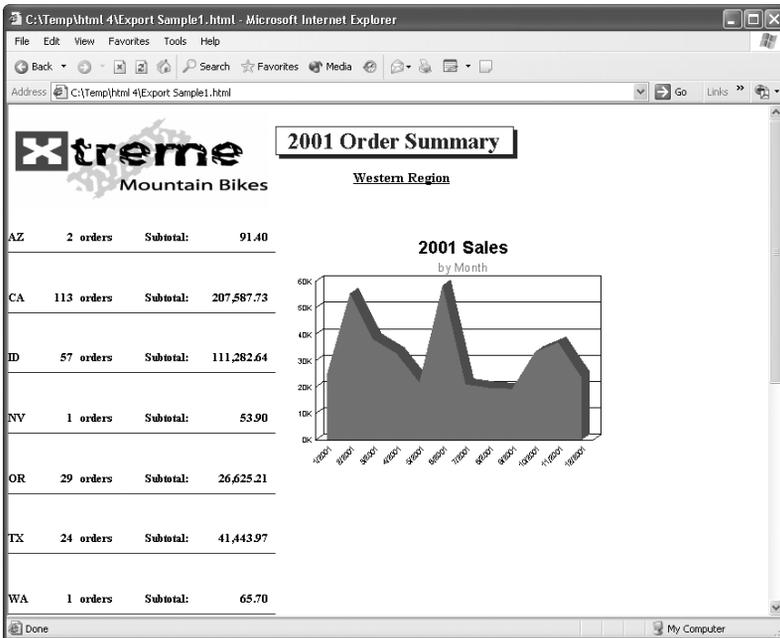
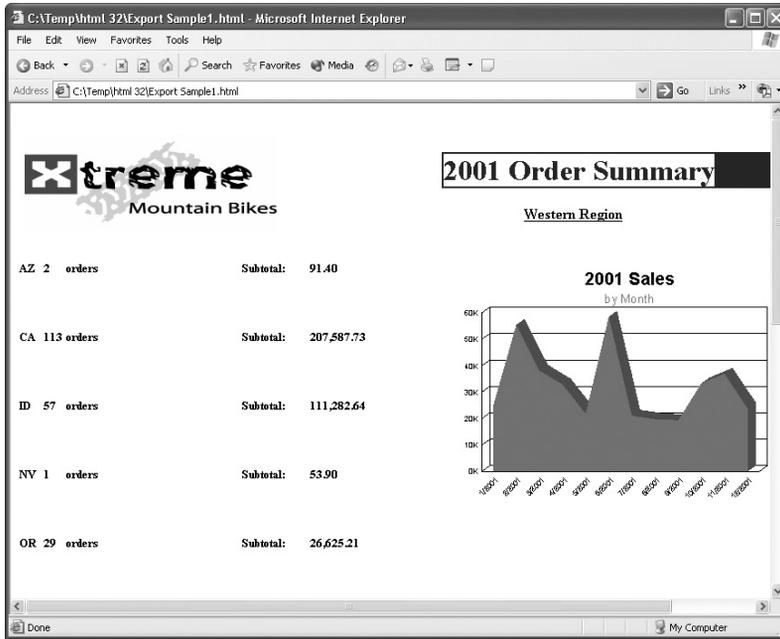


FIGURE 21-3 Export comparison between HTML 3.2 and HTML 4.0

Notice the difference between the HTML 3.2 and 4.0 exports. HTML 3.2, for example, didn't display the report title properly, and didn't include the horizontal lines between state totals. And, even though the displayed chart appeared beside text, there were significant vertical spacing issues introduced in an HTML 3.2 export. Even HTML 4.0 doesn't always perform perfect exports, but you'll often find a much better rendition of your original report formatting. It's a good idea to try sample exports as you're developing your report, to make sure you don't depend on any features that may not export properly. If your organization has standardized Adobe Acrobat format files, you can also export to .PDF in the same manner. You'll typically find that Acrobat files exhibit a very accurate representation of your original report formatting.

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**NOTE** Remember that with HTML, particularly HTML 3.2, some "fancy" report formatting (such as drop shadows or special fonts) may not export to HTML properly. You'll want to try some test exports and view the resulting reports in the web browser that will be used by the majority of your report viewers. That way, you can see what your reports will ultimately look like.

Don't forget that reports exported to HTML or PDF are static. They will simply show database information as it existed when the report was exported. The only way to update the exported reports is to refresh the report in Crystal Reports and export again. Also, drilling down and using group trees won't work with exported HTML or PDF reports. If you want viewers to be able to refresh reports on their own, as well as interact with the report by drilling down and using the group tree, use other Crystal Reports web options, such as the RDC, Java Reporting Component, Visual Studio .NET, or Crystal Enterprise. And, giving web users the ability to print reports on their local printers with accurate pagination also becomes a challenge. The options that best provide this capability are PDF export, the ActiveX or Java report viewers (available with the RDC, or Crystal Enterprise), or the ActiveX print control (new in Crystal Enterprise 10).

## Hyperlink Capabilities

Crystal Reports provides hyperlink capabilities so that you can build hyperlinks into your reports. Virtually any objects on your report, such as text objects, database fields, charts, maps, or bitmap objects, can be linked to web pages, e-mail addresses, other Crystal Reports, or other Windows programs. When you point to an object with an attached hyperlink, your mouse cursor turns into the now-familiar pointing finger. Click, and your web browser will launch the web site, your e-mail program will launch a new message window, or the Windows program or file that is specified will be launched.

Hyperlinks are created right in the Crystal Reports designer. In either the Design or Preview tab, select the object you want to create the hyperlink for. Then, choose Format | Hyperlink from the pull-down menus, right-click, and choose Format Field (or a similar format option) from the pop-up menu, or click the Hyperlink toolbar button from the standard toolbar. The Format Editor will appear. If it's not already selected, click the Hyperlink tab, shown in Figure 21-4.





**FIGURE 21-4** The Format Editor Hyperlink tab

Choose the type of hyperlink you'd like to create:

- **No Hyperlink** If a hyperlink has already been assigned to this object, clicking this radio button will clear the hyperlink.
- **An E-Mail Address** Click this radio button and add the e-mail address you want the hyperlink to send e-mail to in the Hyperlink Information text box after the `mailto:` text. If you'd like to create a conditional string formula to customize the hyperlink according to a database field or conditional value, click the conditional formula button next to the text box.
- **A Website on the Internet** Click this radio button and add the web site URL you want the hyperlink to launch in the Hyperlink Information text box after the `http://` text. If you'd like to create a conditional string formula to customize the hyperlink according to a database field or conditional value, click the conditional formula button next to the text box.
- **A File** Click this radio button and add the path and filename of the file you want the hyperlink to launch or the command you want to execute in the Hyperlink Information text box. Type the same command or path/filename you'd type after choosing Start | Run in Windows. If you'd like to create a conditional string formula to customize the hyperlink according to a database field or conditional value, click the conditional formula button next to the text box.

- **Current Website Field Value/Current E-mail Field Value** These options are available only if you've chosen a string database or summary field on the report. In this case, the hyperlink will simply be the value of text from the database. To correctly use this option, the database field must return a complete web site URL (including the http:// prefix), or an e-mail address, depending on which option you've chosen.

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**NOTE** The “DHTML Viewer Only” options in this dialog box are used to control Guided Navigation and Report Part viewing. More details can be found later in this chapter under “Navigating and Viewing Report Parts.”

To further benefit the report viewer, you may wish to click the Common tab on the Format Editor and add a tool tip indicating what the hyperlink does. Either type the tool tip into the tool tip text box directly, or click the conditional formula button next to the text box and enter a string formula that will display when the viewer moves his or her mouse over the object.

Once you've specified all necessary information, click OK to close the Format Editor. When you preview the report in Crystal Reports, you'll see the mouse cursor change to a familiar pointing finger hyperlink cursor when you point to the object. If you added a tool tip, it will appear in a small yellow box. When you click your mouse button, the hyperlink will launch the web page, e-mail Send dialog box, or Windows file.



After you create a hyperlink, follow the same steps you used to create it to modify or remove it. If you are modifying your report in the Preview tab, you may find it difficult to select an object that you've defined a hyperlink for. If you point to it with your mouse, your mouse cursor will change to a hyperlink cursor and you'll actually execute the hyperlink if you click. If you need to select an object in the Preview tab that has a hyperlink associated with it, SHIFT-click or right-click on the object to select it.

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**TIP** Hyperlinks aren't applicable only to reports exported or viewed on the Web. When you view reports in the Crystal Reports Preview tab, or view a report integrated with a custom program, hyperlinks will work as you expect. Just remember that a viewer who is using Crystal Reports needs a network connection to your corporate intranet or the Internet to successfully use web or e-mail hyperlinks.

## Cascading Style Sheet Support

If you are a web developer, an option on the Format Editor Common tab may catch your eye. The CSS Class Name text box/conditional button allows you to specify a Cascading Style Sheet (CSS) class name for most any object on the report (boxes and lines are notable exceptions). By specifying a CSS class name for the object, you can control formatting “globally” from a style sheet in an HTML document that includes the report.

Either type a CSS class name directly into the text box, or click the conditional formula button. A conditional formula editor will appear, where you may type in a string formula that can dynamically set the CSS class name according to database fields, formula functions, and so forth.

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**NOTE** CSS class names specified in the Format Editor will be exposed in the “native” HTML report viewers used with Crystal Reports integration tools and Crystal Enterprise, but not when reports are simply exported to HTML as outlined earlier in the chapter.

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## Navigating and Viewing Report Parts

Crystal Reports includes features that enhance web-based reporting, particularly when using various Crystal Enterprise editions. Crystal Reports “on-line” web viewers used with the RDC, Java Reporting Component, and Crystal Enterprise support standard Crystal Reports drill-down capabilities (discussed in detail in Chapters 3 and 10). As well, they support hyperlinks to standard “web” items, such as web pages and e-mail addresses. However, these standard drill-down capabilities are limited to drilling down within groups in the same report or using other non-Crystal Report web resources as hyperlink targets. However, there are two additional features that provide more flexibility for drill down and navigation.

The first feature is known as Guided Navigation (or just *Navigation* for short). Navigation allows you to designate certain objects on your report, such as charts, summary fields, and so forth, to act as hyperlinks to *other* objects on a report—either the same report where the original object resides, or an entirely separate report. The second feature is *Report Parts*, the ability to display just certain portions of a report in a web page, rather than the entire page of a report. Navigation gives you much more flexibility to navigate through reports—you are no longer limited to hyperlinking to web pages or e-mail addresses. And, by using report parts, you can develop web applications that show just specific parts of a report that you may be interested in, such as a single chart or a single grand total in a portal application (report parts can often make web-based Crystal Reports more useful on handheld devices with small screens).

### Using Navigation

The first requirement for using Navigation is that your reports must be used in some version of Crystal Enterprise—either Embedded Edition with “non-managed” reports, or another edition for reports managed by the Crystal Enterprise Crystal Management Server. Navigation can be used in several ways in the DHTML-based report viewers available with these systems (you cannot use the feature in older viewers, such as the ActiveX viewer). By using navigation, you can set up two types of hyperlinks:

- **Report Part Drilldown** A hyperlink to another part of the same report. Only the object or objects that you choose as the destination of your hyperlink will appear

when you drill down—not the entire report. This option is only available when using the Report Part viewer, and is discussed later in the chapter in the “Displaying Report Parts” section.

- **Another Report Object** A hyperlink to another report object, either in the same report as the calling object, or in a completely separate report. If you use this option with the Report Part viewer, only the object or objects you choose as the destination of your hyperlink will appear when you click. If you use one of the page-oriented DHTML viewers, the entire report will appear when you click, but the object you choose as the destination will be navigated to and highlighted.

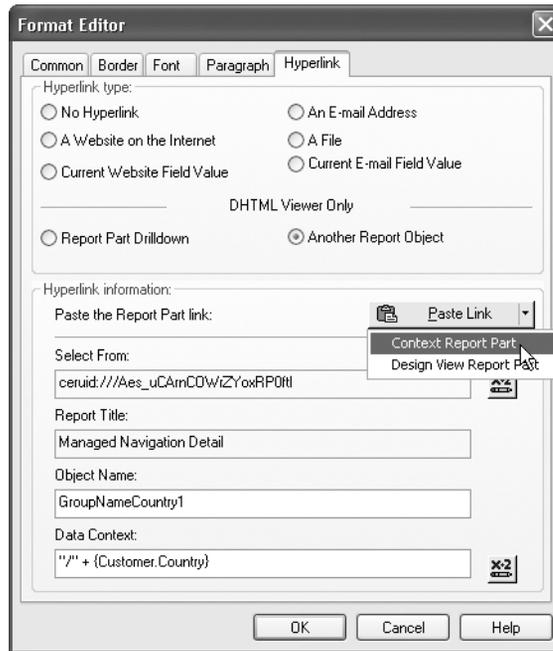
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**Tip** *Crystal Enterprise 10 Express, Professional, and Premium include a report navigation “package” in a sample folder when the product is first installed. You may view the package to see how navigation works, as well as opening the two reports that make up the package in the Crystal Reports designer to see how the navigation has been set up.*

First, if you will be hyperlinking from one report to another, it’s helpful to begin the process by opening *both* reports in the Crystal Reports designer. This comes in handy when you need to reference the destination object in the Format Editor Hyperlink tab of the source object. If you are only hyperlinking within the same report, you need only have one report open.

1. Select the object that you wish to be the destination of the hyperlink. For example, if you wish to click on a group name field in one report to display related detail data from another report, select the object in the detail report that you wish to navigate to.
2. Right-click the destination object and choose Copy from the pop-up menu. While you will actually be able to paste a copy of the object onto the Design tab if you choose, if you “paste” the object into the Hyperlink tab of the Format Editor, a *reference* to the object will be pasted.
3. If you are working with multiple reports, use the Window menu to choose the report that will contain the original hyperlink. If you are hyperlinking from the same report, you can obviously skip this step.
4. Select the object that you wish to act as the hyperlink. Click the Insert Hyperlink toolbar button in the Expert Tools toolbar, or choose Format | Hyperlink from the pull-down menus.
5. The Format Editor Hyperlink tab will appear. Click the Another Report Object radio button in the DHTML Viewer Only section.
6. Click the Paste Link button. You may also click the down-arrow next to the Paste Link button to choose from available “contexts” (options in this

drop-down list will vary, depending on what type of object you copied in step 2).



Several (if not all) of the text boxes will be populated based on the object you originally copied.

- **Select From** will show the name of the report that the copied object resided in. If you opened the “source” report from within Crystal Enterprise, an Enterprise “identifier” will appear in this box. While you cannot type over what is placed in this box, you can click the conditional formula button to the right of the box to create a string formula that sets this value.
- **Report Title** will display the value placed in the Report Title field of the Summary Info dialog box (displayed with File | Summary Info) when the source report was created. If this field was not filled, the filename of the report will appear here. You cannot type over what is placed in this box.
- **Object Name** will contain the name of the object that will appear and be highlighted when you click the hyperlink. This object name can be set in the source report by typing a name into the Object Name text box on the Format Editor common tab. You may wish to give relevant objects more logical names (TopProductsChart instead of Chart1) when preparing them to act as hyperlink targets. You may also find it helpful to use the Report Explorer (discussed in Chapter 1) to determine object names. If you want to navigate to and highlight additional objects beyond what you had originally copied in the source report, type a semicolon after the existing object name and type in additional object names. You will also want to specify multiple object names here if you are only displaying report parts via the Report Part viewer (discussed later in the chapter).

- **Data Context** indicates the location in the destination report that will initially be displayed. For example, if you preview a report and, in the preview tab, click on a group name field displaying “1/2001,” you’ll notice a data context string similar to /Order Date[1/2001] when you paste the object reference into the Hyperlink tab. Data Context strings require some getting used to. The best approach is to experiment with various permutations of “copy and paste” operations to see the resulting Data Context strings. These context strings will vary (or may not even appear), based on whether you copied the source object when displaying the Design tab or Preview tab, and what choice you make from the Paste Link button drop-down list. You may either type over what has already been placed in this box or click the conditional formula button to the right of the box to create a string formula that sets the context.

## Displaying Report Parts

By default, reports are always displayed a full page at a time when viewed in the various Crystal “native” web viewers. While the “page on demand” architecture that’s familiar to most Crystal Reports users is very effective at displaying only the currently required page of the report, an entire page is always displayed. However, there is an additional choice available to those who use any of the Crystal Enterprise editions as their web reporting method. The *Report Part Viewer* allows individual objects on a particular report page (such as charts, summary fields, cross-tabs, text objects, and so forth) to be specifically chosen as report part targets. When you use the Report Part Viewer, only those objects specifically chosen as Report Part hyperlink targets will be shown in the viewer.

For example, a report shown using the regular DHTML Viewer in Crystal Enterprise will appear similar to Figure 21-5.

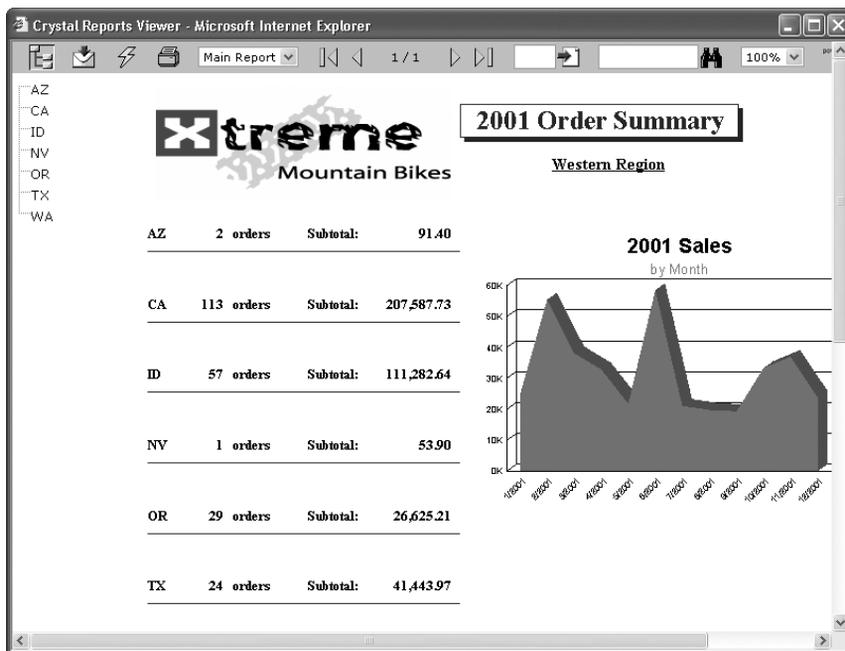


FIGURE 21-5 Complete report shown in Crystal Enterprise DHTML Viewer

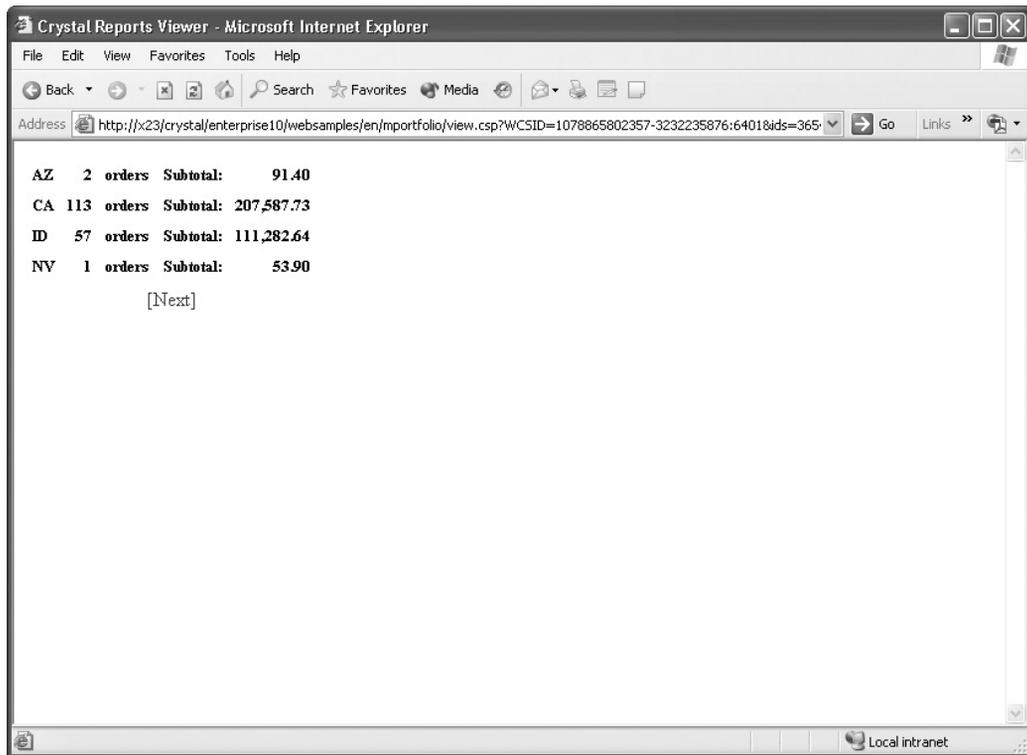
And, by choosing the Mobile Desktop option from the Crystal Enterprise 10 User Launchpad, the Report Part Viewer is used and the same report will appear similar to the one shown in Figure 21-6.

The difference is that the group summaries shown in the latter example were specifically chosen as the initial report part objects for the demonstrated report. Had no initial report part object been selected, the web page would have been blank when using the Report Part Viewer to view the report.

The general idea in using report parts is to show only limited sets of report objects in a web browser (perhaps inside a larger web application, such as a portal or on a mobile device) and allow those limited sets of objects to act as hyperlinks to other limited sets of objects. The stark difference between the Report Part Viewer and the other DHTML viewers is that the other viewers all maintain the “whole report page at a time” approach, whereas the Report Part Viewer can now display just individual objects on a report.

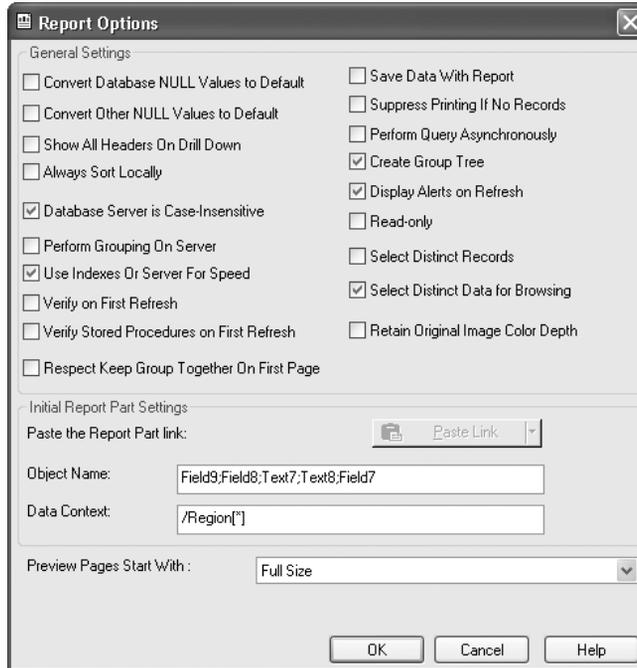
### Initial Report Part Setting

The first step in setting up a report to use the Report Part viewer is selecting initial report part settings. These indicate what specific object or objects will initially appear when you view a report in the Report Part viewer. If you don't specify these, the report will appear as



**FIGURE 21-6** Partial report shown in Report Part Viewer

an empty web page when you attempt to view it. Initial report part settings are chosen in the Report Options dialog box. Choose File | Report Options from the pull-down menus to display this dialog box.



Complete the Object Name and Data Context fields with appropriate report object names and data context strings (discussed earlier in the chapter). You'll probably want to use the same "copy and paste" approach to place an object reference in these fields. If you wish to initially display more than one object in the Report Part Viewer (perhaps a chart along with a text object describing the chart or multiple summaries and text objects), either CTRL-click the objects before copying or type in each separate object name in the Object Name field, separating them with semicolons. As discussed previously, you may find it helpful to give report objects more meaningful names in the Format Editor before using them, as well as using the Report Explorer to locate specific objects.

**NOTE** *It's important to remember that you can only display objects in the same report section when working with the Report Part Viewer. For example, if you want to display a chart and text object side by side in the Report Part Viewer, they must be in the same section of the originating report—the chart can't, for example, be in the report header if the text object is in a group header. This limitation also pertains to Report Part Drilldown, discussed in the following section.*

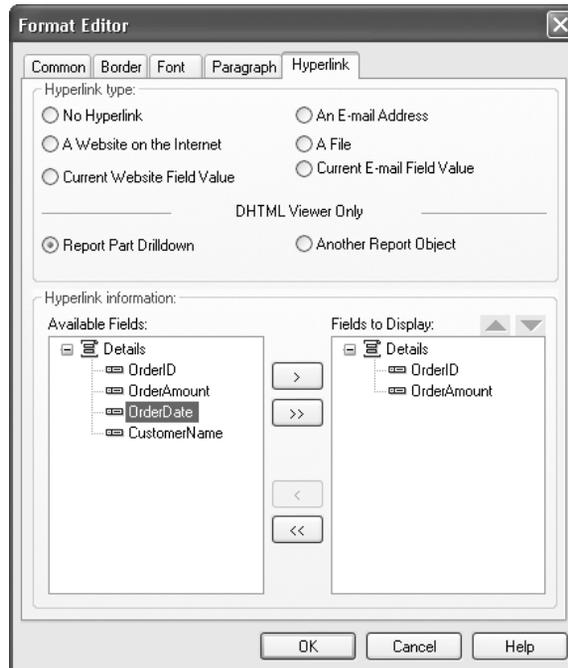
### Report Part Drilldown

While showing an initial limited set of objects in the Report Part Viewer may be sufficient for simple applications, the drill-down capabilities of the Report Part Viewer give you tremendous

flexibility in controlling how end users navigate through your report. While the page-oriented viewers use the grouping hierarchy of your report to determine drill-down logic, you can more closely control individual objects that appear when you drill down with the Report Part viewer.

This is accomplished by setting up a specific drill-down “path” in your report. For example, you may choose to have a group chart contained in the report header be the initial report part object that appears when you first view the report. If a viewer then clicks on a particular pie wedge or bar in that chart, your drill-down path will take them to a lower-level summary field or advanced chart that appears in a lower group level. In this situation, you are mimicking the regular drill-down capabilities of the page viewer, but you are completely controlling the specific objects that appear when the user drills down. You can go a step further and combine report parts and Navigation (discussed earlier in the chapter) to drill down to a pre-determined set of objects in *another* report.

Once you’ve defined your initial report part object or objects, you may then further define your path by creating a Report Part Drilldown hyperlink for these objects. For example, if you may want to select a group name field as your initial report part object and then click the Hyperlink toolbar button to set up the report part drill down. Click the Report Part Drilldown radio button in the DHTML Viewer Only section. The Format Editor will expand, showing available report sections, and fields within it, that can be drilled down on (only sections and objects in a logical report section just below your selected object will appear).

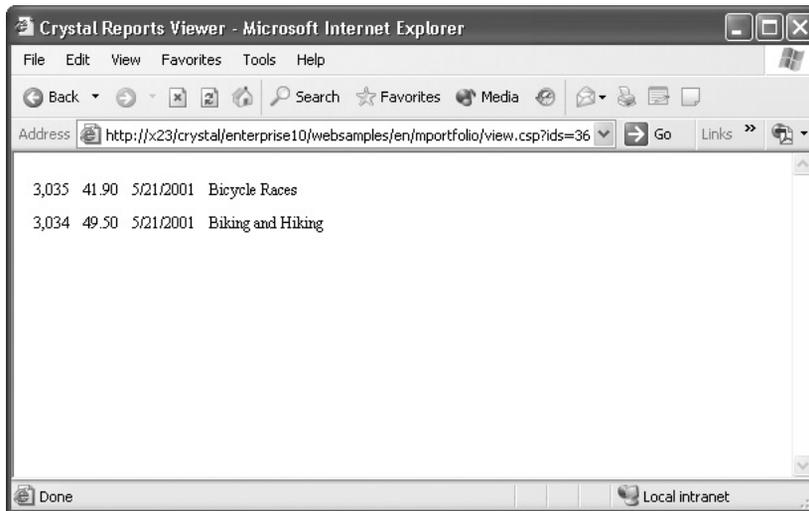


**NOTE** *Report Part Drilldown is only available if you've chosen a group chart or map or a summary field in a group header or footer. Other objects will not allow a Report Part Drilldown to be chosen.*

Choose the field or fields you'd like to appear when the report viewer drills down. You may click on one field, or CTRL-click to choose multiple fields, clicking the right arrow to add them to the Fields to Display list. Or, click the double-arrow to add all fields. The order the fields are displayed in the Fields to Display list is the order the fields will appear when a viewer drills down. If you need to change the order of the fields, select a desired field and click the up or down arrows above the Fields to Display list to change the order.

Once you've made these choices, save the report and view the report using the Report Part Viewer (perhaps add the report to a Crystal Enterprise Embedded Edition directory and use the Report Part Viewer to view it). Notice that the initial report view shows only the object or objects that you chose in the initial report part settings. If you then click the initial object (assuming you've defined a Report Part Drilldown for the object), only the resulting objects for that Report Part Drilldown will appear in the browser.

For example, if you set a Report Part Drilldown hyperlink for a group summary shown in Figure 21-6 to navigate to a lower-level detail fields, the following might appear in the Report Part Viewer when you click the AZ group name field in the original report (considering that there are two orders for Arizona). Notice that no other objects, other than those chosen for the Report Part Drill Down, will appear.



**TIP** *Report parts can be viewed with the Report Part Viewer in the out-of-the-box Crystal Enterprise Embedded Edition and the Mobile Desktop option available from the Crystal Enterprise Professional or Premium User Launchpad. However, you may find that you'll ultimately derive the most benefit by custom-coding your web application to make full use of this viewer.*