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Crystal Reports 2008 Designer 1 Workshop

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This course covers Crystal Reports® 2008

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Introduction

Introduction Objectives

This manual is written to give you a step-by-step guide for your classroom training and a handy reference for your daily work. In this Introduction, you will learn how to use this training guide effectively. This section covers the following topics:

- An introduction to the Crystal Reports application
- Class objectives
- Help with using this training guide
- Information on how to start the program

About Crystal Reports

In today's information intensive environment, every business has a database of some sort. After all, business today is all about information and databases give you a handle on the massive amounts of information you must deal with. Therefore, your business has a database and from that database, you need reports. The problem is, most reporting capabilities that come with database programs are limited. They only report on data from that program. Many users need to report on data from multiple sources, even SQL (Structured Query Language) databases such as Oracle, Microsoft SQL Server, Informix or Sybase.

Crystal Reports is one of the most powerful reporting programs available with the ability to pull data from all types of data sources. You can use Crystal Reports to generate reports from any of the standard PC database programs, Access, Paradox, or FoxPro, as well as from a mainframe or server database. Crystal also has a powerful web-reporting server that allows you to distribute your reports over the web.

Crystal Reports is bundled with more than 160 other programs including Visual Basic, some medical applications, many accounting packages and several ERP solutions. It makes report generation easy without requiring you to be a programmer or a database expert. If you know how to work in a Windows environment and are familiar with the data you want to use, you can create a Crystal Report that looks professional and makes sense.

Training Philosophy

Studies show that people retain 10% of information they see, 20% of information they hear, 50% of what they see and hear, and 80% of what they see, hear and do. In line with this concept, the class utilizes a hands-on method of training. You will see the effects of new procedures on the screen, hear the instructor explain how and why to use features, and perform the actions yourself as you learn.

In addition, this class focuses on your ability to perform tasks using the most productive techniques. The manual may contain several methods of accomplishing a certain task. However, class time does not allow for practice of all methods for each task. Your instructor will guide you in the most effective method of performing a task, but inform you of other methods that are available.

Questions are encouraged. While we give our best effort to explain new concepts in understandable terms, you may need to hear the concept again or have it explained more thoroughly. Please let the instructor know when you need more information!

Class Objectives

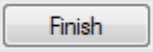
This class is a performance based instructional system. It is geared to provide you with the tools you need to build and distribute reports the quickest, most efficient way. After completing this course, you will be able to perform the following tasks:

- ❖ Plan and organize a report
- ❖ Create a new report
- ❖ Save and preview a report
- ❖ Navigate through the report
- ❖ Format and edit report objects
- ❖ Use a report style for formatting
- ❖ Add text objects to reports
- ❖ Add lines, boxes, and graphics images to reports
- ❖ Select specific data from a database
- ❖ Group, sort and summarize reports
- ❖ Create reports that pull data from multiple tables
- ❖ Use the Formula Editor to perform number calculations
- ❖ Create formulas that manipulate dates
- ❖ Modify string fields using powerful text functions.
- ❖ Conditionally format numbers with the Highlighting Expert
- ❖ Format sections on the report
- ❖ Use formulas to conditionally format any type of field
- ❖ Create summary reports for efficient analysis of data
- ❖ Add charts and customize how they look
- ❖ Distribute reports throughout your organization with Crystal's export feature
- ❖ Create geographical maps for charting
- ❖ Set up an ODBC connection to your database

About This Manual

Each section of this manual contains objectives to provide you with the overall goals for the lesson. Lessons have descriptions of features and concepts followed by systematic directions for completing a specific task. Each section ends with a challenge exercise to help you practice the skills you learned in the lesson. Challenge exercises provide you with tasks to accomplish. Try to complete these exercises on your own.

As you work in this Training Guide, certain conventions are used to identify specific procedures. Use the following table as a guide:

Training Guide Conventions	
Item	**Illustrated As**
Menu Commands	Underlined letters for accessing menu commands are shown: Example: File/Open
Command Buttons	Command Buttons in dialog boxes are shown as buttons: Example: 
Categories, Radio Buttons, Text Boxes, Check Boxes	All options within dialog boxes are listed in italicized text: Example: the *Keep Group Together* check box the *Other* radio button
Keystrokes	Keyboard keys are indicated by uppercase text: Example: press ENTER Keyboard combinations are shown in uppercase text with a plus sign (+) between the keys that need to be pressed simultaneously. Example: press CTRL + S to save
Toolbar Buttons	Toolbar buttons are indicated by the button name and a graphic image of the button: Example: click the Print Preview button
Typing or File Selections	Text to be typed or file names to be selected are printed in bold letters: Example: type **Henry** select **grouping.rpt**
Exercises	Step-by-Step exercises in the text are indicated by bold text and the ❖ symbol. For example: ❖ **Exercise - Format Objects**

Tips, Notes, and Warnings

Tips, notes and warnings display with the following icons. Text for these additional comments display in bold and italics as shown below:

This icon indicates a tip or shortcut.

This icon points out a note of additional information.

This icon calls attention to a warning or very important note

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NOTES

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Lesson 1
Creating a Simple Report

Lesson Objectives

After completing this lesson, you will be able to:

- **Use the Design and Preview windows to build reports**
  The Design window is the main window for building a report. Become productive in putting together the basic items on the report, and then use the Preview window to see the results of your work

- **Place data fields on your report**
  Learn how to insert fields on the report

- **Size and move objects**
  Learning how to manipulate the objects on the report gives you control over the look and feel of the report

- **Use guidelines to align objects**
  Guidelines provide an easy method for moving and aligning objects. Become proficient at manipulating the guides and snapping objects to them

- **Create text objects**
  Add titles and other text to reports by creating a text object

- **Save and Preview the report**
  Learn about the Preview view and how to navigate through the report. Set up the report to save automatically. Understand what happens when you refresh the data in the report

Starting the Crystal Reports Program

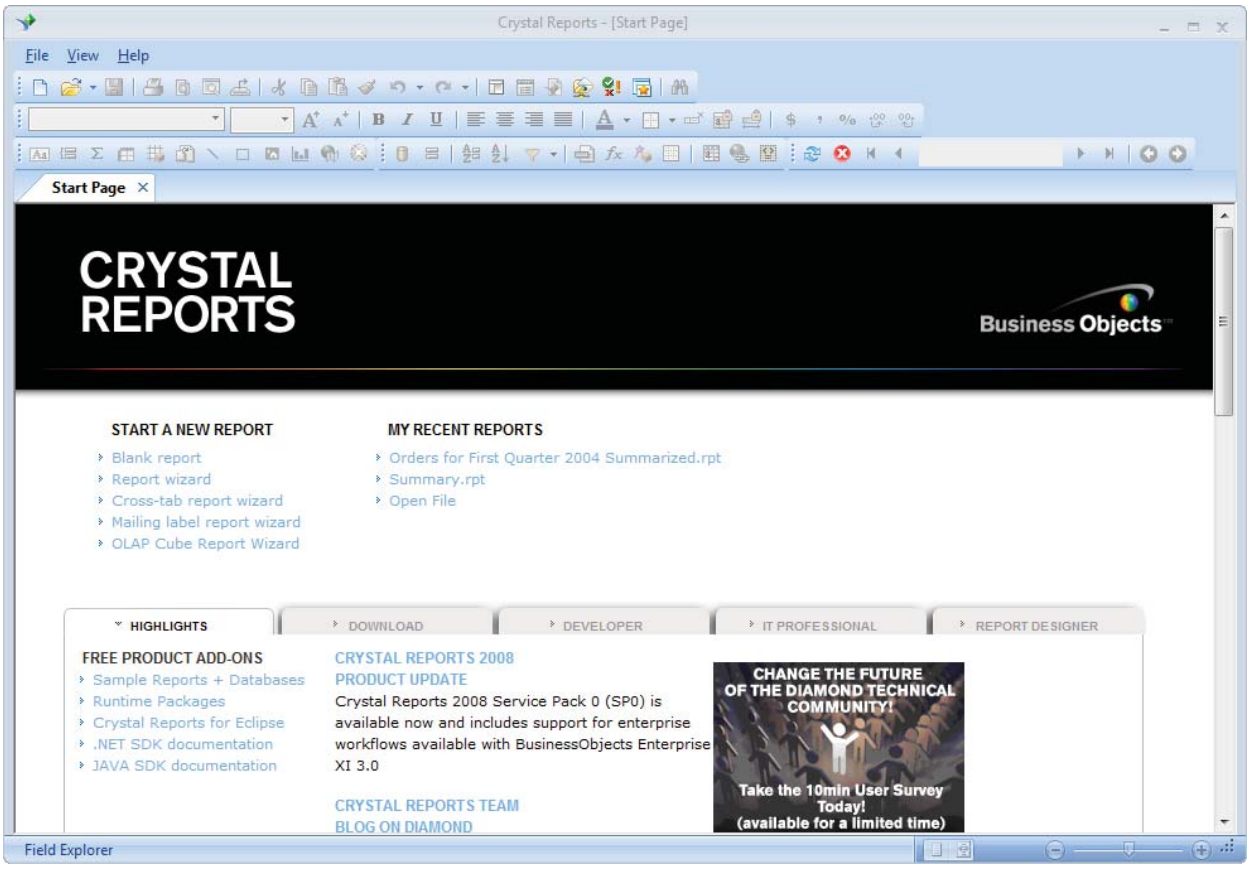
You can start Crystal Reports in one of three ways:

- Click the Start button | All Programs | Crystal Reports 2008 menu. Click on Crystal Reports 2008
- If you prefer to use the My Computer icon or Windows Explorer, open either one of these windows. Expand or open the **C:\Program Files\BusinessObjects\ BusinessObjects Enterprise 12.0\win32_x86** folder, then double click **crw32.exe**
- If you have a desktop icon for Crystal Reports 2008, you can double click the desktop icon to open the Crystal Reports program

Starting a New Report

When you first open Crystal Reports, the program helps you to begin creating a report by presenting the Start Page.

On this page you have two groups of options – START A NEW REPORT and MY RECENT REPORTS.



START A NEW REPORT

Under START A NEW REPORT you can use the Wizards to create a standard report; cross tab report; mailing label report or a report against an OLAP cube. The Report Wizards are a series of dialog boxes that assist you in creating a specific type of report by doing some of the work for you. You will learn how to use a Report Expert later in this class.

You can also choose a Blank Report which is what you will do in this lesson.

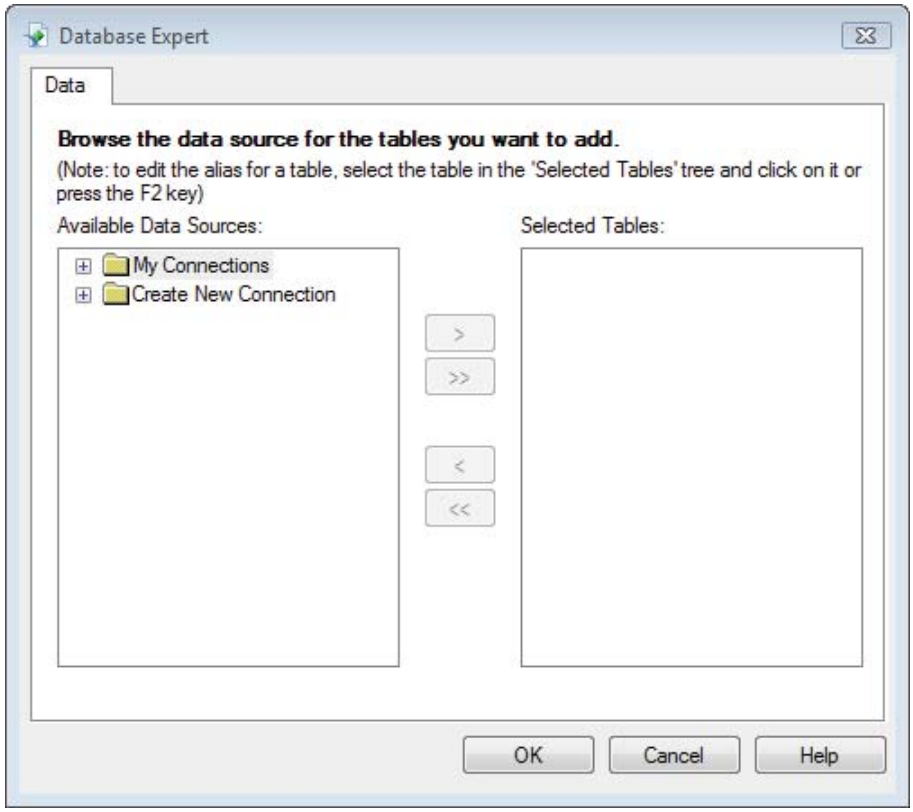
My Recent Reports

If you have been working with reports you will see them listed here or you can choose to open a report that you have stored on your system. Choosing open report will take you to windows explorer where you can navigate through your folders to find the report.

If you click the Blank report option, Crystal takes you to the Database Expert screen in order to select the report's data source.

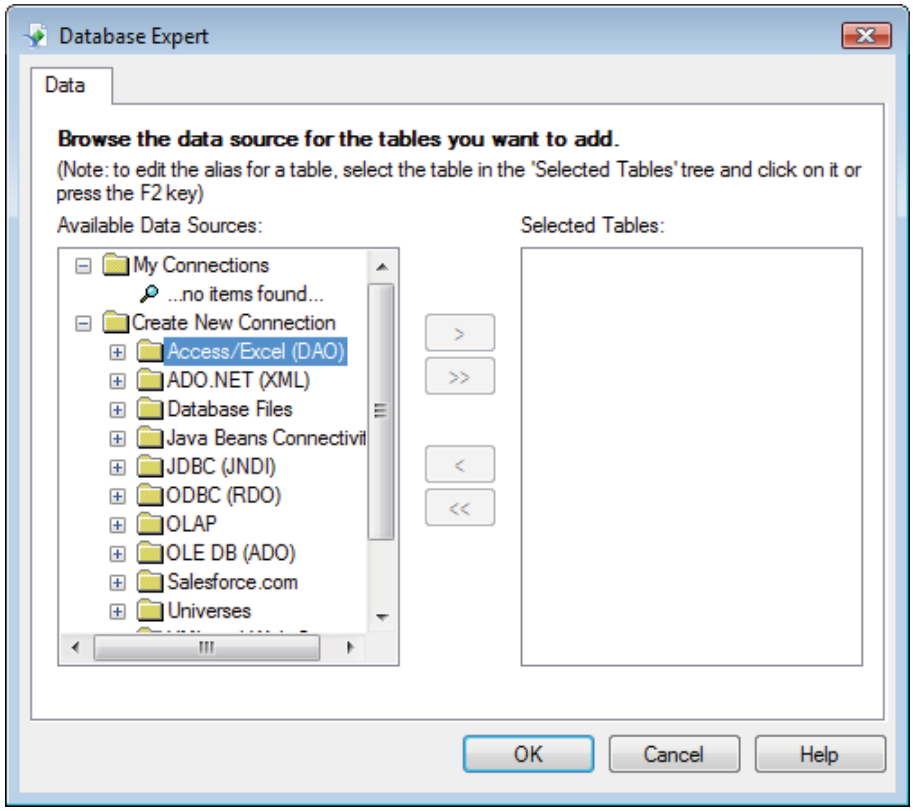
Choosing a Data Source

Whenever you create a report, the first thing you have to do is select a data source. Crystal uses a dialog box called the Database Expert to present all possible data sources and allow you to choose one or more for a report.



- The **My Connections** option displays the server or data file to which you are currently connected or have connected to previously. If you just opened Crystal Reports for the first time, this option indicates no items found

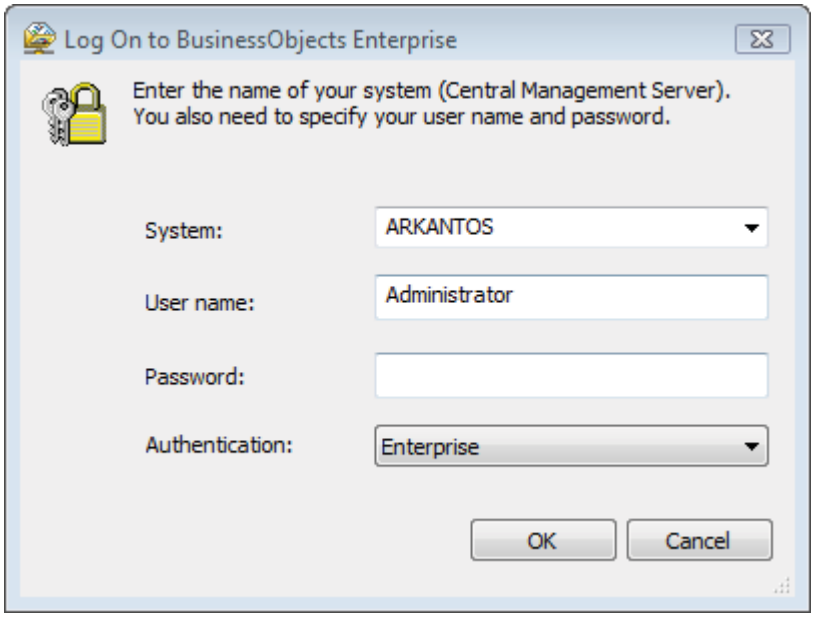
- **Create New Connection** is the folder that contains all possible data connections available for nearly any kind of database including Oracle, SQL Server and Access



- **Access/Excel (DAO)** - Allows a direct connection to MS Access and other files using Microsoft's Data Access Objects and not ODBC
- **ADO.NET (XML)** - Connects to ADO.NET datasets and also support connecting to DLL's that return datasets
- **Database Files** - Use this option to connect directly to PC data files that can be accessed through a physical file location from the C: drive or other mapped network drive. This option connects to Access, Paradox, Btrieve, DBase and Foxpro
- **JDBC (JNDI)** - Java Database Connectivity (JDBC) enables a connection to databases that require Java only connections. In most cases this connection is usefull when Crystal Reports is embedded in a Java application.
- **ODBC (RDO)** - The ODBC/RDO (Open Database Connectivity/Remote Data Objects) folder is typically used for server-based databases like Oracle, Sybase, Informix, and MS-SQL Server
- **OLAP** - Use this option when creating reports using On-Line Analytical Processing data sources
- **OLE DB (ADO)** - This is a Microsoft data connection similar to ODBC in its concept and requires the use of an OLE DB provider, which is similar to an ODBC driver
- **Salesforce.com** - Use this connection to create reports for data stored in Salesforce.com accounts. This connection requires an internet connection and proper user credentials for the Salesforce.com account.
- **Universes** - You can create a report from a Business Objects universe. Crystal Reports lets you select a universe and design a query from it using a tool called the Business Objects Query Panel
- **XML and Web Services** – Allows reports to be created from an XML data source file or from an XML Web Service
- **More Data Sources** - This option allows access to other data sources using native drivers and is dependant on the options selected as part of the installation process

NOTE: You may be asked for the Install CD if the driver was not installed for the database you have selected. In Crystal Reports 2008, not all drivers are installed by default. If you see this message and do not have the CD, contact your system administrator.

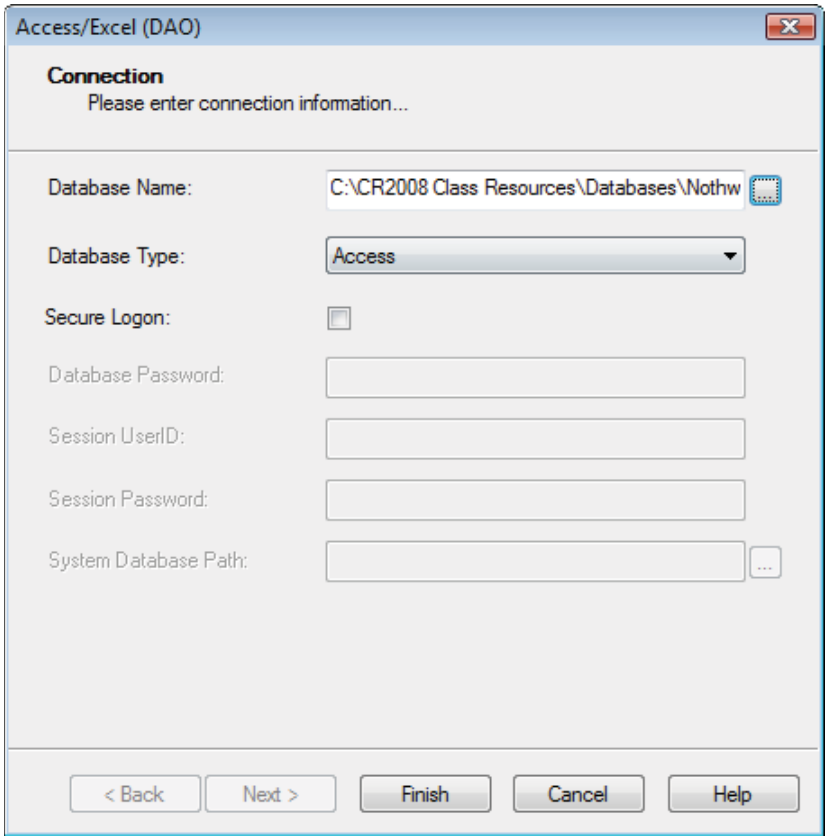
- **Repository** shows a list of data source connections that have been stored in the repository, usually stored SQL queries. Opening the repository folder will first ask you to connect to Business Objects Enterprise. If you have the rights to do this then you will see the repository. You can then select a SQL command or Business View if there are any in the repository



Choosing a Data Source

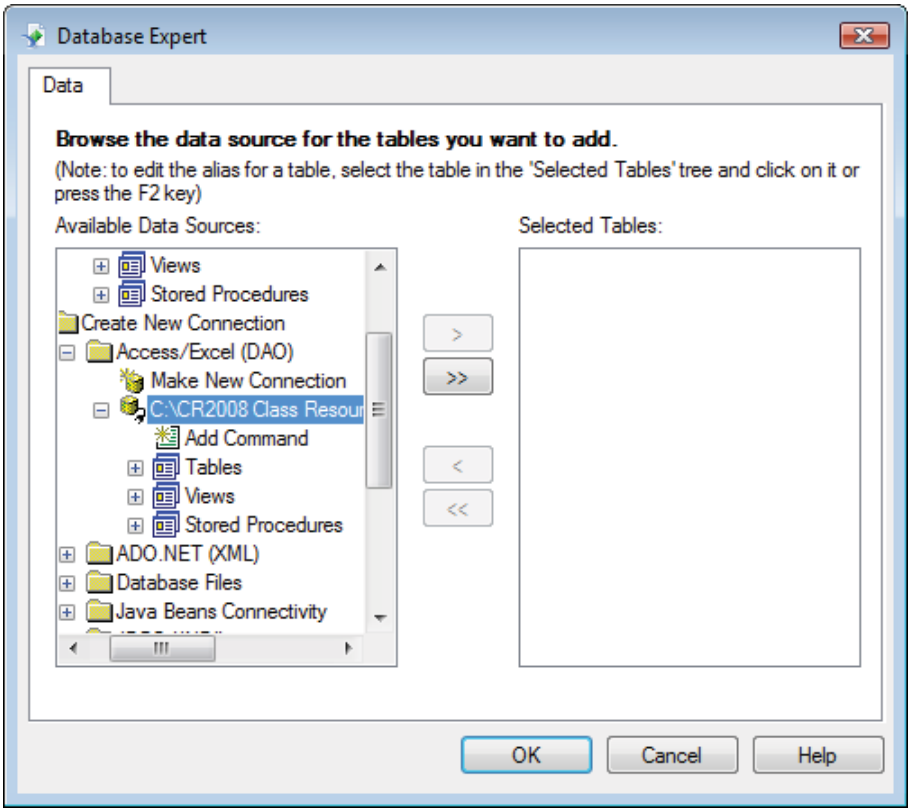
To choose a data source, click the Create a New Connection folder and select the data source you want, for this class select Access/Excel (DAO) and provide all required information the pop-up dialog window requires.

Choosing the Access/Excel (DAO) data connection will activate the Access/Excel (DAO) dialog window which provides the ability to select important database information such as the file name and location, type and login credentials. For this class set the *Database Type* to **Access** and the *Database Name* to point to the **Northwind 2008.mdb** file provided with the course class files. No login information is required.



After finding the Northwind 2008.mdb file and selecting it, click the Finish button. The next screen will prompt for a username/password if applicable. Respond to this screen and click Finish. Now the database connection is established and the Database Expert reappears.

The Database Expert now shows the new connection along with available items that can be selected for inclusion into the report. Some databases are able to determine which tables are available based on user login ID and therefore not all data tables may be shown.



Depending on the database being accessed Commands, Tables, Views and Stored Procedures will be shown and available for use in the report. It is important to understand the differences between each of these items.

- Commands allow for custom Structured Query Language (SQL) to be used as a data source. This means developers can now build complex queries using an advanced SQL building tool like Toad or SQL Navigator and port the completed code into Crystal Reports for use in the report
- Tables are physical containers of data and are the only items that contain data and are sometimes referred to as "physical tables"
- Views do not contain data and are sometimes referred to as "logical tables". These tables are just queries which pull data from the physical tables. Views are usually created by the Database Administrator to make database reporting easier for the end-user to write reports
- Stored Procedures are very similar to views in that they do not contain data. They are sometimes referred to as "procs". The differences between Views and Procs are in the complexity of the query code used and the programming language used

To add a table to the report, expand the Tables folder and then click the move right button to add the table into the right column labeled Selected Tables. Once all the tables are selected click the OK button.

For this class, we are going to use an Microsoft Access database file named Northwind 2008 . This sample database is included with the course class files.

❖ Exercise 1.0 - Start a New Report

1. Click the button, choose All Programs | Crystal Reports 2008 | Crystal Reports 2008
   The application opens and displays the start page.

2. Click the Blank report option from the **START A NEW REPORT** column
   The Database Expert dialog box appears

3. Click the ⊞ to the left of **Create New Connection**
   The list of available data sources displays.

4. Find the **Access/Excel (DAO)** folder and double-click it
   This activates the Access/Excel (DAO) dialog window. Please note double-clicking only works on the first database connection created. Afterwards you must double-click the Make New Connection item.

5. With the Access/Excel (DAO) dialog window open, make sure the *Database Type:* is set to **Access** and the *Database Name:* is pointed the **Northwind 2008.mdb** data file included with the course class files. Click Finish

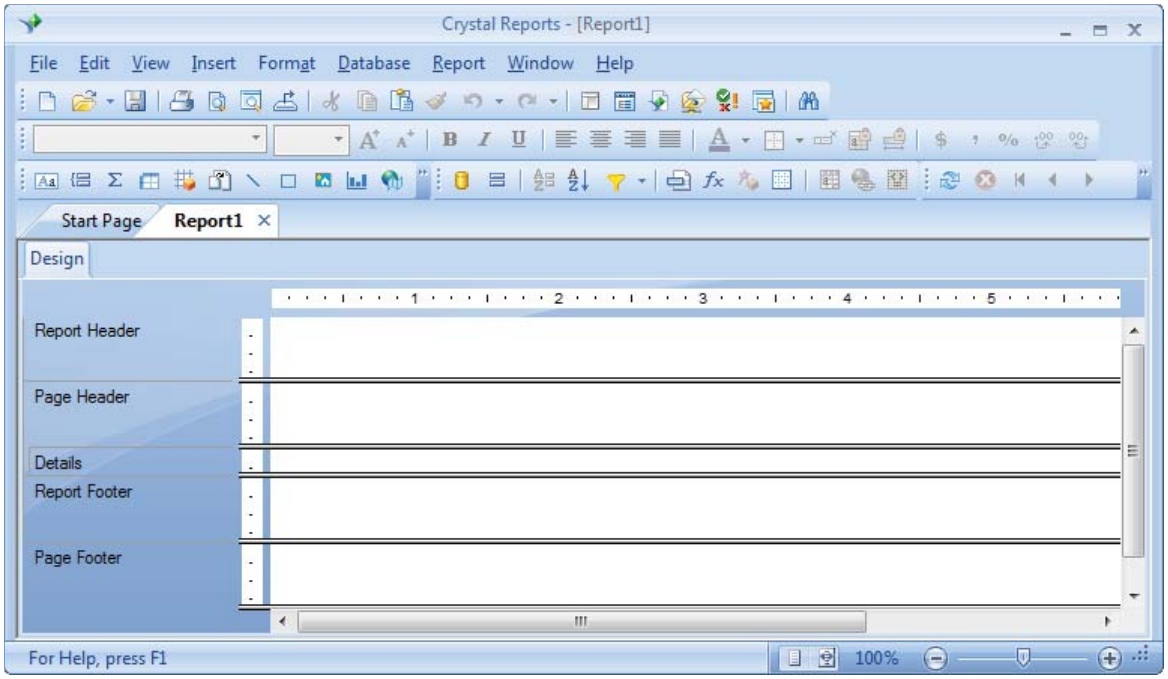
6. Now that the connection is established, verify the connection is now listed in the **My Connections** folder. Do this by collapsing and expanding the folder or RIGHT click the folder and choose **Refresh**
   From the My Connections folder you will now see the new connection just created.

7. Expand the **Tables** folder and select the **Customers** table. Click on >

8. The **Customers** table will now appear on the right list labeled **Selected Tables:**. Click OK
   The Crystal Reports Design window displays on the screen.

The Main Components of the Design Window

The Design view in Crystal Reports contains all the report creation features needed to build a report. Take a moment to look at the screen and identify the features of the Design window.



The window has the standard features of a typical Windows-based program. The following allow you to execute commands and perform tasks in Crystal Reports:

- The **Menu Bar** contains all the commands available in Crystal Reports. As with all Windows programs you can open the menus by clicking with the mouse or by pressing ALT + the underlined letter for the menu you want

- The **Toolbars** contain buttons that are shortcuts to menu commands. You can view the function of a button by moving the mouse pointer over the button. When you do this, a Tool Tip displays the button name and the Status Bar at the bottom of the screen displays the function of the button

TIP: You can open and close the toolbars by RIGHT clicking in the toolbar area. To hide a toolbar, click the check mark to the left of the toolbar name. To show a toolbar, click the toolbar name.

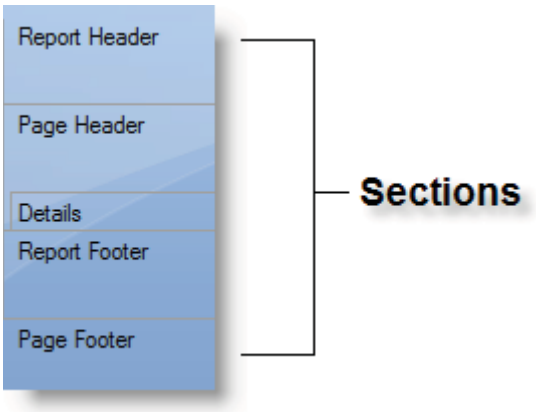
- Below the tool bars are **Report tabs** for each report you have open plus the **Start Page** tab. Clicking on the start page tab will take you to the following dialog:

- In addition to the **START A NEW REPORT** and **MY RECENT REPORTS** resources the **Start Page** includes a live web page including numerous links to information, news and resources available on the Business Objects web site.

- There is a **Design** tab for each report you have open. The Design tab indicates you are in Design view. Once you have previewed the report, there is a **Preview** tab as well. You can easily switch between Design view and Preview view by clicking the appropriate tab

- The **Status Bar** displays at the bottom of the Design and Preview screens and shows information about selected objects. If no object is selected, the Status Bar shows information about the toolbar button to which the mouse is pointing, information about the report itself, or help information

The default Design window is divided into five sections. Each section corresponds to a specific part of the final, printed report. Section names display at the left of the Design window.



Each section has a bar at the bottom of the section that defines the height of the section. When you place the mouse pointer over a section bar, the pointer changes to this image. Using this pointer, you can drag the bar to make the section taller or shorter.

Exploring the Toolbars

Crystal Reports has six toolbars.

- **Standard** - Contains buttons for basic editing commands such as Save, Open, Preview, Cut, Copy, Paste, Undo, and Help
- **Formatting** - Has buttons for formatting commands such as Bold, Italic, Underline, Alignment, and Number formats. Most of these buttons are not active unless you have an object selected
- **Insert Tools** - Includes buttons for adding various report objects into the report, such as Text Objects, Grouping, Summaries, Cross-Tabs Lines and Boxes. These buttons are generally active and available for all reports
- **Expert Tools** - Provides buttons for modifying and formatting such items as Charts and Maps using an Expert wizard. These buttons may or may not be active depending on the button and the object it represents
- **Navigation Controls** - Offers buttons for refreshing the report data and for moving around your report. These buttons will not be active unless in Preview mode
- **External Command** - Displays icons to access available, registered third-party applications designed to work within Crystal Reports. Add-in applications are registered within Crystal Reports simply by adding the application's DLLs in the Addins directory of the Business Objects install folder. Additional information can be found in the Crystal Reports .Net Developers Guide

Exercise 1.1 - Explore the Design Window

1. To begin, open the **Field Explorer** by clicking the icon
2. When you have the **Design** window in front of you, take a few moments and practice these steps before adding data fields:

   a) Move the mouse pointer across the **Toolbars**, reading the tool tips that appear when you touch the pointer on the buttons

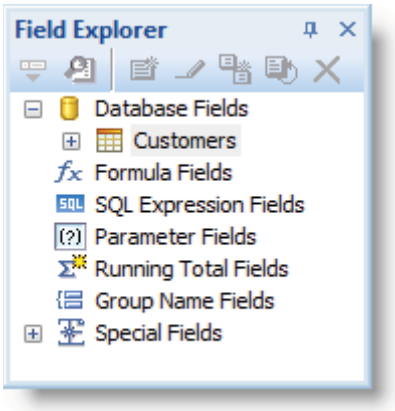
   b) Run your mouse across the options on the **Menu Bar**, just above the Toolbar, click once to read the menu choices to familiarize yourself with the terms used by Crystal Reports

   c) Place the mouse pointer over the **Section** boundaries and stretch them up and down

Managing Resources with Explorers

Managing resources are done through three Explorer components.

- **Field Explorer** - Use the Field Explorer to insert all types of fields into the report. The Field Explorer lists the seven types of fields you can insert into a report: Database, Formula, SQL Expression, Parameter, Running Total, Group Name, and Special fields. With the icons at the top of the Field Explorer, you can manipulate the fields in the list

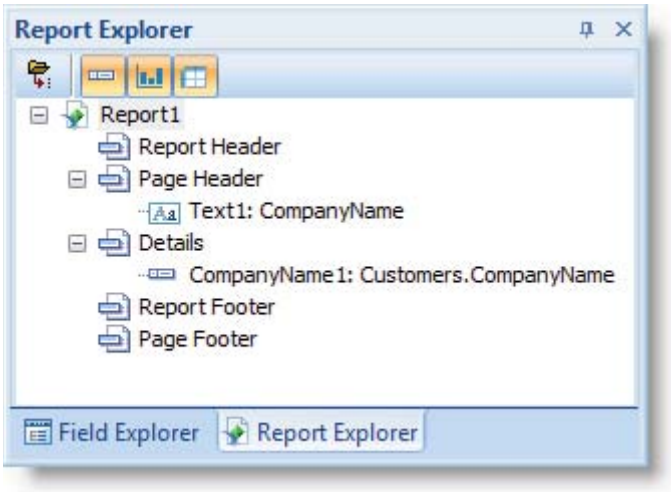


- **Repository Explorer** - This powerful feature offers the report developer the chance to save several kinds of objects for re-use in subsequent reports. Although formulas may not be stored in the repository, many other useful items can be. Items which can be saved are:

  - Formatted Text Objects
  - Graphic Images
  - Custom Functions
  - Commands (Queries)

NOTE: The Repository Explorer can only be accessed via the Repository, which is now incorporated into Enterprise. If a user tries to access this feature, a login prompting window will display.

- **Report Explorer** - Another very useful feature is the Report Explorer. This tool represents all the sections and objects in the report in a tree-node fashion. In addition to making it easier to find a particular object or section, this explorer allows a user to select an item or items within the group tree for editing purposes. Simply right click on the item to view the editing options available



The explorers can easily be turned on or off for viewing, but are normally docked to the right of the report design area. To "un-dock" an explorer, simply drag it by the title bar to the left of the report or RIGHT click and choose "Undock". To view an explorer, pull down the View menu to see a list of the three available explorers.

Placing Fields on the Report

As you look at the Field Explorer, you will notice there are several categories of object types with each category being represented by an icon to the left of the name. Expand the Database Fields folder to see available tables and fields. Expand a table to see available fields contained in that table.

The Field Explorer is automatically docked to the right of the design area. If you prefer to have it floating (un-docked) or in another location, just drag it by its title bar. If you change your mind, just reposition it back to the docking area. The Field Explorer can also be docked to the left of the design area. And finally, the Field Explorer can also be closed any time and re-opened by clicking the icon.

There are several ways to place fields onto the report. The Field Explorer dialog box provides access to all the fields in the table(s) you selected when beginning the report. Using the Field Explorer dialog box, you can place a field in the report in one of three ways:

- Select the field in the list, then click the Insert Fields button, and then click in the report where you want the field to appear
- Drag the field to the report. Release the mouse button when the pointer is pointing where you want the field to appear
- Right Click on the field and chose Insert to Report from the **Short Cut Menu**, then click in the report where you want the field to appear

Typically, you would place fields in the Detail section of a report. When you place a field in the Detail section, Crystal Reports adds a Field Header directly above the data field in the Page Header section. The field defaults to the actual size of the field in the database or to the size of the field name, whichever is longer. This is very helpful for identifying the field at a glance.

WARNING: If you place a field in any section other than the Detail section, Crystal Reports does NOT create a Field Header in the page header section of the report. Even if you later move the field to the Detail section, the Field Header is not created automatically.

NOTE: If you delete the field object from the report, Crystal Reports will normally remove the Field Header from the report as well.

❖ Exercise 1.1 - Place Fields in the Detail Section of the Report

1. Make sure the **Field Explorer** is open. If it is not click the icon in the **Standard Toolbar**

2. Expand the **Database Fields** node, find the **Customers** table and expand it to see a list of available fields

3. Select the **CustomerID** field in the list of fields

4. Click the button on the **Field Explorer** toolbar
   The mouse pointer appears as a ⃠ symbol when it is pointing to a location where you cannot place a field.

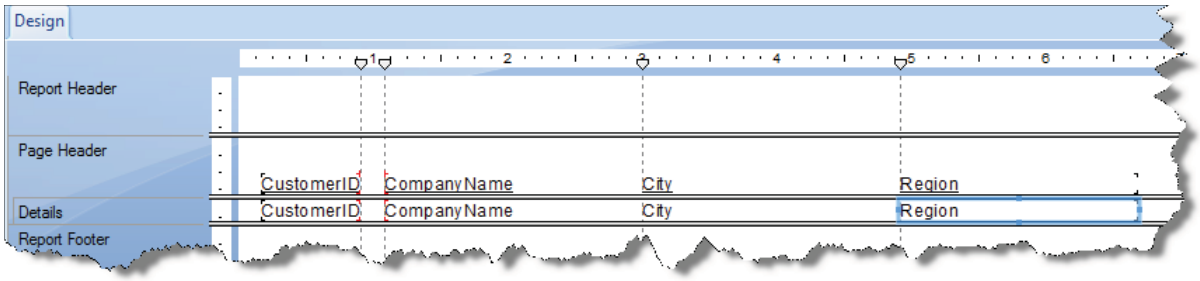
5. Move your mouse into the **Details** section at the left side of the report and LEFT click again
   Crystal Reports places the field in the details section and the field name in the Page Header section.

6. Using the same method, add the **CompanyName** field to the right of **CustomerID**

7. Use the Drag and Drop method to add the **City** field

8. LEFT-mouse drag the **Region** field to the **Details** section after the **City** field

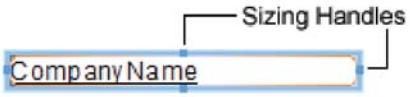
Your design area should look similar to the example below:



NOTE: In the Field Explorer, you should see a green check mark on the icon to the left of each field you add to the report.

Selecting and Sizing Objects

Once a field is placed on a report, it is good practice to resize it to a proper character length. When Crystal inserts the field, it is the same size as the data field in the database, or the size of the field name, whichever is larger. To resize the field to a size you want, you must select it first. When a field is selected, a blue dot appears at the center of each of the four sides surrounding the object. These are called sizing handles. When you place the mouse pointer directly over a handle, the pointer changes to a two-headed arrow. Use this mouse pointer to drag the border of the object to change the size.



Since the data field and the field name appear in the report as the same size, you may often need to select both objects, so you can resize them at the same time. However, if you resize the data field the field header will also resize, whereas if you resize the field header the data field will not resize. To select multiple objects, you can use one of two methods:

- Click the first object to select it. Then, while pressing the SHIFT key or the CTRL key, click other objects
- Using the LEFT mouse button, drag a marquee around the objects you want to select. Make sure the mouse pointer is NOT pointing to an object when you begin to drag. The marquee you drag selects any object touching the marquee or contained within the marquee. This process is sometimes referred to as "lassoing" objects

❖ Exercise 1.3 - Size a Field Using the Resize Handles

1. Select the **CompanyName** field in the detail section
2. Point to the sizing handle on the right side of the selected object
   The mouse pointer changes to a double-headed arrow when you are pointing to the correct location.
3. Drag to the left to make the data and header fields about 90% of their original size
   Notice that Crystal provides a line and shading on the ruler so you can easily see exactly how wide you are making the objects. Also notice how the field header in the Page Header section resized itself to match the data field it is associated with. This last feature reduces time spent matching field headers to data fields in terms of size.

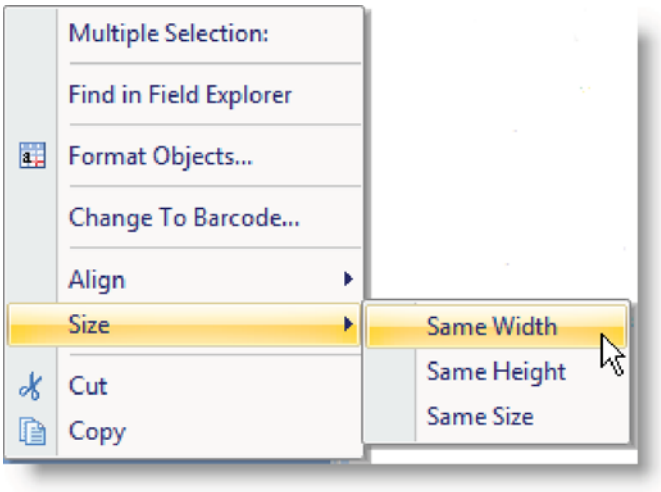
You can also resize fields to be the same size as another field using the Size command. To do this, simply multiple select the fields you want to size plus the field that is the size you want to match. RIGHT click the field that is the size you want, and then choose Size from the Shortcut menu. Crystal can make all selected fields the same width, height, or overall size as the field on which you RIGHT clicked.

❖ Exercise 1.4 – Resize a Field to Match Another Field

1. Select and resize the field header labeled "**City**" in the **Page Header** section. Resize the field header to be about 1.5" long, which should make it shorter
   Notice how the data field "City" doesn't resize to match its associated field header. This gives us added flexibility in sizing our field headers to be different sizes than their associated data fields.

2. Multiple select the **City** data field and its title, then RIGHT click the header field
   Be sure you RIGHT click on the header field and not the data field located in the Details section.

3. Point to Size in the shortcut menu, and then choose Same Width
   Crystal makes both the data field and the field header the width of the longer object.



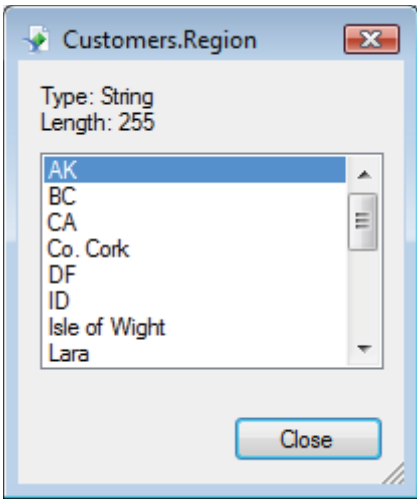
Browsing Field Data

If you are not familiar with the data contained in a field, you might not know what size the field needs to be on the report. Crystal Reports lets you preview the data contained in a field to help you determine how big a field should be. To view the data in a field, select the field in the Field Explorer dialog box, and then click the Browse button in the Field Explorer toolbar. If the Field Explorer dialog box is not open, you can open it by clicking the Field Explorer button on the Toolbar. You may also right click on a field and select to Browse data.

❖ Exercise 1.5 - Browse Field Data

1. Make sure the **Field Explorer** is still open; if it isn't click the **Field Explorer** button in the toolbar to open the **Field Explorer.** Select the **Region** field in the **Data Fields** list

2. Click the Browse Fields button
The Browse Field Data dialog box opens.



*When you are finished viewing the field data, click **Close** to close the **Browse** dialog box.*

3. Multiple select the **Region** field and its field title. Resize them to make both smaller When you are finished, click away from the objects to deselect them
However, what if you can't see the right edge of the fields to resize them?

4. Select **View|Zoom...** and select the *Fit One Dimension* option. Click **OK**

5. Now, drag the resize handle to resize the **Region** field so it fits on the page

6. Reset the **Zoom** dialog box to a *Magnification Factor:* **100%**

NOTE: The Browse dialog box, by default, displays the first 500 unique values in the database.

TIP: You can also open the Browse dialog box by RIGHT clicking the field in the report and choosing Browse Field Data... Be sure you RIGHT click the data field in the Details section, not the field header object.

Moving and Aligning Objects

To move a field, you must first select it. Once selected, position the mouse directly over the object until you see a four-headed arrow. With this arrow, you can move the field by dragging it. To drag both a data field and its field name at the same time, just multiple select the fields, and then drag with the four-headed arrow. You can even drag fields from one section of the report to a different section. You can also move a data field and its field name by simply moving the data field.

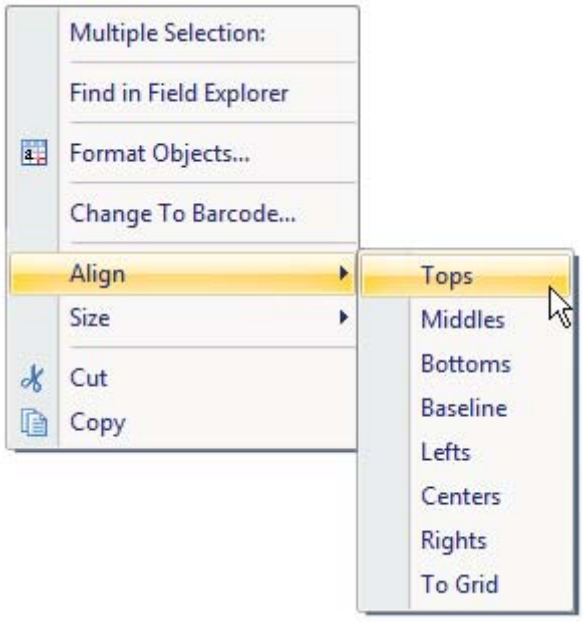
The only problem with moving fields like this is they sometimes get out of alignment with their titles. However, the shortcut menu has an Align command that works similarly to the Size command you have already used. Just multiple select the fields you want to align, then RIGHT click the field you want to align to. Choose Align from the shortcut menu and then choose to align on the left side, the right side, the center, or to the closest grid point.

❖ Exercise 1.6 - Move and Align an Object

1. Move the **City** field header to the left, closer to the **CompanyName** field
   Notice only the title moved. Now it is out of alignment with the field itself.

2. Multiple select the **City** field and its field header. Then RIGHT click on the field header

3. Choose **Align**, then **Lefts** from the shortcut menu
   Crystal aligns the field and its title on the left edge of the title.



TIP: You can also move or size an object with the keyboard. To move an item, select it, and then use the arrow keys on the keyboard to move it. If Snap to Grid is turned on, the arrows move the item one grid point. If it is turned off, the arrow keys move in very small increments. This is referred to as NUDGING an object. To resize using NUDGE, press and hold down the SHIFT key while pressing an arrow key.

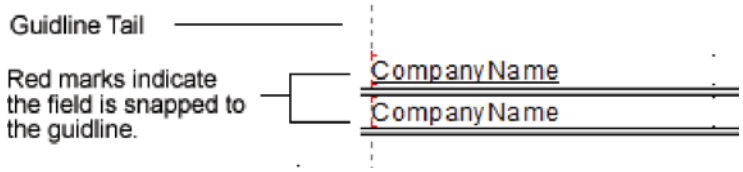
Using Guides and Guidelines to Move and Align Objects

Although you can simply drag an object to move it, an easier method is to move fields and their field names using the guidelines. Guidelines are triangular buttons with attached dashed lines that appear on the ruler bar at the top of the Design window. You can use these guidelines to easily move and align objects.

Crystal Reports inserts guidelines automatically in these situations:

- Whenever you insert a field in the Details section of a report, the program automatically creates a guideline at the left edge of the field frame and snaps the field and field title to it. You can move both the field and the field name, keeping them aligned, by dragging the guideline marker in the ruler
- If you summarize a field, the program snaps the summary to the same guideline as the field you summarized to assure proper alignment
- When you RIGHT click the shaded areas to the left of a section and choose the Arrange Lines command, the program automatically creates one or more horizontal guidelines in the section and snaps the fields to them

When you move an object by dragging it with the four-headed arrow, you may move it off the guideline. If you do this, the object is no longer snapped to the guide and does not move with the guide. You can re-snap the object, or snap any other object to any guide by moving the left or right edge of the object so it touches the guide. When an object is snapped to a guideline, small red marks appear on the edge of the object where it touches the guideline.



You can also work with guidelines manually. Crystal Reports lets you add guidelines and delete them whenever you need to.

- To add a guideline to the horizontal ruler in any section, click in the ruler where you want the guideline to appear
- To add a guideline to the vertical ruler, simply click in the ruler where you want the guideline to appear
- To delete a guideline, drag its triangular button (Head) off the ruler

TIP: You can snap a guideline to a field by moving the guideline to the edge of the field or by moving the field's edge to the guide.

TIP: Guidelines are much easier to work with if you can see the "tails", that is, the dashed lines that drop down from the ruler. To turn on the tails, choose File/Options… Click the Show Guidelines in Design command, and then click the OK button.

❖ Exercise 1.7 - Work with Guidelines

1. First, turn on the tails for the guidelines. Choose **File/Options…**

2. Check on *Guidelines* in the Design View options of the **Layout** tab. Also check on the Grid option and then click **OK**
Crystal displays the dashed lines extending down from the guideline markers in the ruler. By making the Grid viewable, it is easier to see field alignment.

3. Point to the guideline marker for the **Region** field and drag it to the left. Position it right after the **City** field

4. Since you previously moved the **City** field by dragging it with the four-headed arrow, you unsnapped it from its guideline. Using the now unused guideline, move the guide head to line up the guide tail with the left edge of the City fields
Be sure to look for the red marks to see if the field is snapped to the guideline.

5. Move the guideline so the **Region** field and its field name are positioned just to the right of the **City** field

6. Now you need to add another field. Make sure the **Field Explorer** is still open

7. Insert the **LastYearsSales** field to the right of the **Region** field
Notice the guideline is automatically inserted on the right for numeric fields.

8. For purposes of this exercise, delete the guideline that was originally used to align the field by dragging its marker off the ruler

9. The **Last Year's Sales** field is a number. Numbers usually look better if they line up on the right. Therefore, you need to create a new guideline for this field. Click on the horizontal ruler at the 7" mark
Crystal creates a new guideline there.

10. Multiple select the **Last Year's Sales** field and its field name, and then drag the objects so their right edges touch the new guideline

11. Using the **LastYearsSales** guide, reposition the fields to the right of the **Region** fields

❖ Exercise 1.8 - Use the Arrange Lines Command to Align Field Titles Horizontally

1. Click in the **Page Header** section at the left of the screen with the RIGHT mouse button
   A shortcut menu opens.

2. Choose **Arrange Lines**
   Guidelines appear wherever a field is located in the section and sometimes even where they don't appear.

3. Make sure all the field headers are lined up on a single guideline. Move any titles to the guideline if they are not

4. If you see additional guidelines in the vertical ruler, delete them by dragging them off the ruler

5. Move the vertical guideline to position the field titles where you want them

WARNING: Be careful when you are moving a guideline. If the mouse pointer is not positioned in the ruler when you release the mouse button, you will delete the guideline. If this happens, just create a new guideline by clicking in the ruler where you want it to appear or click the Undo button.

Creating Text Objects

In addition to adding fields to a report, you can also add text objects. A text object is an object in which you can type any text you wish. It is not related to the underlying database in any way. Typically, you use text objects as titles or identifiers for summary information. To create a text object, choose Insert/Text Object from the menus or click the Insert Text Object button on the Toolbar. The mouse pointer resembles a "crosshairs" from which you can either LEFT click onto the report to add the default sized text box, or draw a custom sized text box for entering text using the LEFT mouse button.

When you first insert a text object, it is in Edit mode. You see a flashing insertion bar inside the object. You can type text at this point. When you are finished adding text, click away from the object to finish editing. You cannot end the editing by pressing the ENTER key. This only adds another line to the text in the object.

TIP: You can tell if you are in Edit mode by looking for the flashing insertion bar. Crystal Reports also displays a small ruler above the object when you are in Edit mode. If you need to make corrections to an object after you have exited Edit mode, double click the object to return to Edit mode.

❖ Exercise 1.9 - Insert a Text Object

1. Click the **Insert Text Object** button
   The mouse pointer displays as a + (crosshairs) symbol until you point into the report.

2. Click in the **Report Header** section to add the object
   The text box appears with a flashing insertion bar.

3. Type **Customer Sales**

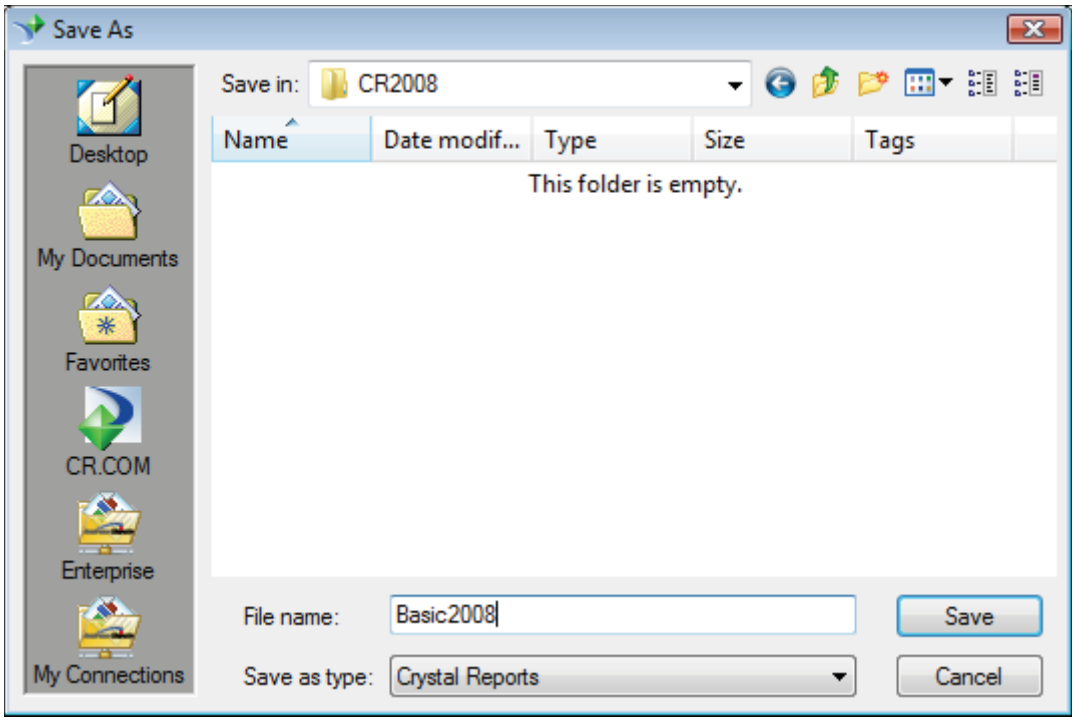
4. Click away from the text object to finish editing

5. Resize the object if necessary to view the entire text on one line

Saving the Report

As with any software, it is a good idea to save your reports frequently in Crystal Reports so you do not lose work you have done. To save a report, you can choose File/Save from the menu or click the Save button on the Toolbar.

The first time you save a report, Crystal Reports opens the Save As dialog box. In this box, you can specify a folder location for the report and give the report a filename. The six icons on the left give you one click access to common locations.



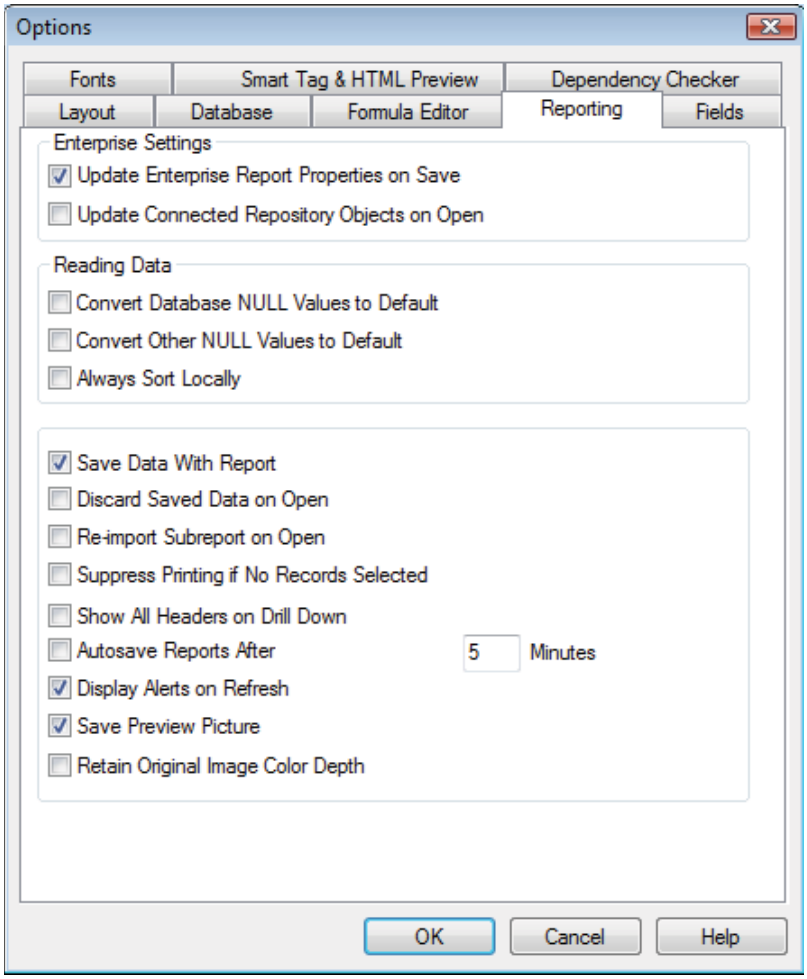
- The **Desktop** icon lets you save this report your Windows Desktop
- **My Documents** opens the Windows My Documents folder on Windows 2000/XP systems or the user Documents directory on Windows Vista
- The **Favorites** folder opens the list of favorite folders you have specified in Internet Explorer. If you have a folder where you want to keep all of your reports, add it to the Favorites folder, then it is easily accessible from here
- The **CR.COM** option provides the ability to publish the report to a specific CR.COM (crystalreports.com) account. The crystalreports.com connectivity module must be installed to use this feature
- **Enterprise** lets you save your report to an Enterprise folder
- **My Connections** offers a list of saved connections to either crystalreports.com or Enterprise. This makes it easier to publish to multiple locations without having to con figure connection settings each time

Once you have saved and named a file, the Save command automatically overwrites the previous version of the file with the revised version. Crystal Reports does not prompt you to overwrite. If you want to preserve the previous version of the report, you must use the Save As command on the File menu to give the revised report a new name.

Autosaving the Report

Crystal Reports has an Autosave feature that automatically saves the report for you in a time frame you specify. To turn on the Autosave feature, choose File/Options from the menu and then select the Reporting tab.

You can check mark the Autosave Reports After command, then enter the number of minutes between saves.



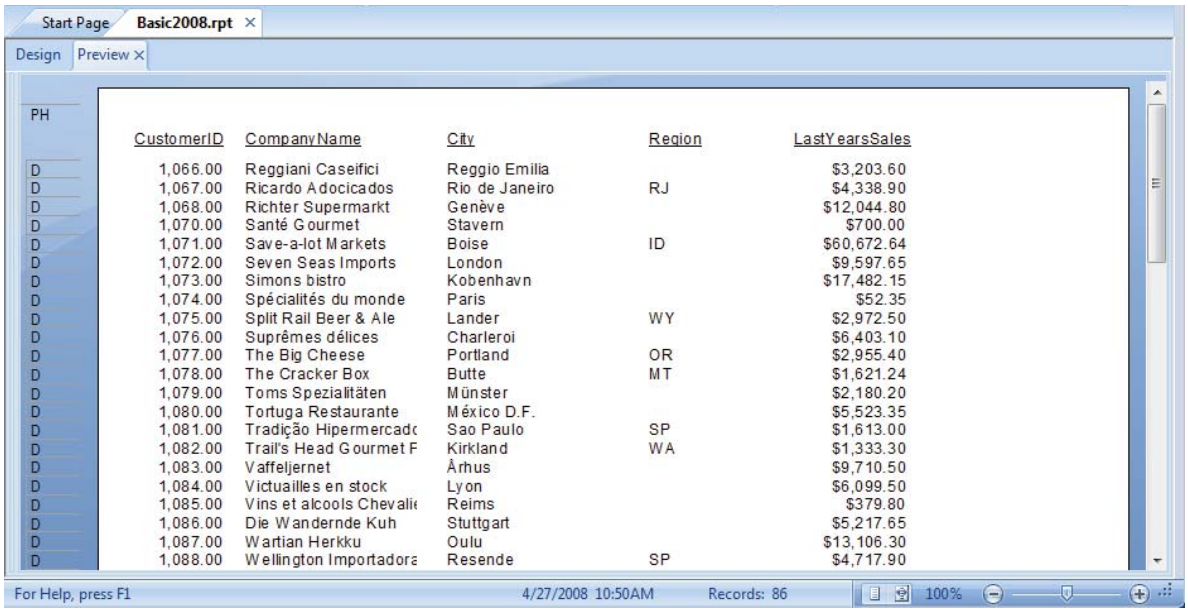
❖ Exercise 1.10 - Save the Report

1. Click the Save button on the Toolbar
   Crystal Reports opens the Save As dialog box.
2. Select the **My Documents** button
3. Create a new directory and name it **CR2008**
4. Name the report **Basic2008**
5. When finished, click the **Save** button

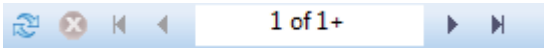
Previewing the Report

When you have saved the report, you can see how it looks with collected data by using the Preview command.

To preview the report for the first time, choose File/Print or click the Print Preview button on the toolbar. Crystal Reports creates a Preview tab and displays the report similar to how it will look when printed. Once you have created the Preview tab, you can switch between Design and Preview views by clicking the appropriate tab.



In the toolbars area you should see the Navigation toolbar. Usually it will be located in the bottom row to the very right.



- Use the button to refresh the data
- Use the and buttons to move through the report one page at a time.
- Use the or to display the first or last page of the report
- The button stops the processing of the report and displays the report with whatever data it has gathered up to the point you stopped the processing

- The page indicator in the middle of the arrow buttons indicates the page you are viewing and the total number of pages in the report. Crystal formats the report only to display requested pages to save time when previewing the report. If you see a + sign after the total page count, that means that Crystal has not formatted all the pages of the report, so the total count is not known. To get the actual total page count, go to the last page of the report

Refreshing the Data

When you preview a report, Crystal Reports queries the underlying database, pulls the records you requested, then saves the retrieved records in a combination of active memory and disk files. Thereafter, Crystal Reports works with the same dataset on the local machine rather than re-querying the database. Once you have pulled the initial set of records, Crystal Reports can work very quickly because it does not have to re-query the database each time you want to preview the results of your work. If you want Crystal Reports to re-query the database, you can choose to refresh the data.

Crystal Reports automatically refreshes the data in certain circumstances:

- When you add additional fields to the report
- When you add criteria that causes Crystal Reports to select additional records from the database
- When you add a formula that uses a field not currently being used in the report
- If you want Crystal Reports to automatically discard the saved data and pull new data from the database whenever you open the report, you can specify for Crystal to do this. Choose File/Options, select the Reporting tab, and then check the Discard Saved Data on Open command. You can refresh the data manually whenever you want by choosing Report/Refresh Report Data, or by clicking the Refresh button on the Toolbar

❖ Exercise 1.11 - Preview the Report

1. Click the **Print Preview** button
2. Click the page navigation buttons to view different pages of the report
3. Click the navigation buttons to view the first and last pages of the report
   Notice the change in the total page count after you have navigated to the last page of the report.
4. Click the **Close** button on the **Preview** tab to close it
5. Click the **Print Preview** button to restore the tab
6. Click the **Design** tab to return to Design view. Click the **Save** button again to save the report

Using the Status Bar

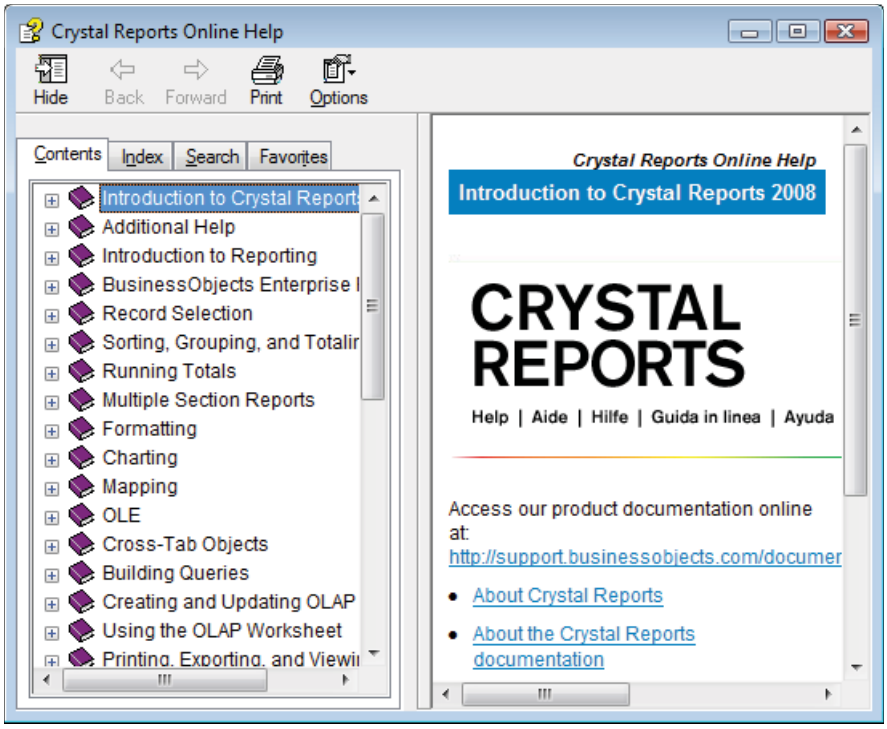
The Status bar offers additional value beyond providing descriptions of selected objects. When in Preview mode, the Status bar shows:

- ❖ Data and time of last database refresh
- ❖ Number of records retrieved and saved
- ❖ Zoom controls - The Zoom control can be used in both Design and Preview mode. Features include the ability to quickly view the whole page, width only or to set the percentage dimension

NOTE: When you preview the report, you may see a blank white area on the left of the screen along with Groups, Parameters and Find options. This is the Preview Panel area. You will learn more about using this later. For now, you can turn this off by clicking the Toggle Preview Panel button on the Standard toolbar.

Getting Help

You can obtain help on Crystal Reports by choosing Help, Crystal Reports Help or by pressing the F1 key.



The left side of the screen provides help in locating the information you want.

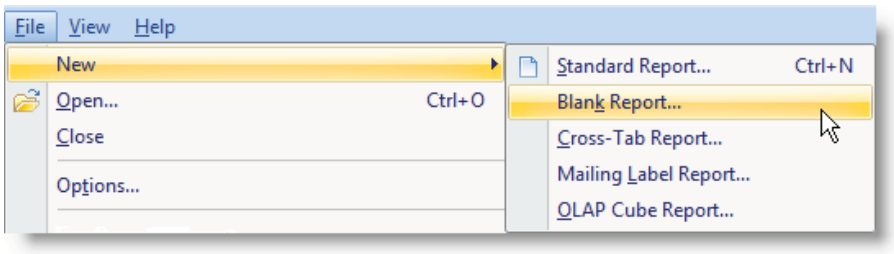
- *Contents* shows a table of expandable subjects through which you can look for information. Think of this as a table of contents
- *Index* provides a search method that looks through screen titles. Just type the keyword you want. Crystal Help interactively displays topics with the keyword in the title
- *Search* is a word search option that searches help screen text. Again, type the keyword or words you want, and then click the List Topics button to see a listing of screens that contain your keyword
- *Favorites* display a list of topics you have added as favorites

TIP: If you need help on functions in the Formula Editor, look them up by the function name or by the general category to which they belong. For example, search for the function name Replicate-String. If you cannot find the function by searching for the name, then look up the general category to which it belongs. You cannot locate For Loop by searching for the name, but you can find it by searching for its category, Control Structures.

Challenge Exercise – Creating a Basic Report

Create a report that lists orders with important date and payment information.

1. Select **File Menu|New|Blank Report** from the **Menu** bar
   Note if you click on the New Report button by default you will be taken into the Standard Report expert.



2. Create this report as a **Blank Report**

3. In the **Database Expert** window, open the **My Connections** folder, the **Northwind 2008** database connection, **Tables** and then add the **Orders** table. Click **OK**

4. Add the following fields to the Details section: **OrderID**, **OrderDate**, **RequiredDate**, **ShippedDate** and **OrderAmount**
   *The **OrderID** and **OrderAmount** fields are number fields. Notice how Crystal Reports provides guidelines on the right edges of these fields. This is because number fields are right-aligned by default.*

5. Browse the **OrderDate** field to see what the date looks like. When you are finished, close the **Browse** box
   Notice the field shows both the date and the time. It needs to be about 1.5" long to display all the data.

6. Resize the **OrderDate** field to be 1.5" long

7. Using the **Size** command on the shortcut menu, resize the **RequiredDate** and the **ShippedDate** fields to be the same width as **OrderDate**
   Notice how the field headers automatically resize the same as the data fields.

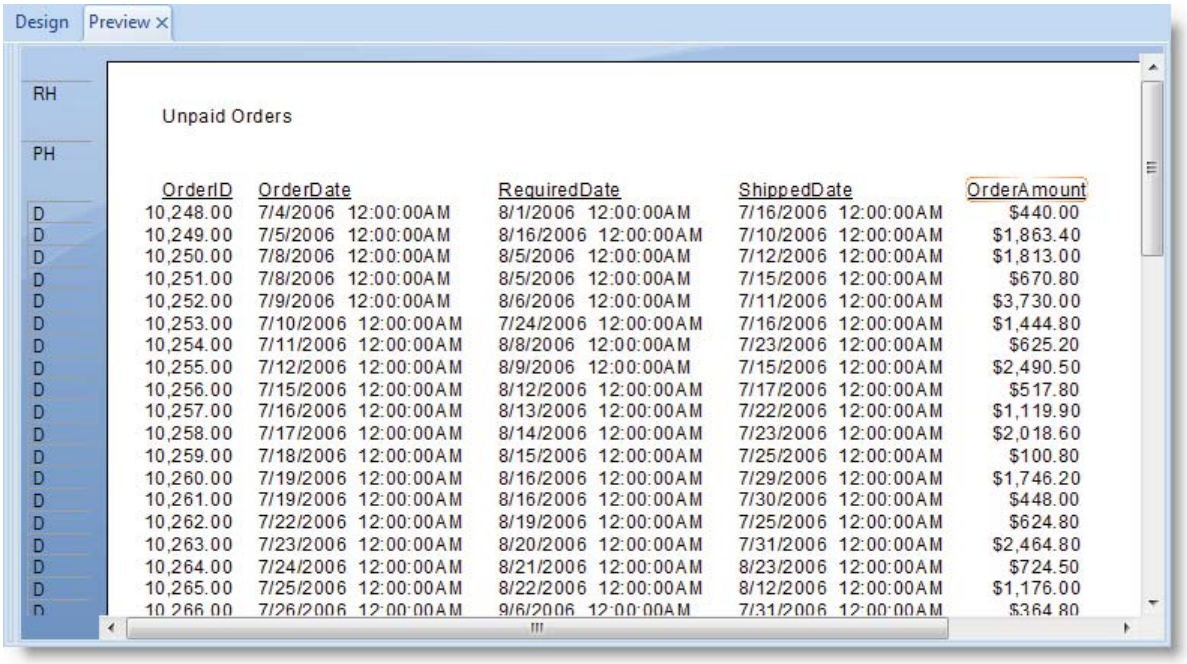
8. Use guidelines to position the fields so they look good to you

9. Add a text box to the Report Header section. Type **Unpaid Orders**

10. Save the report. Name it **Unpaid Orders**. Preview the report then re-save it after you have previewed

11. When finished, close the report

The Preview view of the report should look similar to the following illustration:



OrderID	OrderDate	RequiredDate	ShippedDate	OrderAmount
10,248.00	7/4/2006 12:00:00AM	8/1/2006 12:00:00AM	7/16/2006 12:00:00AM	$440.00
10,249.00	7/5/2006 12:00:00AM	8/16/2006 12:00:00AM	7/10/2006 12:00:00AM	$1,863.40
10,250.00	7/8/2006 12:00:00AM	8/5/2006 12:00:00AM	7/12/2006 12:00:00AM	$1,813.00
10,251.00	7/8/2006 12:00:00AM	8/5/2006 12:00:00AM	7/15/2006 12:00:00AM	$670.80
10,252.00	7/9/2006 12:00:00AM	8/6/2006 12:00:00AM	7/11/2006 12:00:00AM	$3,730.00
10,253.00	7/10/2006 12:00:00AM	7/24/2006 12:00:00AM	7/16/2006 12:00:00AM	$1,444.80
10,254.00	7/11/2006 12:00:00AM	8/8/2006 12:00:00AM	7/23/2006 12:00:00AM	$625.20
10,255.00	7/12/2006 12:00:00AM	8/9/2006 12:00:00AM	7/15/2006 12:00:00AM	$2,490.50
10,256.00	7/15/2006 12:00:00AM	8/12/2006 12:00:00AM	7/17/2006 12:00:00AM	$517.80
10,257.00	7/16/2006 12:00:00AM	8/13/2006 12:00:00AM	7/22/2006 12:00:00AM	$1,119.90
10,258.00	7/17/2006 12:00:00AM	8/14/2006 12:00:00AM	7/23/2006 12:00:00AM	$2,018.60
10,259.00	7/18/2006 12:00:00AM	8/15/2006 12:00:00AM	7/25/2006 12:00:00AM	$100.80
10,260.00	7/19/2006 12:00:00AM	8/16/2006 12:00:00AM	7/29/2006 12:00:00AM	$1,746.20
10,261.00	7/19/2006 12:00:00AM	8/16/2006 12:00:00AM	7/30/2006 12:00:00AM	$448.00
10,262.00	7/22/2006 12:00:00AM	8/19/2006 12:00:00AM	7/25/2006 12:00:00AM	$624.80
10,263.00	7/23/2006 12:00:00AM	8/20/2006 12:00:00AM	7/31/2006 12:00:00AM	$2,464.80
10,264.00	7/24/2006 12:00:00AM	8/21/2006 12:00:00AM	8/23/2006 12:00:00AM	$724.50
10,265.00	7/25/2006 12:00:00AM	8/22/2006 12:00:00AM	8/12/2006 12:00:00AM	$1,176.00
10,266.00	7/26/2006 12:00:00AM	9/6/2006 12:00:00AM	7/31/2006 12:00:00AM	$364.80

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NOTES