

Report
Builder
User's Guide

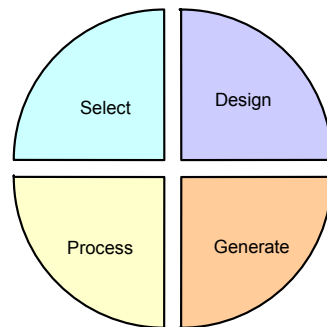
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Introduction

The Basics

Report Creation Activities



Report creation with ReportBuilder can be divided into four main activities.

- Select refers to the selection of data.
- Design means creating a layout that describes how the document should look.
- Process refers to the manipulation of the data or the layout in order to control the generation more precisely.
- And Generate refers to the creation of the actual document.

ReportBuilder handles the Generate step for you, and with my help you can certainly master the Select, Design and Process activities.

First, let's get a better handle on these rather abstract concepts.

Select

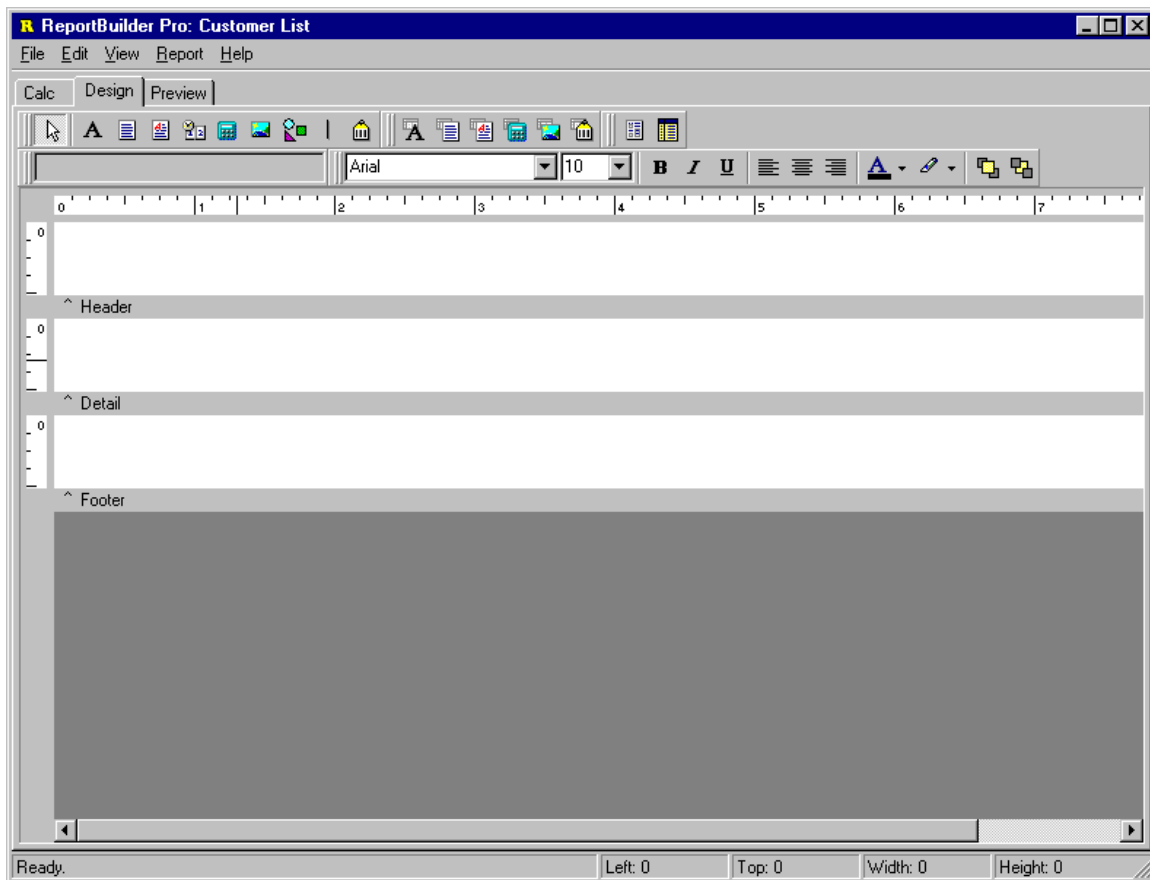
Your data is probably not locked into disposable documents, it's organized (one way or another) as data. That generally means a database. Organized data is the first key to creating recyclable documents. ReportBuilder expects data to take a tabular format. Yes, you can create reports based on less structured data, but in general it is most advantageous to have the data organized in a table. Here's an example:

Customer No.	Company	Contact	State
3053	American SCUBA Supply	Lynn Cinciripini	CA
3984	Blue Glass Happiness	Christine Taylor	CA
3054	Catamaran Dive Club	Nicole Dupont	CA
3051	San Pablo Dive Center	Patricia O'Brien	CA
3052	Underwater Sports Co.	Dave Walling	CA

This table contains customer information. In database terms, each row of the table is considered a record. Each column of the table is considered a field. The field names appear in the first row and are not considered part of the data. When you are working on the data selection, the goal is to create a table that will enable ReportBuilder to generate your document correctly. This means including all the fields you will need for the report, limiting the rows selected to only those which should appear in the report and sorting the rows so that they appear in the correct order.

Design

Once data has been selected, you can begin designing your report. You do this by creating a layout. A layout is a combination of objects that describe how the document should look.



This is the Report Designer. As you can see, it looks like many of the other Windows applications you're used to working with. The big difference is that the Report Designer does not contain a document, it contains a layout. The layout can be used to generate many different documents, all based on the data you've selected. The white rectangular areas with the gray bars below are called bands. This report has a Header, Detail and Footer band. When ReportBuilder generates a document from this layout, the objects in the Header band will appear at the top of each page. The objects in the Footer band will appear at bottom of each page. And the objects in the Detail band will repeat down the

page, until no more page space is available, at which point a new page will be started. The Detail band prints once for each row of your data selection. This is how a document is created from the layout. You can generate a different document from the same layout by simply changing your data selection.

Process

When you create a layout, you are telling ReportBuilder exactly how you want the document to look. But what if your document is so complex that you can't design a layout to describe it? Though ReportBuilder layouts are quite flexible and powerful, as you will soon see, even the most flexible layout is still fixed.

I'll teach you how to do simple calculations and even some fairly complex stuff, if you're interested.

Generation

This is what happens when you click on the 'Preview' tab in the Report Designer. You see the generated document in the print preview window. It will either look right, or it won't. If it doesn't then it's time to return to the Select, Design or Process area and make the changes necessary to get the document generating correctly. Sometimes you learn the most by tinkering with a data selection or layout and then checking to see how ReportBuilder generates the document differently.

The Best Way to Learn ReportBuilder?

Start simple, then go to the next easy level.

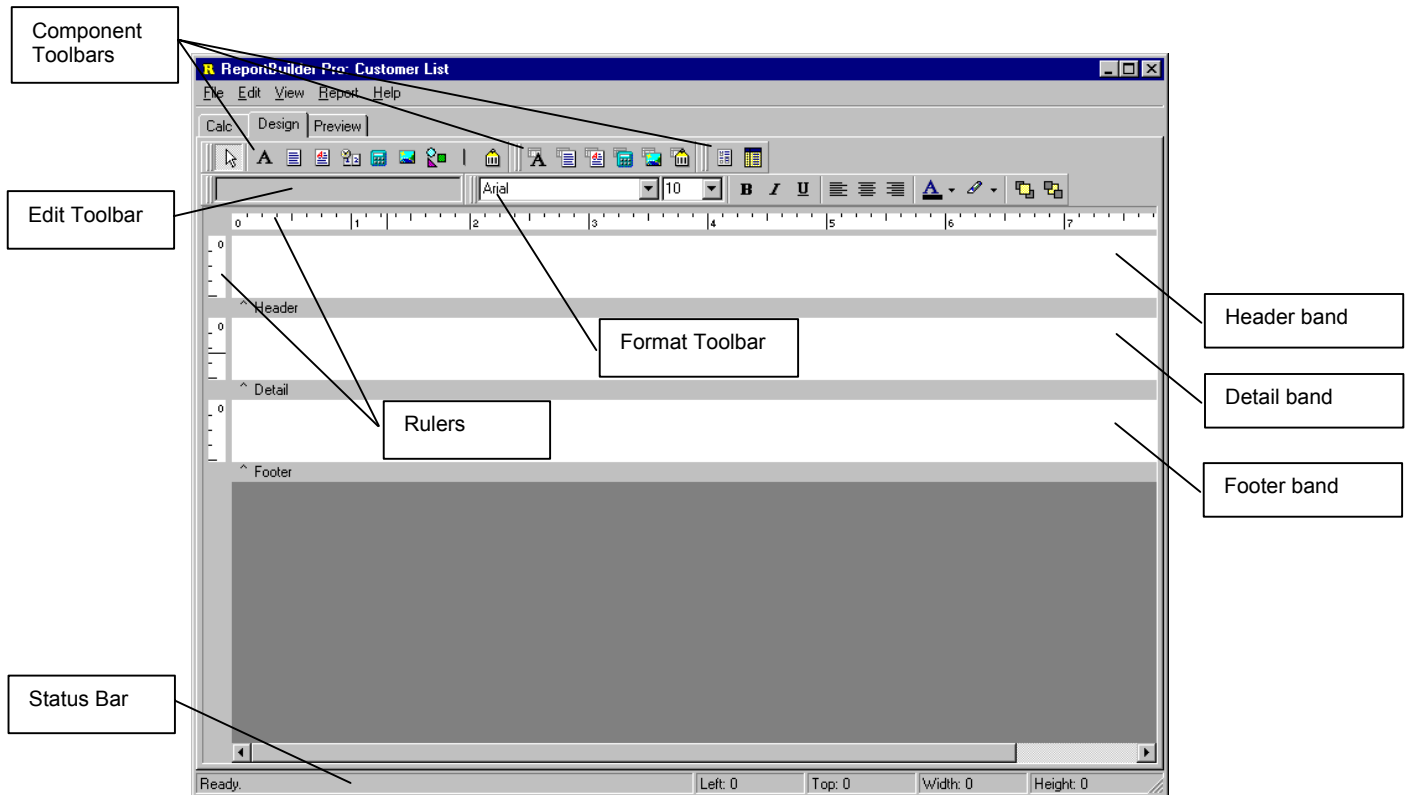
This is the secret of champions. If you work your way from one easy level to the next, then you can end up a very skillful developer. If you jump in at the top, you can end up quite overwhelmed. When you begin to use ReportBuilder, do the easiest report you can imagine. It is hoped that this gradient approach will allow you to build up your ReportBuilder skills with a minimum of frustration. Regardless of whether you decide to use this manual or not, you should remember this important concept: start simple, then go to the next easy level.

Use this manual.

We did not write this manual for the joy of technical writing. It is designed to give you hands-on experience with report building and conceptual background material that should allow you to better utilize ReportBuilder.

Elements of the User Interface

The default configuration of the Report Designer is shown here. I've labeled some of the most important elements.



The Report Designer is your key to productivity when creating reports in Delphi. Every effort has been made to be consistent with the Delphi Form Designer and other similar Windows programs you've used before. The ReportBuilder Report Designer provides you with many powerful tools for maximizing your productivity:

Component Palette Toolbars

These toolbars are used to create new components. To create a component, click on the icon and then click in the white space of a band. There are three component toolbars: Standard, Data and Advanced. Use the Standard components to create text, lines, shapes, memos, richtext etc. and you want to assign the data to the components at design-time or run-time. Use the Data components when you want to assign the data from a database. Use the Advanced components when you need to create more complex reports using subreports or regions.

Edit Toolbar

The Edit toolbar allows you to set the most important property for a given component. For example, when a Label component is selected, an edit box appears allowing you to set the Caption. When a DBText component is selected, two drop-down lists appear, allowing you to set the DataPipeline and the DataField.

Format Toolbar

This toolbar appears to the left of the Edit. It's used to configure the font of textual components and to control component layering via the Bring to Front and Send to Back icons.

Rulers

The horizontal ruler allows you to determine a component's position on the page. The vertical ruler for each band allows you to determine a component's position relative to the starting print position of the band.

All Bands

Notice the gray rectangular area below the white space of each band. This area is draggable, and allows you to redefine the height of the band.

Status Bar

Shows messages and object positions.
Other Report Designer Elements not pictured.

Align or Space Toolbar

Use to align objects in relation to the band and to each other.

Size Toolbar

Use to set the width or height of a set of components based on the largest or smallest component in the set. Provides an excellent means to size components in a uniform way.

Nudge toolbar

Use this toolbar to modify a component's position in one-screen pixel increments.

Draw toolbar

Used to set the color and border of shapes, lines and regions.

Standard toolbar

Used to create new reports, open existing reports, save modifications to reports, print reports to the printer or to a print preview window and for various clipboard operations.

Page Setup dialog

Accessible via the File | Page Setup menu option. Used to specify paper size and orientation and to control column layouts for newspaper style reports and mailing labels.

Print to File Setup dialog

Accessible via the File | Print to File Setup menu option. Use to specify settings for exporting report data to ASCII text. You can control what data from each band gets exported and the order of the output fields. Fixed length, tab-delimited, and comma-delimited record types are supported.

Groups dialog

Accessible via the Report | Groups menu option. Use to create, modify, and re-order report groups.

Display Format dialog

Accessible via the DisplayFormat option of the component's speed menu. Used to set the format for the text (i.e. display a date as 'Monday, October 9, 2030').

Calculation dialog

Accessible via the Calculations... speed menu option of a TppVariable component. This dialog allows you to code the calculations for a variable. (only available when RAP is installed.)

Speed Menus

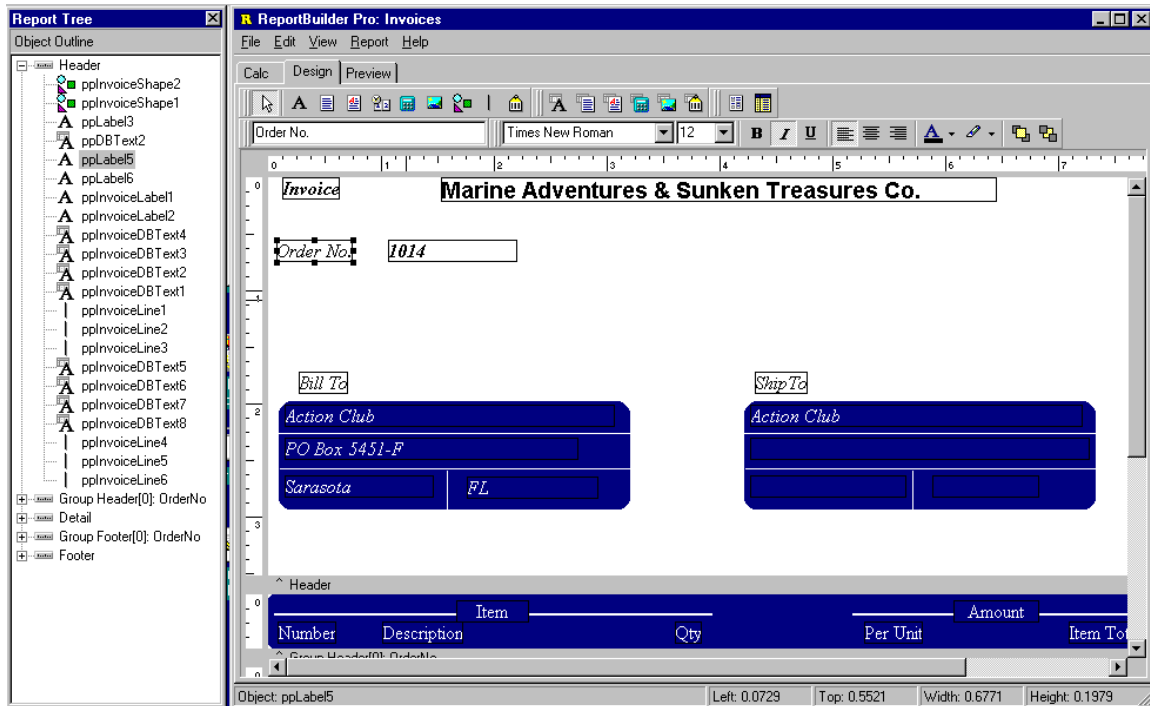
Speed Menus are pop-up menus that appear when you position your mouse cursor over an object and press the right mouse button. Windows '95 and many commercial Windows applications incorporate speed menus in their user-interface. ReportBuilder's Report Designer makes extensive use of speed menus to allow you to quickly set report component properties without having to access the Object Inspector. This allows you to maximize the Report Designer window when working on reports.

Working with the Report Designer

The Report Designer enables you to quickly and easily layout complex reports.

Here are some tips to help you get the most out of the Report Designer:

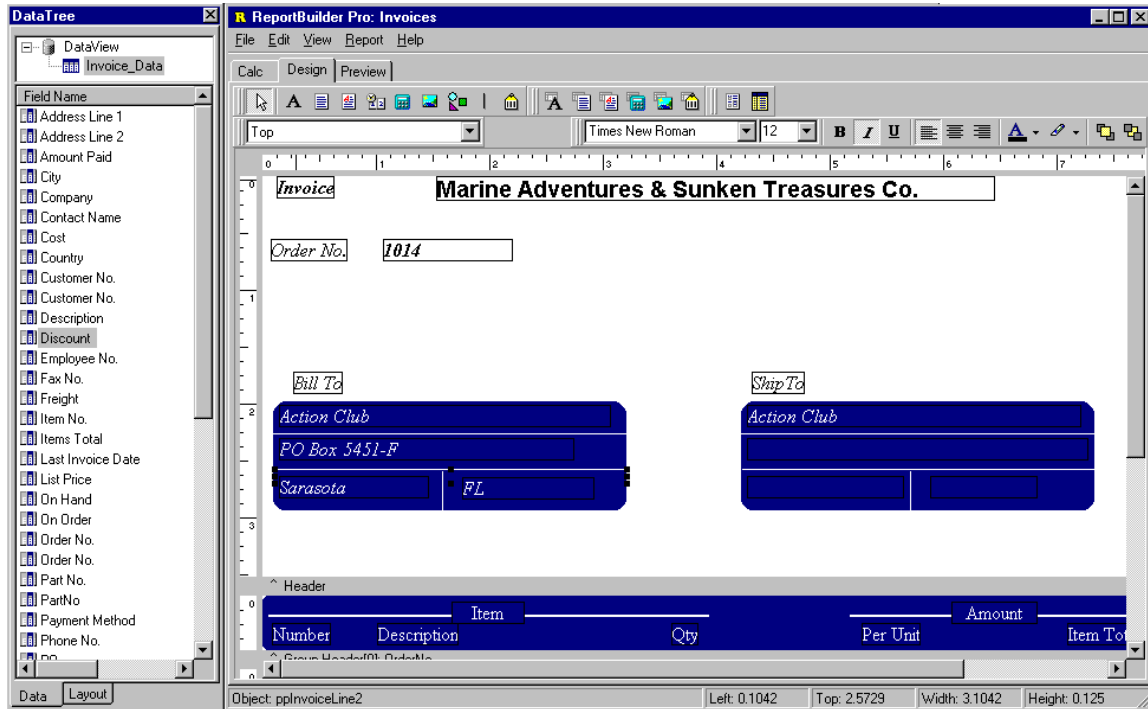
1. Maximize the Report Designer window and use the speed menus as much as possible.
2. Use the View | Show Data menu option to toggle between displaying live data and displaying the component names. Note: this is only relevant when you're designing with an active dataset.
3. Use the File | Save Form (or Ctrl + S) to save your Delphi form and thus the report you're working on.
4. To set display formats, make your dataset active and then use the speed menus to access the Format dialog. The Format dialog will determine the data type of the DataField assigned to the component and display several formats appropriate for that data type (for example a field of type date would provide a list of commonly used date formats.)
5. To resize the bands using the mouse, position the mouse over the gray rectangular area below the white space of the band, press the left mouse button and drag.
6. You can drag components from one band to another.
7. To make a particular band appear as the selected object in the Object Inspector, position your mouse cursor anywhere over the open white space of the band (not over a component in the band) and click the left mouse button.
8. You can cut, copy, and paste one or more report components at a time either in the same report or between different reports.
9. When working on long reports use the PageLimit property of the report to limit the number of pages previewed. In other words, if the report is 200 pages long, set PageLimit to 20 and only the first twenty pages will be previewed.
10. Do not preview a report that has no data pipeline and no page limit assigned. A report in this configuration has no way to determine when to stop and will generate pages forever.
11. Use all of the tools described in the previous section.



By selecting the View | Toolbars | Report Tree menu option you can display the Report Tree. The report tree shows all of the bands and components in the report. The components for each band are listed in layered order (that is the order established via the Bring to Front and Send to Back commands.) The bottommost component is listed first, the topmost component is listed last.

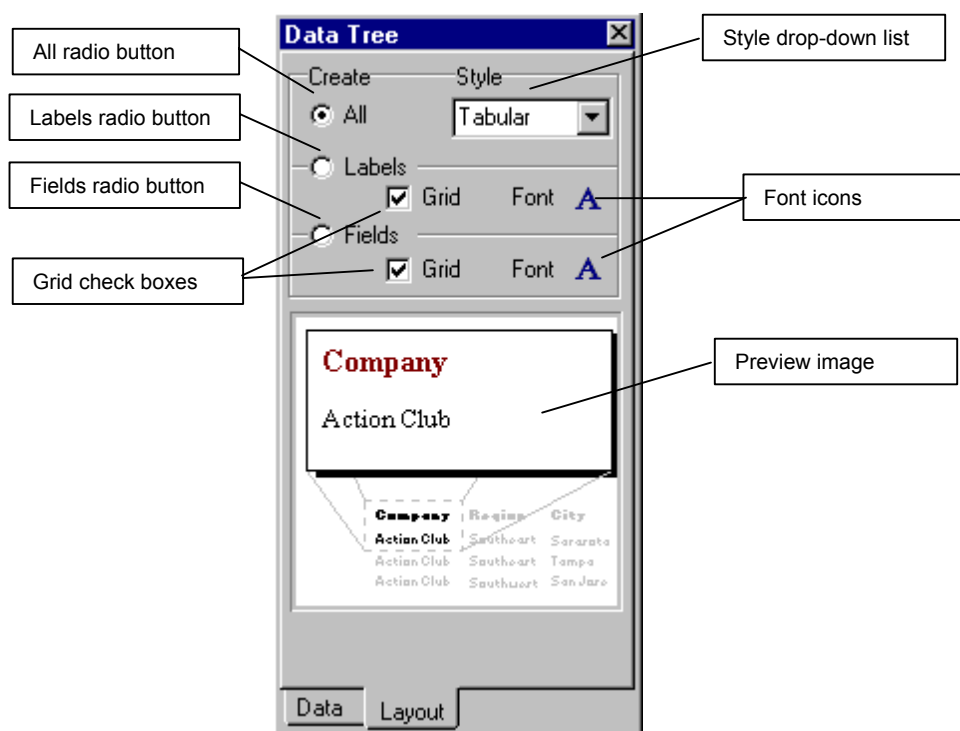
You can use the Report Tree to see exactly what components are contained in the report and to select individual components.

By right-clicking over the Report Tree, you can turn the Report Outline on. The Report Outline is useful when you have subreports in your report. You can select any subreport in the Report Outline and the bands and components for that subreport will appear in the Report Tree. (The subreport will also be displayed in the Report Designer.)



By selecting the View | Toolbars | Data Tree menu option you can display the data pipelines which can be used to create data-aware components within the report. The data tree shows a list of data pipelines in the top window and a list of fields for the currently selected data pipeline in the bottom window.

You can select multiple fields in the field list and drag them into any band. Data-aware components and corresponding labels will then be created. Notice the 'Data' and 'Layout' tabs at the bottom of the Data Tree. You can use the Layout tab to customize the behavior of the Data Tree's drag-and-drop capabilities.



The Layout tab of the Data Tree contains many settings which you can use to customize the drag-and-drop capabilities of the Data Tree.

Control	Description
All radio button	When selected both DBText components (assigned to the selected fields) and corresponding label components are created.
Fields radio button	When selected only DBText components (assigned to the selected fields) are created.
Label radio button	When selected only Label components (with the captions set to the field name) are created.
Style drop-down list	Controls whether the DBText and Label components are oriented in a columnar or stacked fashion.
Grid check boxes	Controls whether a shape is placed behind the DBText or Label component.
Font icons	Controls the font name, size, style and color via a standard font dialog.
Preview image	Shows how the created components will look.

Reporting Basics

Master/Detail Reports

Set the `Report.DataPipeline` property to the master data pipeline and the `DetailBand.DataPipeline` property to the detail data pipeline. Any data-aware component placed in the detail band will default to the data pipeline of the detail band. Any data-aware report component placed in any other band will default to the data pipeline of the report. You can change the default data pipeline of a component by using the drop-down list in the Edit toolbar or the Object Inspector.

Lookup Tables/Queries

A data-aware report component can be set to any data pipeline on your form. This means that if a lookup table or query is connected to your master or detail data, you can assign fields from the lookup data simply by creating a data pipeline for the lookup and then assigning that data pipeline to a component.

Filtering Data

Whenever you set a filter on data that is connected to a report, you need to call the `Report.Reset` method prior to calling `Report.Print`. This will notify ReportBuilder that it needs to re-access the data and regenerate the report pages, rather than use the internal engine cache. Calling `Report.Reset` is a good technique whenever it appears that a report is not regenerating in response to changes in the data.

Display Formats

You can specify the formats of a `DBText`, `DBCcalc`, `Variable` or `SystemVariable` component by setting the `DisplayFormat` property. `DisplayFormat` differs from the Delphi implementation in the case of string types. In order to format strings simply type a valid `EditMask` into the `DisplayFormat` property. ReportBuilder will then apply the `EditMask` to the string value.

Note: ReportBuilder ignores any display formats you specify within the `TField` objects of a Delphi dataset.

Dynamic Bands

Set the `Band.PrintHeight` property to `phDynamic` when you want the band to use page space on an as-needed basis, shrinking or stretching to accommodate the report components. When `PrintHeight` is set to `phStatic`, the band uses the exact amount of page space specified by the `Height` property (unless it is not `Visible`, in which case it uses zero page space.)

Stretching Memos and Shapes

Set the `Stretch` property of a Memo when you want the `Height` of the memo to automatically stretch to allow the entire contents of the memo to be printed. And if you are framing the memo with a Shape component set the `Shape.StretchWithParent` property to `True` and the `Height` of the shape will stretch to accommodate the height of the memo.

Finally use the `ShiftWithParent` property of the other report components to determine whether the position of the report component should move as the memo stretches.

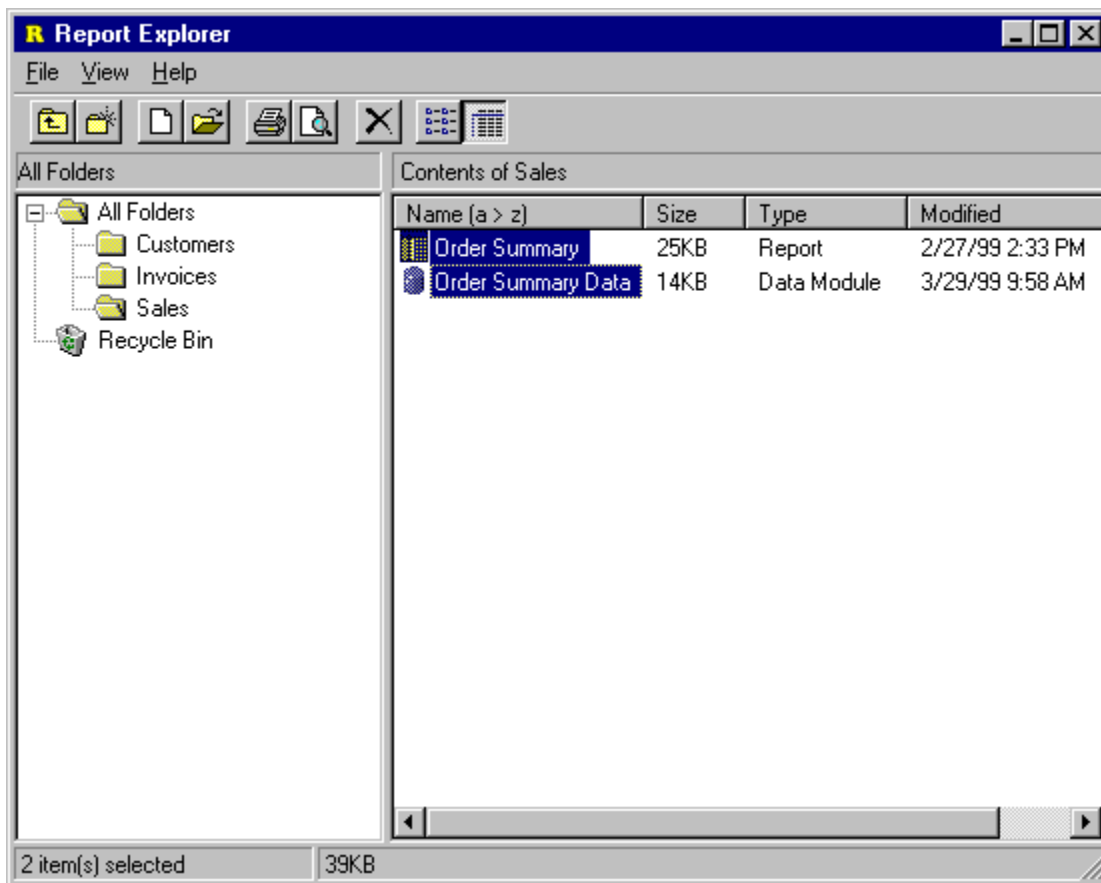
Controlling Component Visibility

You can use the `BeforePrint` event of a band to control which components appear when the band prints. To hide all the components in a band, set the `Visible` property of the band to `False`. To hide individual components set the `Visible` property of each component to `False`.










Design

Report Explorer

The Report Explorer component allows you to deploy a Windows Explorer interface which your end-users can use to organize their reports. The Report Explorer handles all operations via datapipelines, so that the folder structure and all of items within it can be saved to database tables. This interface presents a minimal learning curve as most users are familiar with the operation of the Explorer. The Report Explorer user-interface is pictured below:



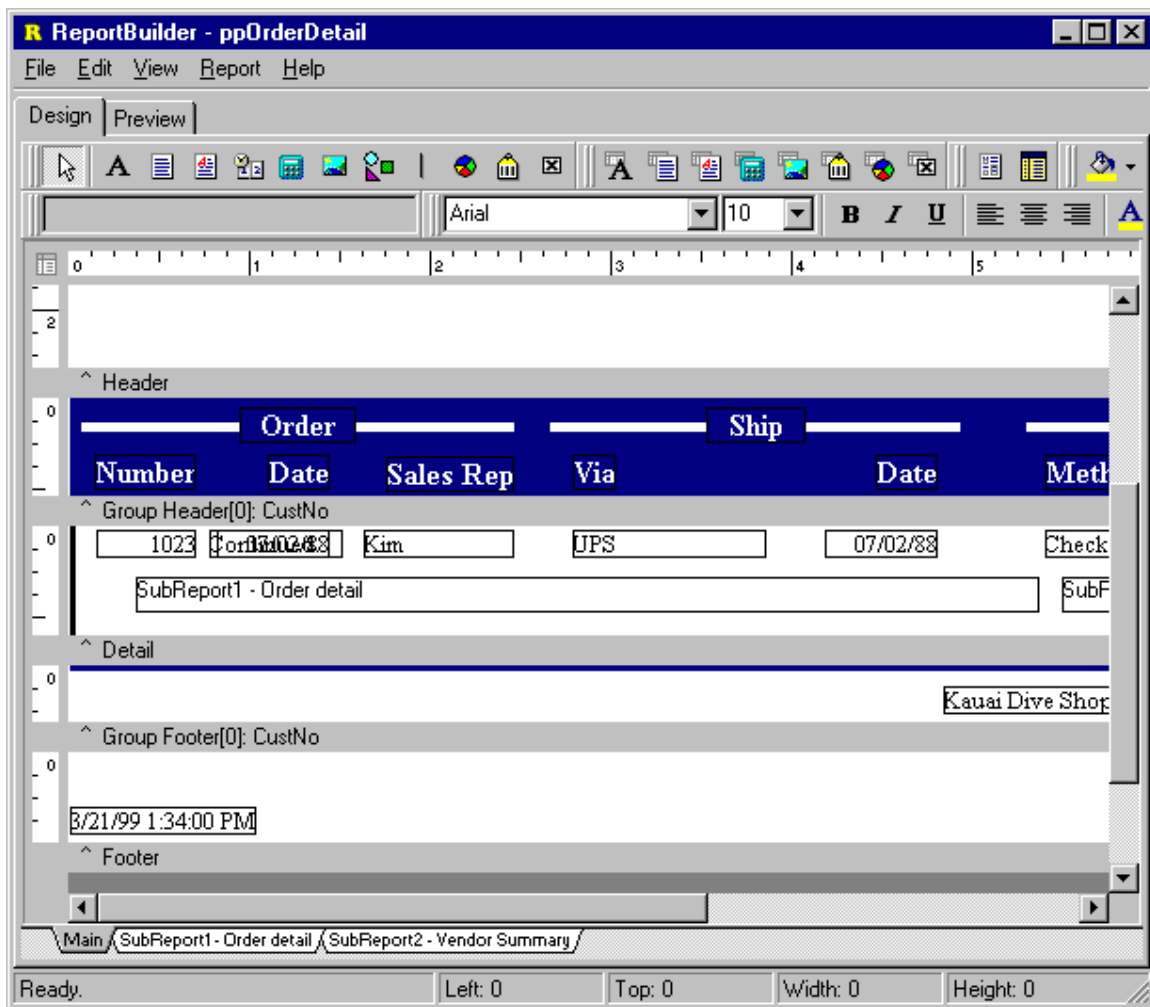
The action which each button on the Report Explorer toolbar performs is described below:

Button	Icon	Description
Up One Level		When a folder is selected, use this button to select the parent folder.
New Folder		Creates a new folder within the currently selected folder.
New Report		Creates a new report and displays the report designer.
Open Report		Opens the currently selected report and displays it in the designer
Print		Prints the currently selected report.
Print Preview		Opens the currently selected report and displays it in the print preview window.
Delete		Sends the currently selected item or items to the recycle bin. If the items are already in the recycle bin, deletes them.
List		Sets the list to display in columns and show the item name only.
Details		Shows one item per row, lists metadata about items: item type, item size, date last modified.

The Report Designer

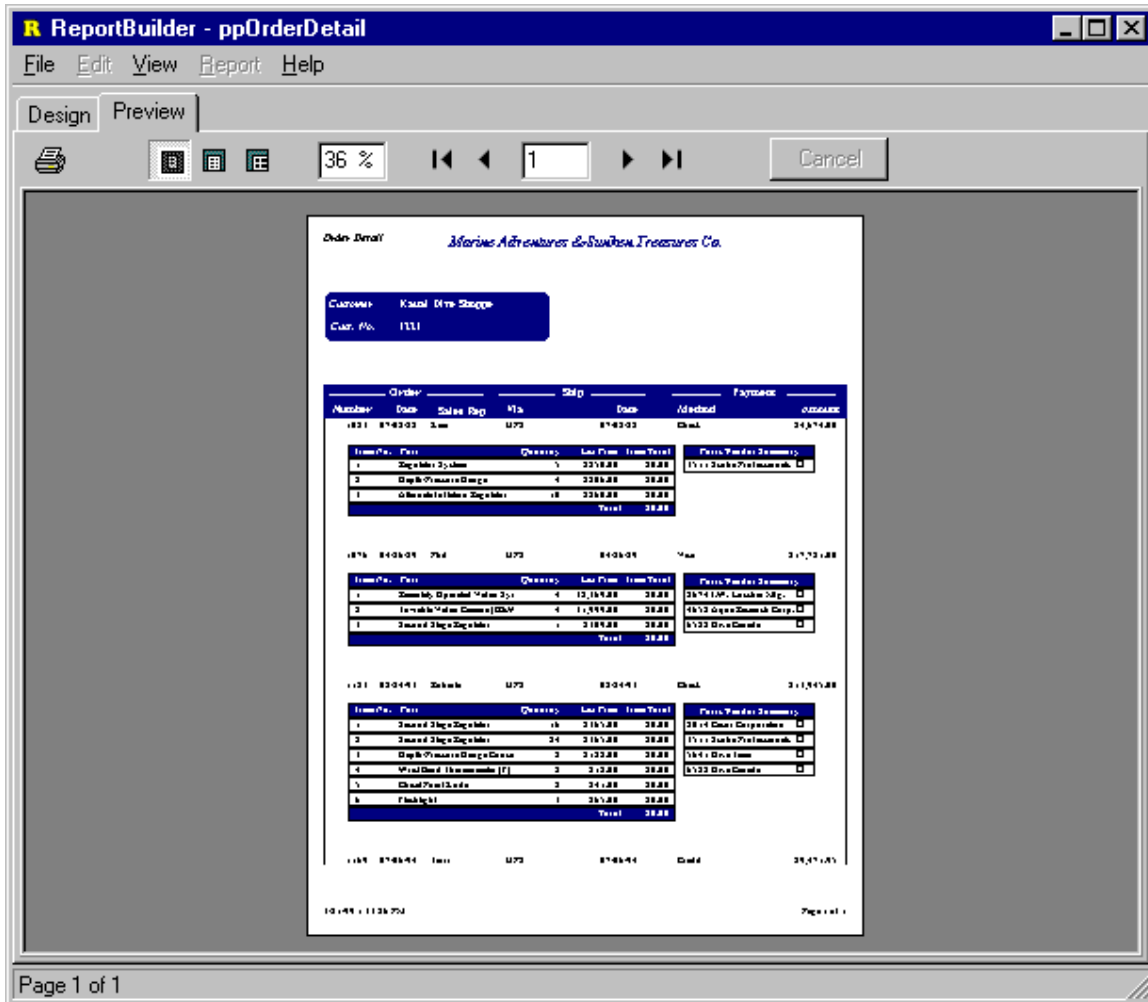
Design Tab

The design workspace is where the report layout is created. This workspace contains all of the menus, toolbars and dialogs which make up the Report Designer.



Preview Tab

The Preview workspace shows a representation of the report as it will appear when printed to the printer. The iterative process of perfecting a report is generally accomplished by moving back and forth between the Preview and Design tabs of the Report Designer.



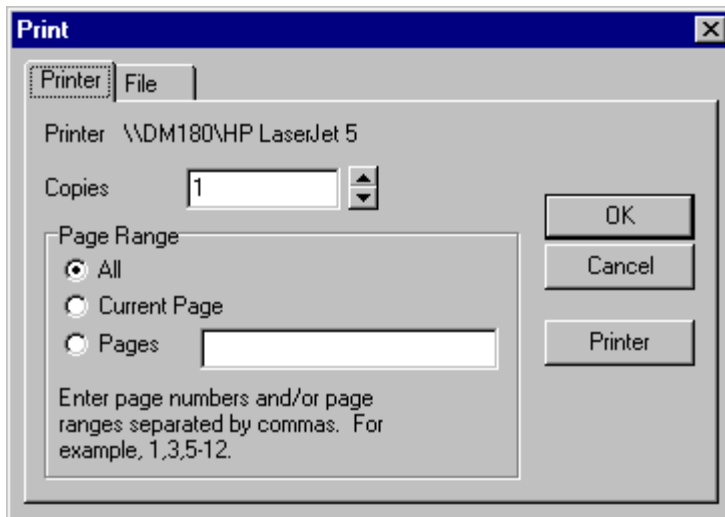
Dialogs

The various dialogs accessible from within the Design workspace are documented in this section.

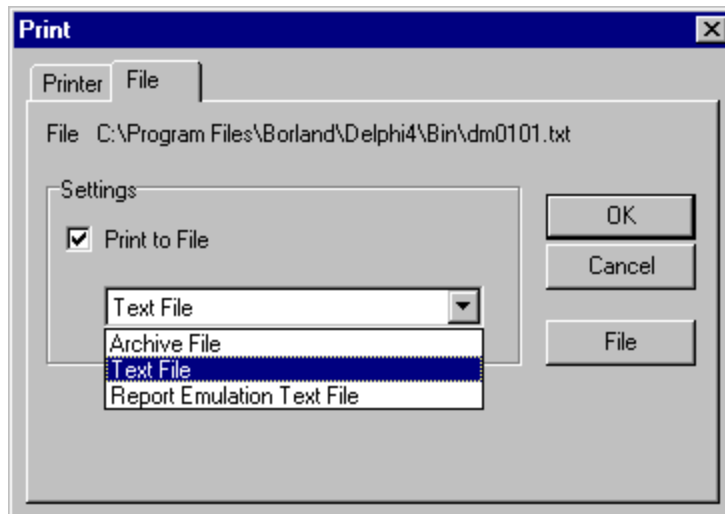
Print Dialog

The Print Dialog is automatically displayed when the report is sent to the printer. This dialog allows you to select the pages, number of copies and printer for the report. When the AllowPrintToFile or AllowPrintToArchive properties of the Report are set to True, this dialog displays an additional 'File' tab, where the various print to file options are displayed.

1. The print job settings can be set via the 'Printer' tab.



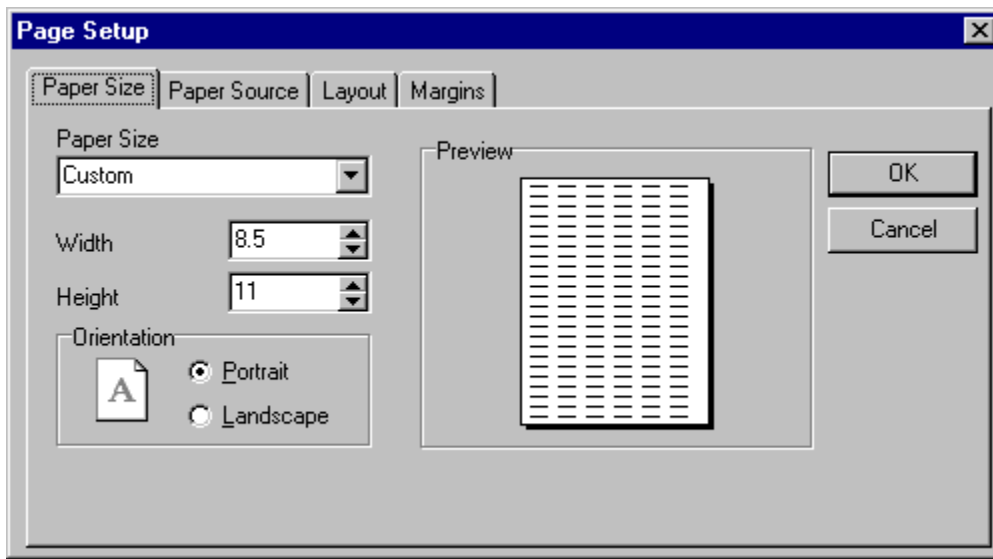
2. Print to file options can be set via the 'File' tab.



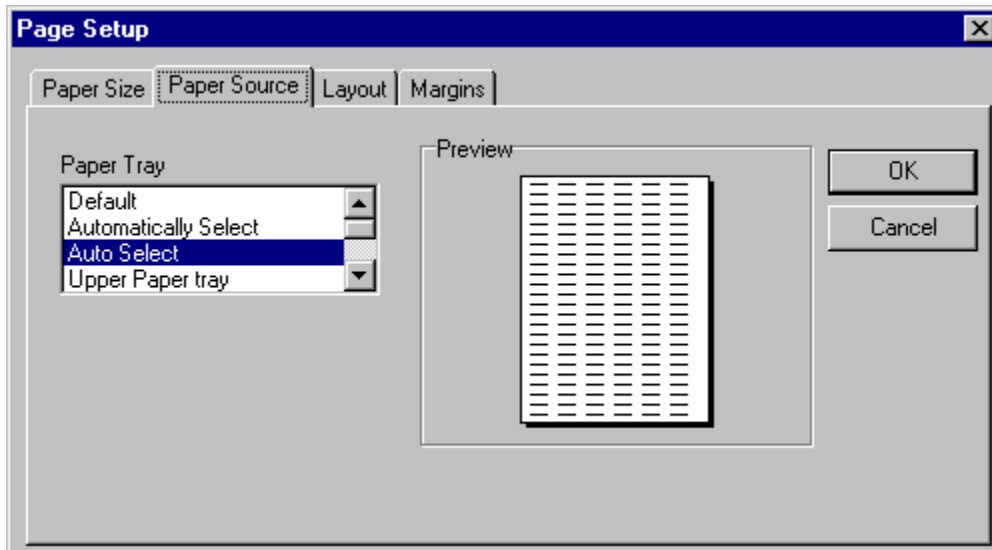
Page Setup

The Page Setup dialog can be accessed from the File | Page Setup menu option of the Report Designer. You set the following from within the PageSetup dialog:

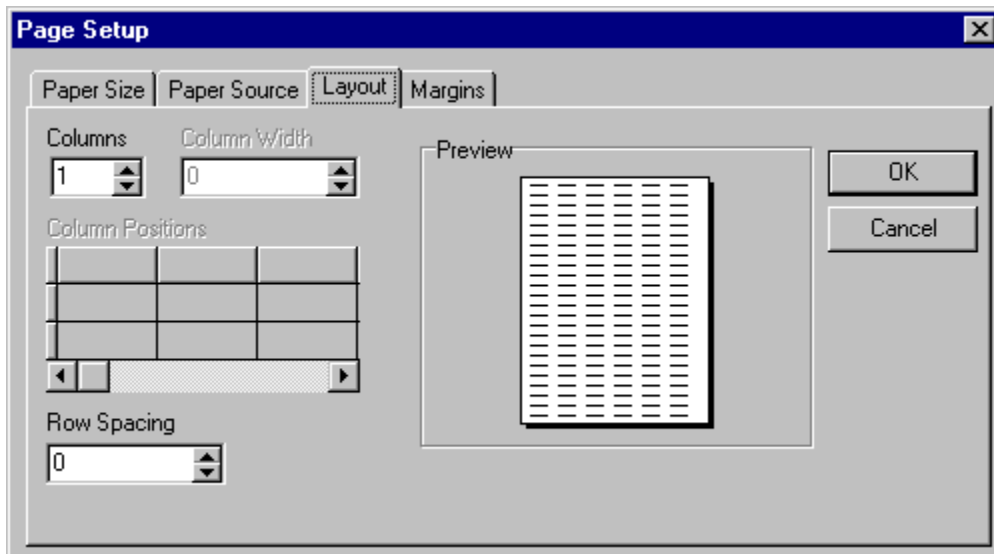
1. Paper size and orientation



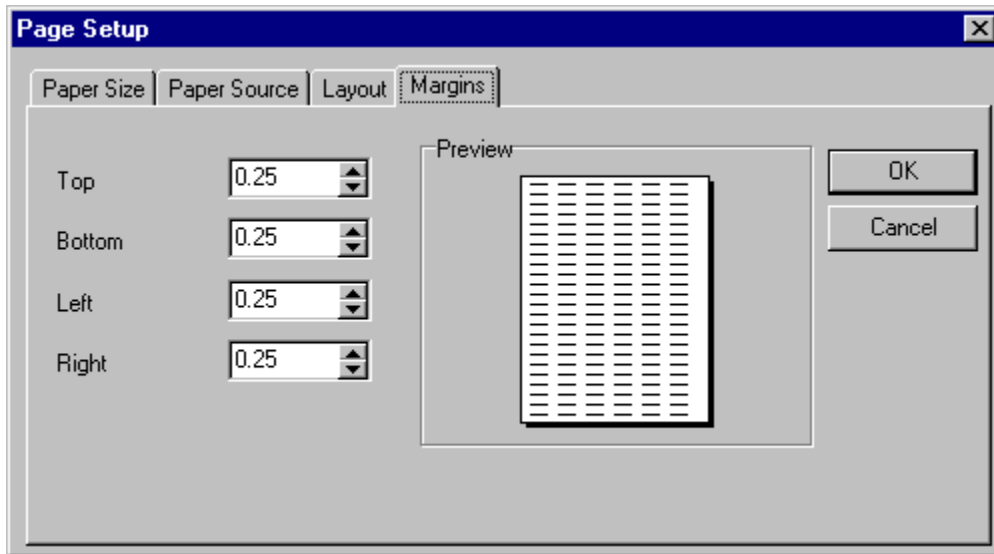
2. Paper Source



3. Layout for Columnar Reports

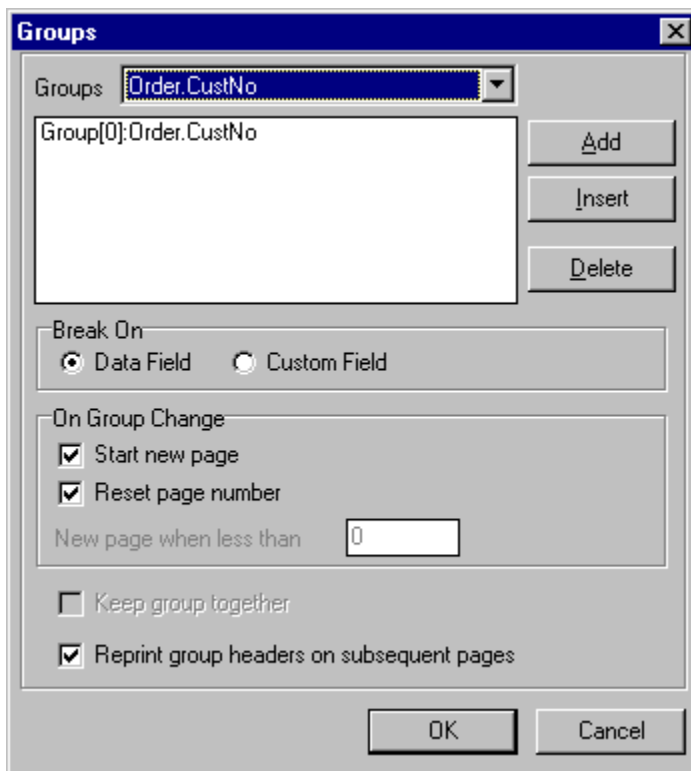


4. Margins



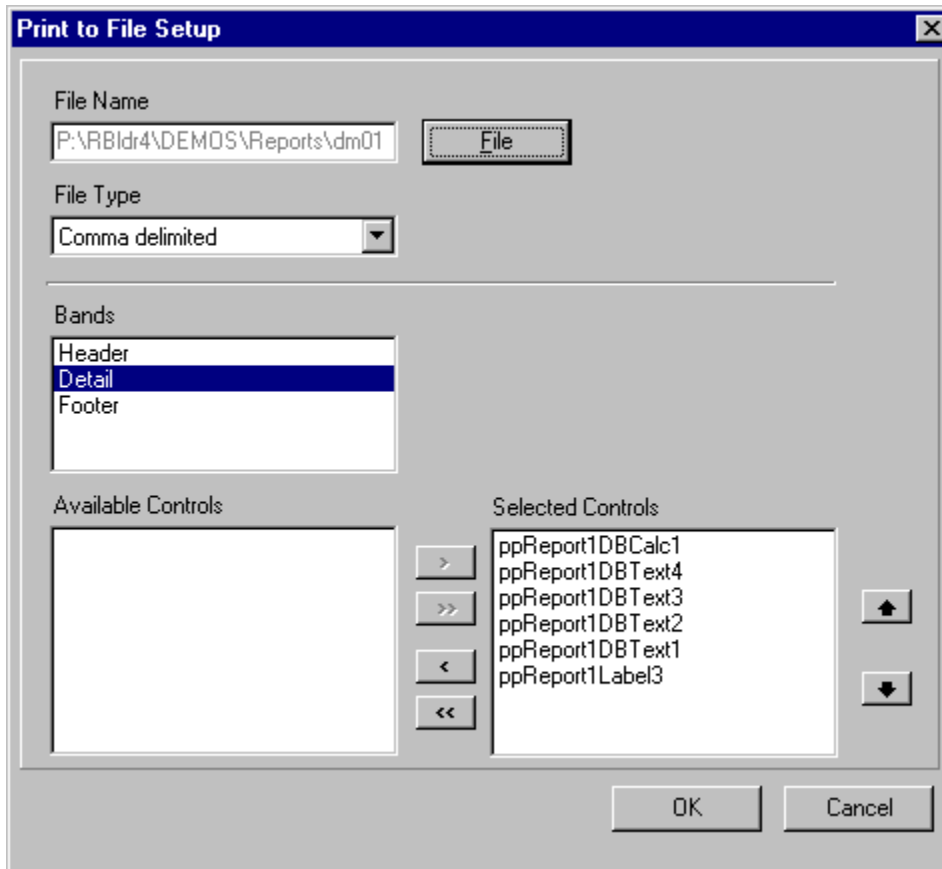
Groups Dialog

The Groups dialog is accessible via the Report | Groups menu option of the Report Designer. You can separate your report into different sections using groups. A number of options are available to control the behavior of each group. For example, you may want each group to start on a new page or to reprint the group header when the group continues on additional pages. Another powerful feature is the Keep group together option which can be used to ensure all of the information for a group fits on a page.



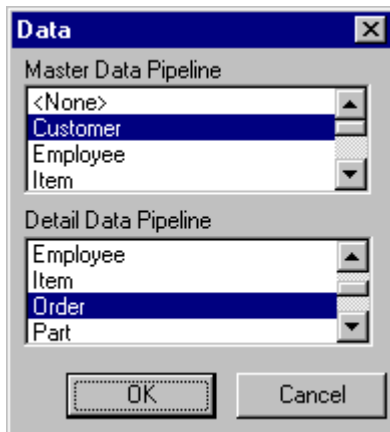
Print to File Setup Dialog

The Print to File Setup dialog is accessible via the File | Print to File Setup menu option of the Report Designer. This dialog is used to specify the format and content of the ASCII file which will be created if the report is printed to file.



Data Dialog

The Data dialog can be accessed from the Report | Data menu option of the Report Designer. It can be used to specify the master and detail data pipelines for the report. Note: The detail data pipeline is optional.

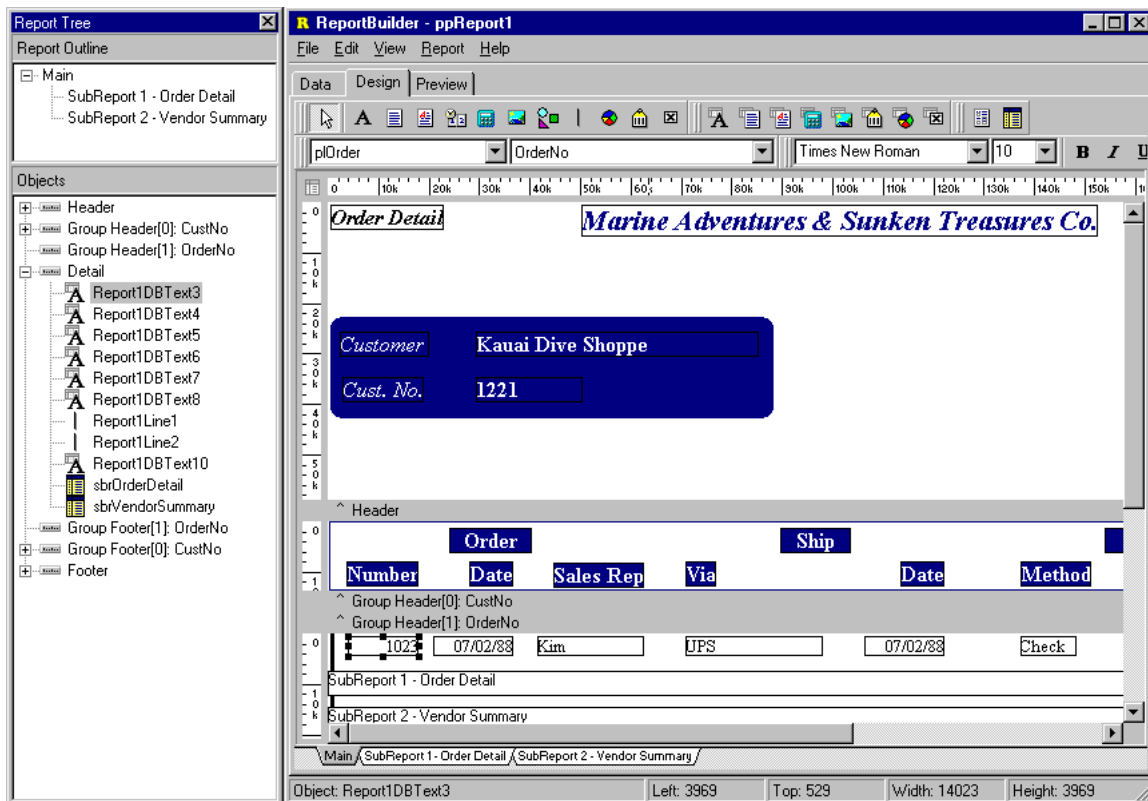


Toolbars

The various toolbars accessible from the design workspace are documented in this section. The toolbars are dockable and follow the Office97 interface style. The Toolbars are accessible from the View | Toolbars menu option of the Report Designer or by right-clicking on the docking area at the top of the Report Designer.

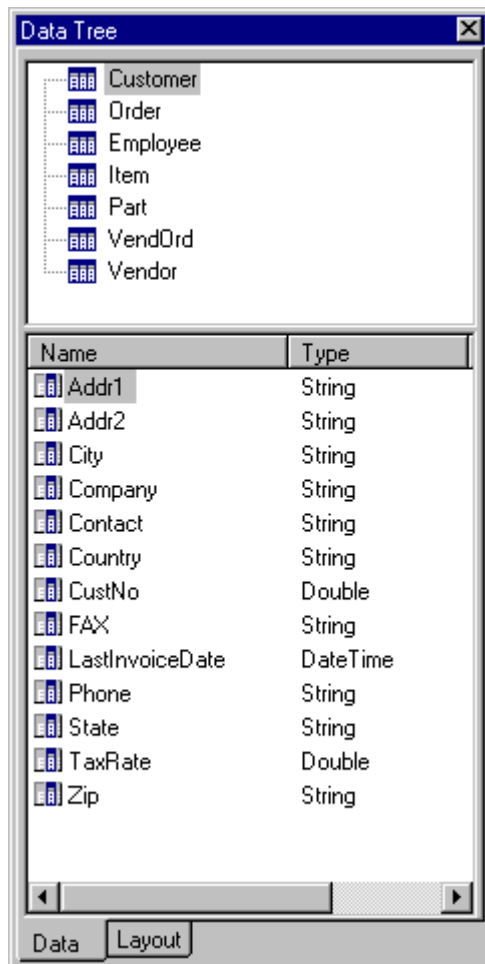
The Report Tree

To access this tool window, select the View | Toolbars | Report Tree menu option from the Report Designer main menu. This tool window is dockable only on the left and right sides of the Report Designer. It can be used to organize components within each band. Components selected in the Report Tree are selected in the report layout. The upper portion of the Report Tree shows the main report object and any subreports nested within it. This can be helpful for organizing your subreports.



The Data Tree

To access this tool window, select the View | Toolbars | Data Tree menu option from the Report Designer main menu. This tool window is dockable only on the the left and right sides of the Report Designer. It can be used to create components within any band. Simply select a set of fields and drag the selection into the band. A set of corresponding data-aware components will be created.







Standard Component Palette



To access this toolbar, select the View | Toolbars | Standard Components menu option from the Report Designer main menu. This toolbar will assist in creating the most commonly used report components.









Component	Icon	Description
Label		Used to display text. Assign the Caption property to control the text value. You can have the label resize automatically to fit a changing caption if you set the AutoSize property to True.
Memo		Used to print multiple lines of plain text in a report. To set the value, assign a string list to the Lines property. To dynamically resize the memo during printing, set the Stretch property to True. Use the ShiftRelativeTo property to define dynamic relationships with other stretchable objects.
RichText		Used to print formatted text. To set the value, assign the RichText property or use the LoadFromFile or LoadFromRTFStream methods. Use the ShiftRelativeTo property to define dynamic relationships with other stretchable objects. At design-time you can use the ReportBuilder's built-in RTF Editor to load, modify, and save rich text data stored in files.
SystemVariable		Used to display common report information such as page number, page count, print date and time, date, time, etc. The type of information displayed is controlled by the VarType property. The format is controlled by the DisplayFormat property.
Variable		Used for calculations via an Object Pascal event handler assigned to the OnCalc event or a RAP event handler assigned to the OnCalc event. Access the Calculations dialog (via the speed menu) or the Calc tab of the Report Designer to code a RAP calculation for this component.
Image		Used to display bitmaps and windows metafiles in reports. Assign the Picture property of this component in order to place an image in your report. Use the Report Designer's built-in picture dialog to load images at design-time

Component	Icon	Description
Shape		Use this component to print various shapes (squares, rectangles, circles, ellipses) Set the Shape property to select a type of shape. Use the Brush and Pen properties to control the color and border respectively.
TeeChart		Used to display standard (non-data-aware) TeeCharts. This component enables you to use TeeChart inside the Report Designer. You can access the TeeChart editor via a popup menu.
BarCode		Used to render barcodes. The string value assigned to the Data property is encoded based on the BarCodeType. If the data to be encoded is in a database, use DBBarcode. The following symbologies are supported: Codabar, Code 128, Code 39, EAN-13, EAN-8, FIM A,B,C, Interleaved 2 of 5, PostNet, UPC-A, UPC-E.
CheckBox		Displays a checkbox using the WingDings font.

Data Component Palette



To access this toolbar, select the View | Toolbars | Data Components menu option from the Report Designer main menu. This toolbar will assist in creating data-aware report components.

Component	Icon	Description
DBText		Used for displaying values from all types of database fields. Use the DisplayFormat property to format the value.
DBMemo		Used to print plain text from a memo field of a database table. This control will automatically word-wrap the text. Set the Stretch property to True and the component will dynamically resize to print all of the text. Use the ShiftRelativeTo property to define dynamic relationships with other stretchable objects.
DBRichText		Used to print formatted text from a memo or BLOB field of a database table. This control will automatically word-wrap the text. Set the Stretch property to True and the component will dynamically resize to print all of the text. Use the ShiftRelativeTo property to define dynamic relationships with other stretchable objects.
DBCalc		Used for simple database calculations (Sum, Min, Max, Count and Average.) The value can be reset when a group breaks using the ResetGroup property.
DBImage		Used to print bitmaps or windows metafiles, which are stored in a database BLOB field.
DBBarcode		Used to render barcodes based on the BarCodeType and the value supplied via the DataField property. The following symbologies are supported: Codabar, Code 128, Code 39, EAN-13, EAN-8, FIM A,B,C, Interleaved 2 of 5, PostNet, UPC-A, UPC-E.
DBTeeChart		Allows data-aware TeeCharts to be placed within a report.
DBCheckBox		Displays a checkbox based on the value of the field specified in the DataField property. Can be used with a Boolean field (or any other type of field via the BooleanTrue, BooleanFalse properties.)

Advanced Component Palette












To access this toolbar, select the View | Toolbars | Advanced Components menu option from the Report Designer main menu. This toolbar will assist in creating advanced report components.

Component	Icon	Description
Region	A small icon representing a region, showing a grid with a vertical line and a horizontal line.	Used to logically group components together. Use the ShiftRelativeTo property to move the region in relation to another dynamically resizing component (such as Memo, RichText or child-type SubReport.)
SubReport	A small icon representing a subreport, showing a grid with a vertical line and a horizontal line.	Used to handle multiple master details, create side-by-side reporting effects and hook reports together as one. If you need a report to print within the context of a band, use a child-type subreport. If you need to hook reports together use a section type subreport. The PrintBehavior property determines the subreport type.

Standard Toolbar

To access this toolbar, select the View | Toolbars | Standard menu option from the Report Designer main menu. This toolbar will assist saving the report layout, accessing the print and print preview and cut and paste operations.

Component	Icon	Description
New Report		Creates a blank report layout.
Open Report		Displays the Open dialog, allowing you to open an existing report layout.
Save Report		Saves a report layout to file.
Page Setup		Displays the Page Setup dialog, allowing you to set the paper size and configure the layout for the report.
Print		Displays the Print dialog before sending the report to the printer.
Print Preview		Displays the Print Preview window.
Cut		Cuts the currently selected components into the clipboard.
Copy		Copies the currently selected components into the clipboard.
Paste		Pastes the components in the clipboard into the report.

Edit Toolbar

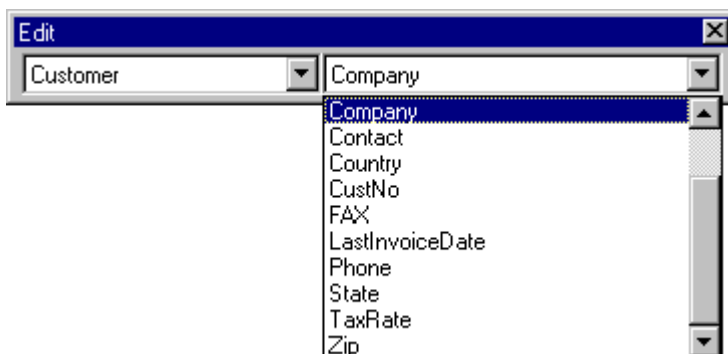
To access this toolbar, select the View | Toolbars | Edit menu option from the Report Designer main menu. This toolbar will assist in setting the most important property or properties for the currently selected component.

1. No component selected.



2. Data-aware component selected.

This configuration allows the data pipeline and data field for the component to be set. The drop-down list on the left shows the data pipeline. The drop-down list on the right shows the field name.



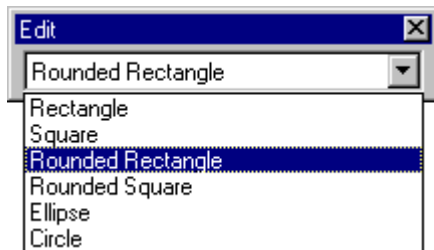
3. Label component selected.

Here a label component has been selected in the Report Designer. The Edit toolbar displays an edit box from which the label's caption can be set.



4. Shape component selected.













Here a shape component has been selected in the Report Designer. The Edit toolbar displays the different shape types.



Format Toolbar













To access this toolbar, select the View | Toolbars | Format menu option from the Report Designer main menu. This toolbar will assist in setting the font, colors and layering of components.

Property	Icon	Description
Font Name	N/A	Select the font name for textual components. Use TrueType fonts (indicated by a  icon) when possible. These render well on both the screen and printer. If you are using a dot-matrix printer, the print driver may supply printer fonts (indicated by a  icon) which you can use to speed up the printing of the report. Finally fonts that have no icon to the left of the font name are screen fonts, and should not be used in reports where WYSIWYG is required.
Font Size	N/A	Select the font size. You can also type in this box to set the font size exactly.
Bold		Set the font to bold.
Italic		Set font to italic.
Underline		Set font to underline.
Left Justify		Left justify the text in the component.
Center		Center the text in the component.
Right Justify		Right justify the text in the component.
Font Color		Set the font color.
Highlight Color		Set the background color of the textual component.
Bring to Front		Bring the component to the front. The components in the front print last, the components in the back print first. Use the Report Tree to see the exact layering of components within the band.
Sent to Back		Send the component to the back. The components in the front print last, the components in the back print first. Use the Report Tree to see the exact layering of components within the band.

Align or Space Toolbar



To access this toolbar, select the View | Toolbars | Align or Space menu option from the Report Designer main menu. This toolbar will assist in positioning components relative to one another and relative to the band in which they appear.

Action	Icon	Description
Align Left Edges		Used to align a group of components with the leftmost position of the component that was selected first.
Align Horizontal Centers		Used to center a group of components based on the horizontal center of the component that was first selected.
Align Right Edges		Used to align a group of components with the rightmost position of the component that was selected first.
Align Top Edges		Used to align a group of components with the topmost position of the component that was selected first.
Align Vertical Centers		Used to align a group of components based the vertical center of the component which was first selected.
Align Bottom Edges		Used to align a group of components with the bottommost position of the component that was selected first.
Space Horizontally		Used to space a set of components based on the leftmost position of the first component selected and the rightmost position of the last component selected.
Space Vertically		Used to space a set of components based on the topmost position of the first component selected and the bottommost position of the last component selected.
Center Horizontally in Band		Used to center a component horizontally within a band.
Center Vertically in Band		Used to center a component vertically within a band.

Size Toolbar







To access this toolbar, select the View | Toolbars | Size menu option from the Report Designer main menu.

Action	Icon	Description
Shrink Width		Determines the minimum width of all the selected components, and then sets the width of the components to that value.
Grow Width		Determines the maximum width of all the selected components, and then sets the width of the components to that value.
Shrink Height		Determines the minimum height of all the selected components, and then sets the height of the components to that value.
Grow Height		Determines the maximum height of all the selected components, and then sets the height of the components to that value.

Nudge Toolbar







To access this toolbar, select the View | Toolbars | Size menu option from the Report Designer main menu.

Action	Icon	Description
Nudge Up		Moves all the selected components one pixel up.
Nudge Down		Moves all the selected components one pixel down.
Nudge Left		Moves all of the selected component one pixel to the left.
Nudge Right		Moves all of the selected components one pixel to the right.

Draw Toolbar



To access this toolbar, select the View | Toolbars | Draw menu option from the Report Designer main menu. This toolbar will assist in setting the colors and borders of components.

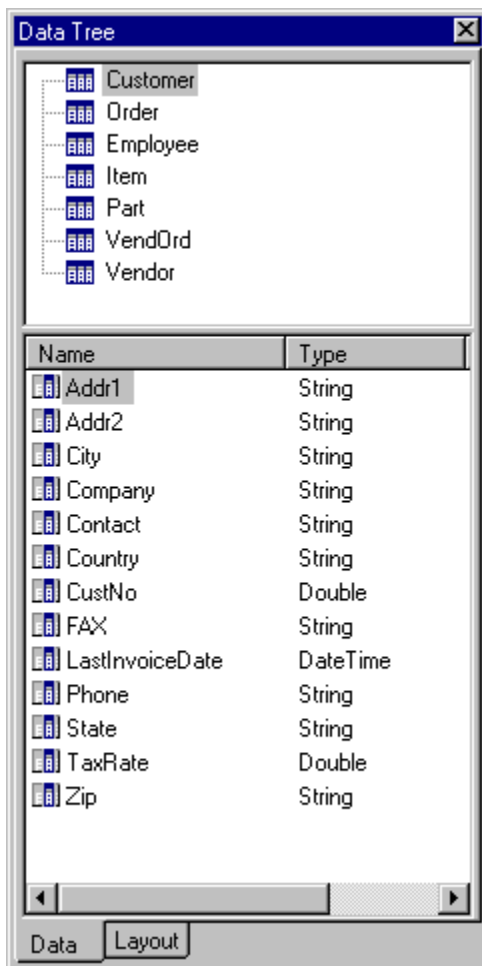
Action	Icon	Description
Fill Color		For shapes, lines and region components only. Sets the Brush.Color property. To set the color of a textual component, check the Highlight Color action of the Format toolbar.
Line Color		For shapes, lines and region components only. Sets the Pen.Color property.
Line Thickness		For use with a Line component only, sets the Weight property.
Line Style		For use with a Line component only, sets the Pen.Style property.

Drag and Drop Support

ReportBuilder contains a Report Wizard which allows you to quickly create an entire report layout. This is great for generating an entire report, but what if you need to create only a portion of a complex report? Drag and drop functionality is an ideal solution for this problem because it allows you to create a set of components within the context of an existing report layout.

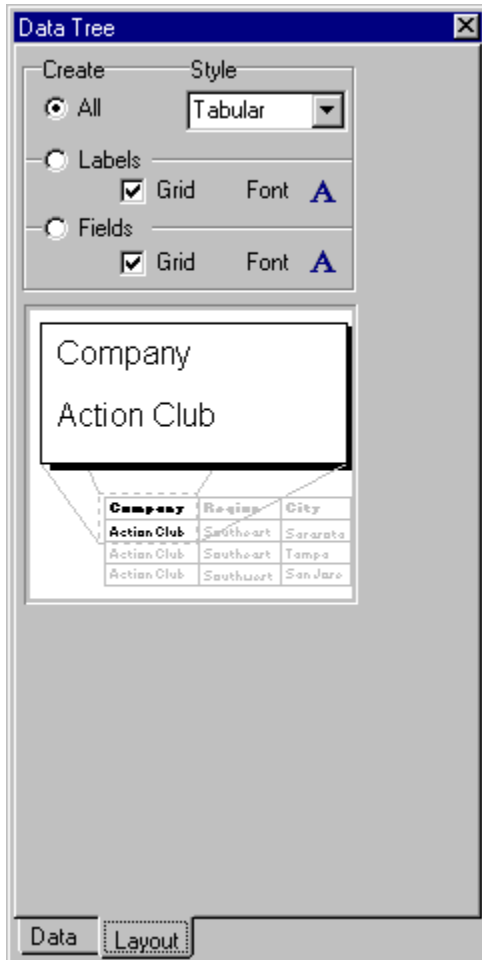
In ReportBuilder, drag and drop support is provided via the Data Tree (pictured below)

Data Tree - Data tab



The Data Tree has two tabs. In the top tree view, the 'Data' tab contains a list of data pipelines to which the report has access. In the bottom list view, all of the fields for the currently selected data pipeline are displayed. Fields can be selected from the bottom list view and dragged to any part of the report layout. The data-aware component which is appropriate for the given field will then be created along with a label and border.

Data Tree - Layout tab



The second tab of the Data Tree is entitled Layout. This tab allows you to control the behavior of drag-and-drop. By default a label and border are created for each data-aware component. You can turn the label off, the border off, control the color of the label or border and control the font of the label and data-aware component from this tab. Once you've set the drag-and-drop behavior it will be retained for future design sessions

The Report Wizard

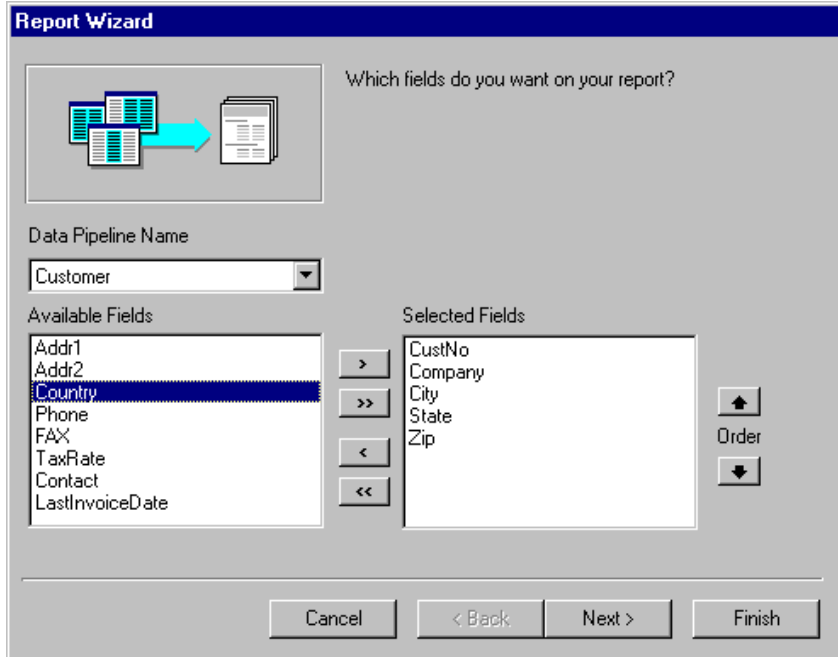
The Report Wizard is one of the many parts of ReportBuilder which reflect a level of professionalism and attention to detail found in no other reporting product. If you or your end-users have utilized standard Windows wizards in other products, then you will be able to quickly recognize and use the ReportBuilder Report Wizard.

The Report Wizard can be accessed via the File | New menu option of the report designer. A series of screens are presented, each requesting information about the report. When the last page is reached, either a preview or design option can be selected. Clicking the 'Finish' button causes a report to be created and displayed as requested.

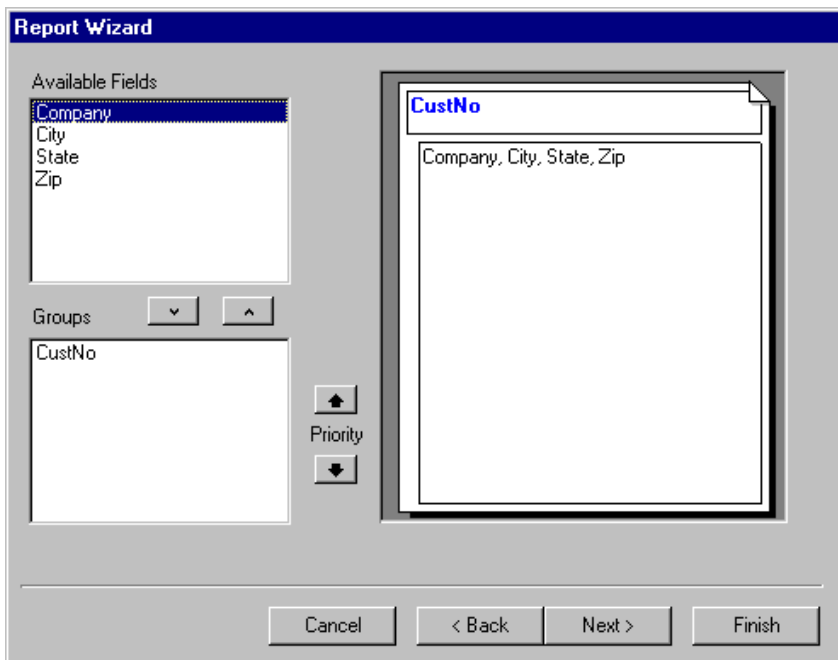
Report Wizard: Create a Simple Report

The following screen shots step through the creation of a simple report via the Report Wizard.

1. Select the fields.



2. Skip the groups page.



3. Select the layout.

Report Wizard

How would you like to lay out your report?

Customers

COMPANY	REGION	CITY	STATE
Action Club	Southwest	Sarasota	FL
Action Club	Southwest	Tampa	FL
Action Club	Southwest	San Jose	CA
Action Club	Southwest	Phoenix	AZ
Action Club	South	Dallas	TX
Action Club	South	Atlanta	GA
Action Club	South	El Paso	TX
Action Diver	Southwest	Charlotte	NC
Action Diver	Southwest	Miami	FL
Action Diver	Southwest	Columbia	SC
Action Diver	Southwest	Lexington	VA

Layout


Vertical

Tabular

Orientation

Portrait

Landscape



Adjust field widths so all fields fit on page.

Cancel < Back Next > Finish

4. Select the style.

Report Wizard

What style would you like?

Customers

COMPANY	REGION	CITY	STATE
Action Club	Southwest	Sarasota	FL
Action Club	Southwest	Tampa	FL
		San Jose	CA
		Phoenix	AZ
		Dallas	TX
		Atlanta	GA
		El Paso	TX
		Charlotte	NC
		Miami	FL
		Columbia	SC
		Lexington	VA

Bold

Casual

Compact

Corporate

Formal

Soft Gray

Customers

Company

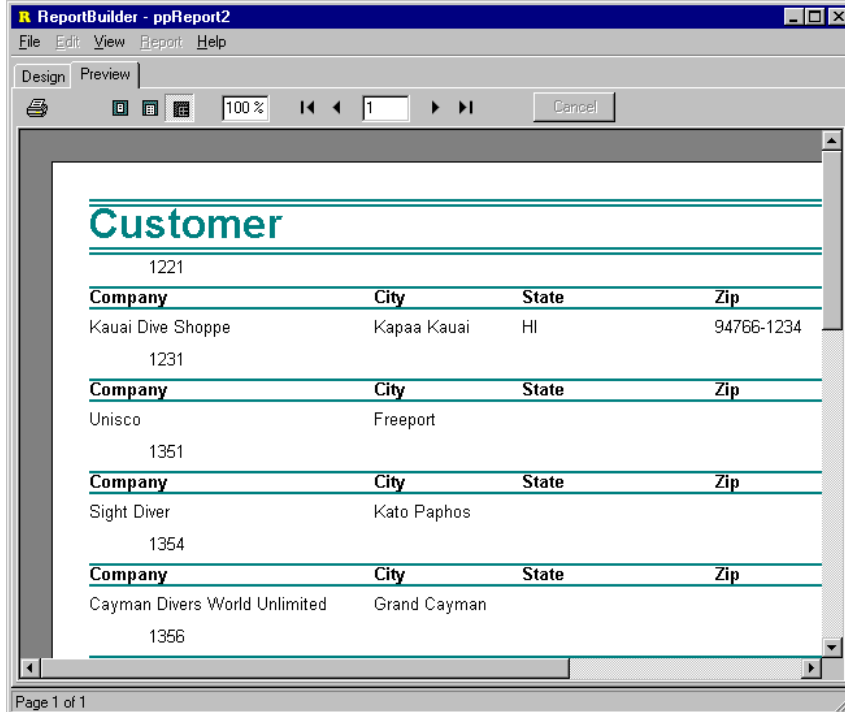
Action Club

Cancel < Back Next > Finish

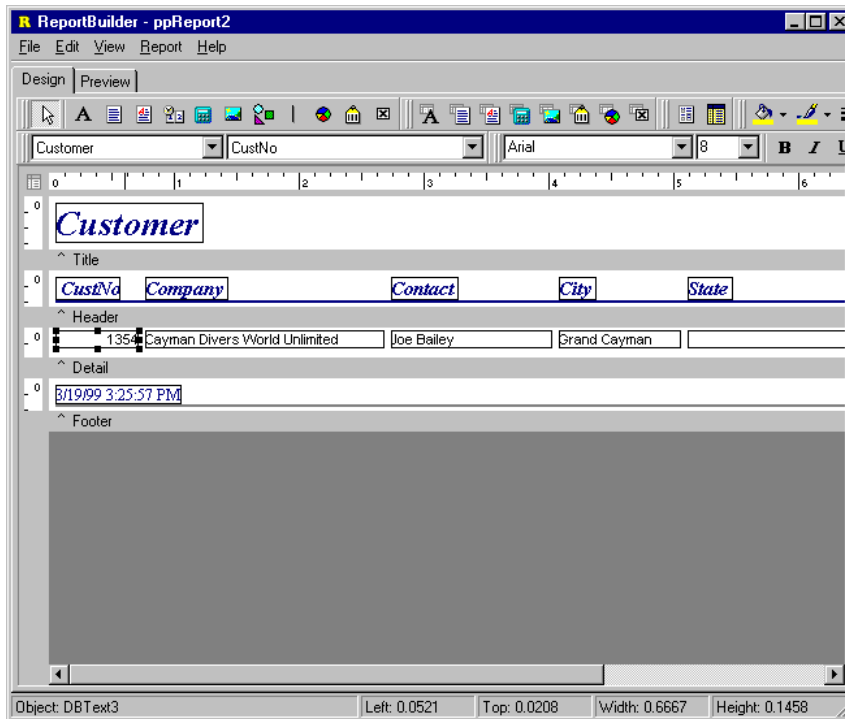
5. Select Design or Preview and Finish.



6. Report as it appears in the Preview workspace.



7. Report as it appears in the Design workspace.



Report Wizard: Create a Group-based Report

The following screen shots step through the creation of a group-based report via the Report Wizard.

1. Select the fields.

The screenshot shows the 'Report Wizard' dialog box with the title bar 'Report Wizard'. The main area contains the question 'Which fields do you want on your report?'. On the left, there is an icon of a report with a blue arrow pointing to a document icon. Below this is a 'Data Pipeline Name' dropdown menu set to 'Customer'. The 'Available Fields' list includes: Addr1, Addr2, Country (highlighted in blue), Phone, FAX, TaxRate, Contact, and LastInvoiceDate. The 'Selected Fields' list includes: CustNo, Company, City, State, and Zip. Between the lists are four arrow buttons: >, >>, <, and <<. To the right of the 'Selected Fields' list are two arrow buttons labeled 'Order' (up and down arrows). At the bottom are four buttons: Cancel, < Back, Next >, and Finish.

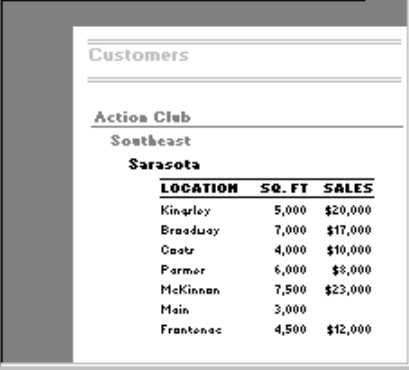
2. Select a group field.

The screenshot shows the 'Report Wizard' dialog box in a later step. The 'Available Fields' list now includes: Company (highlighted in blue), City, State, and Zip. The 'Groups' section has a dropdown menu and an up arrow button, with 'CustNo' listed below. To the right of the 'Groups' list are two arrow buttons labeled 'Priority' (up and down arrows). The main preview area shows a report layout with a header box containing 'CustNo' and a body box containing 'Company, City, State, Zip'. At the bottom are four buttons: Cancel, < Back, Next >, and Finish.

3. Select the layout.

Report Wizard

Orientation



Layout

Stepped
 Block
 Outline 1
 Outline 2
 Align Left 1
 Align Left 2

Orientation

Portrait
 Landscape

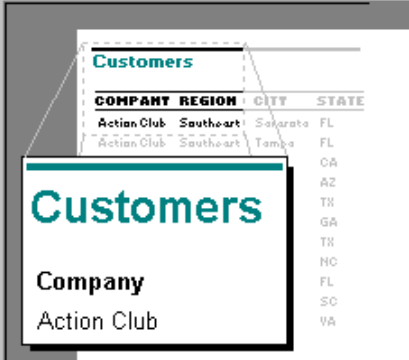
Adjust field widths so all fields fit on page.

Cancel < Back Next > Finish

4. Select the style.

Report Wizard

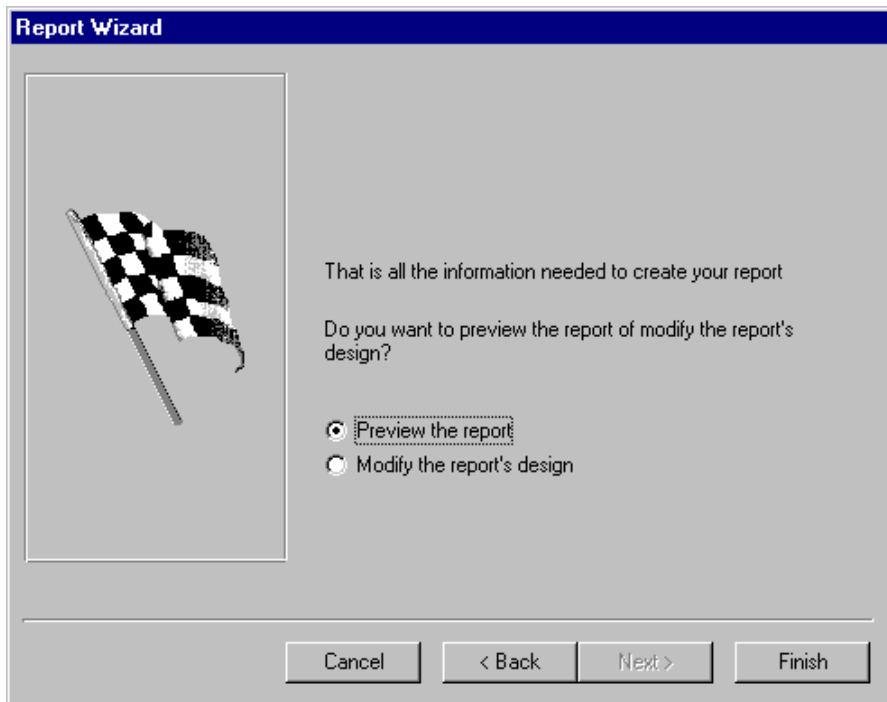
What style would you like?



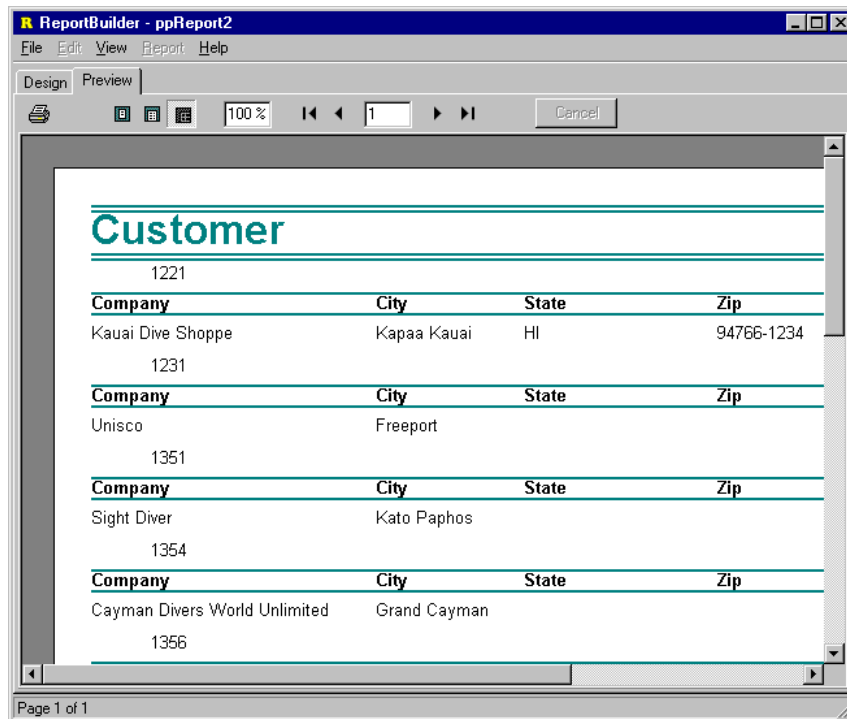
Bold
 Casual
 Compact
 Corporate
 Formal
 Soft Gray

Cancel < Back Next > Finish

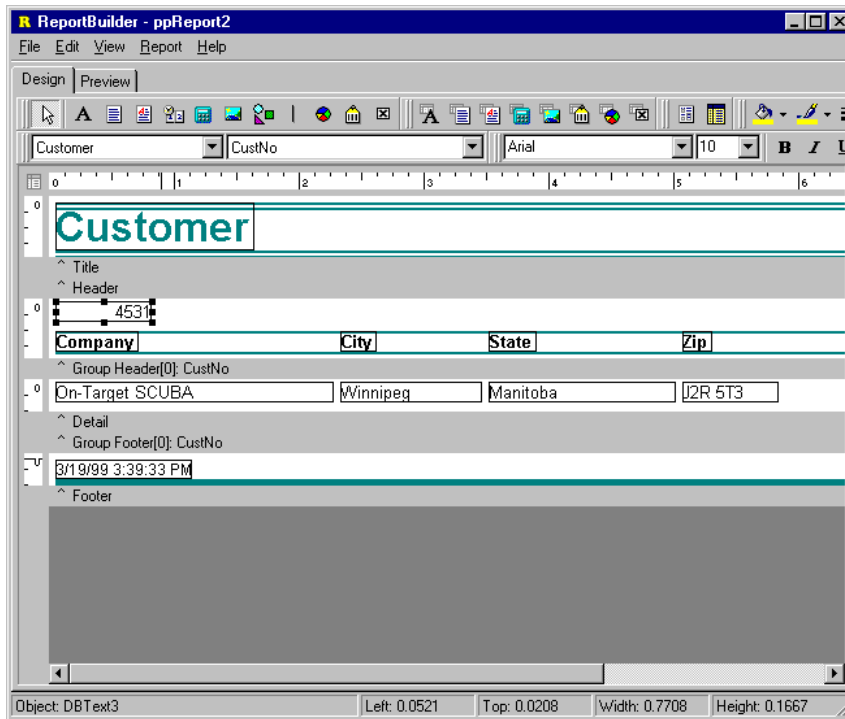
5. Select Design or Preview and Finish.



6. Report as it appears in the Preview workspace.



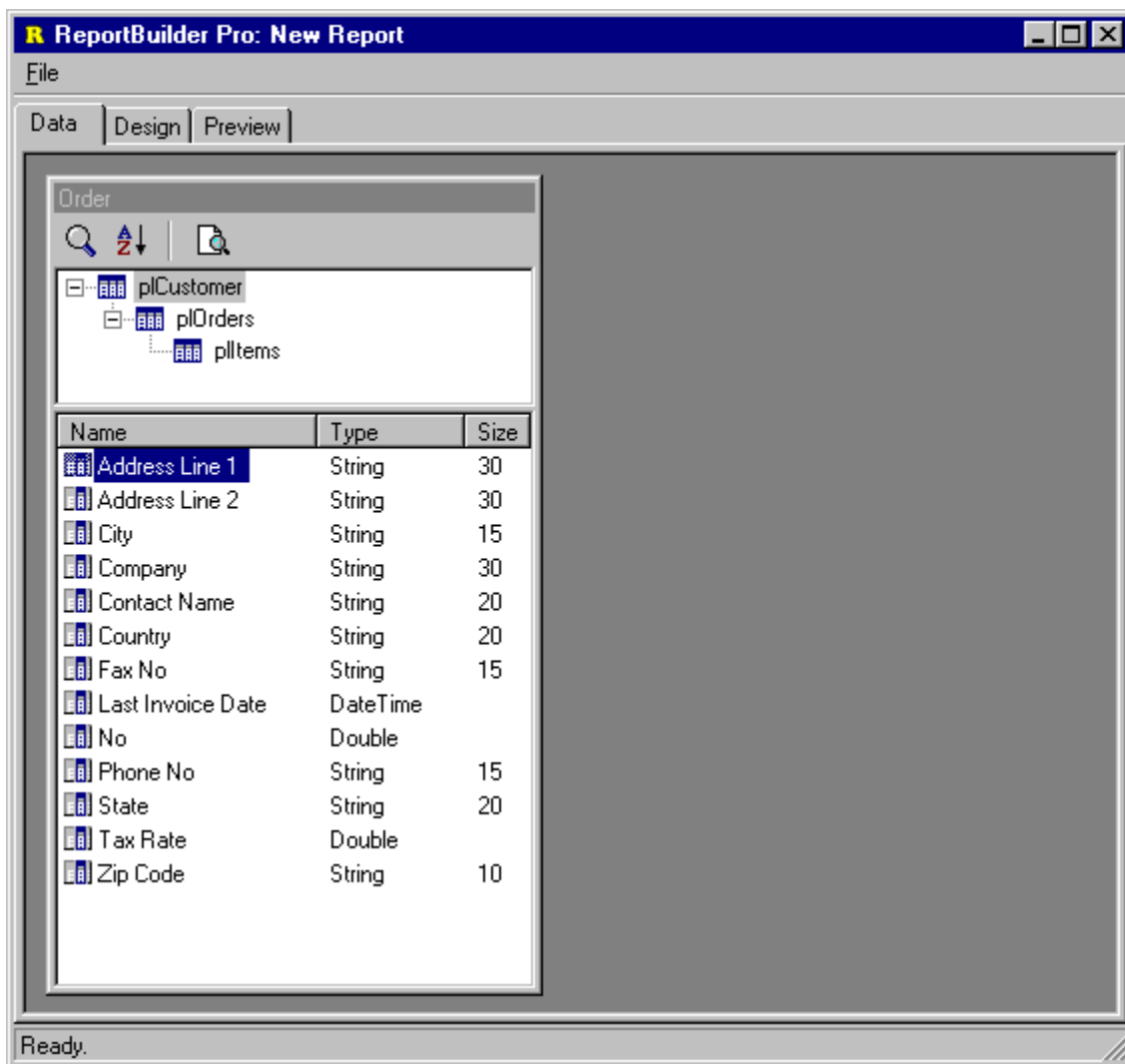
7. Report as it appears in the Design workspace.



Data

Introduction

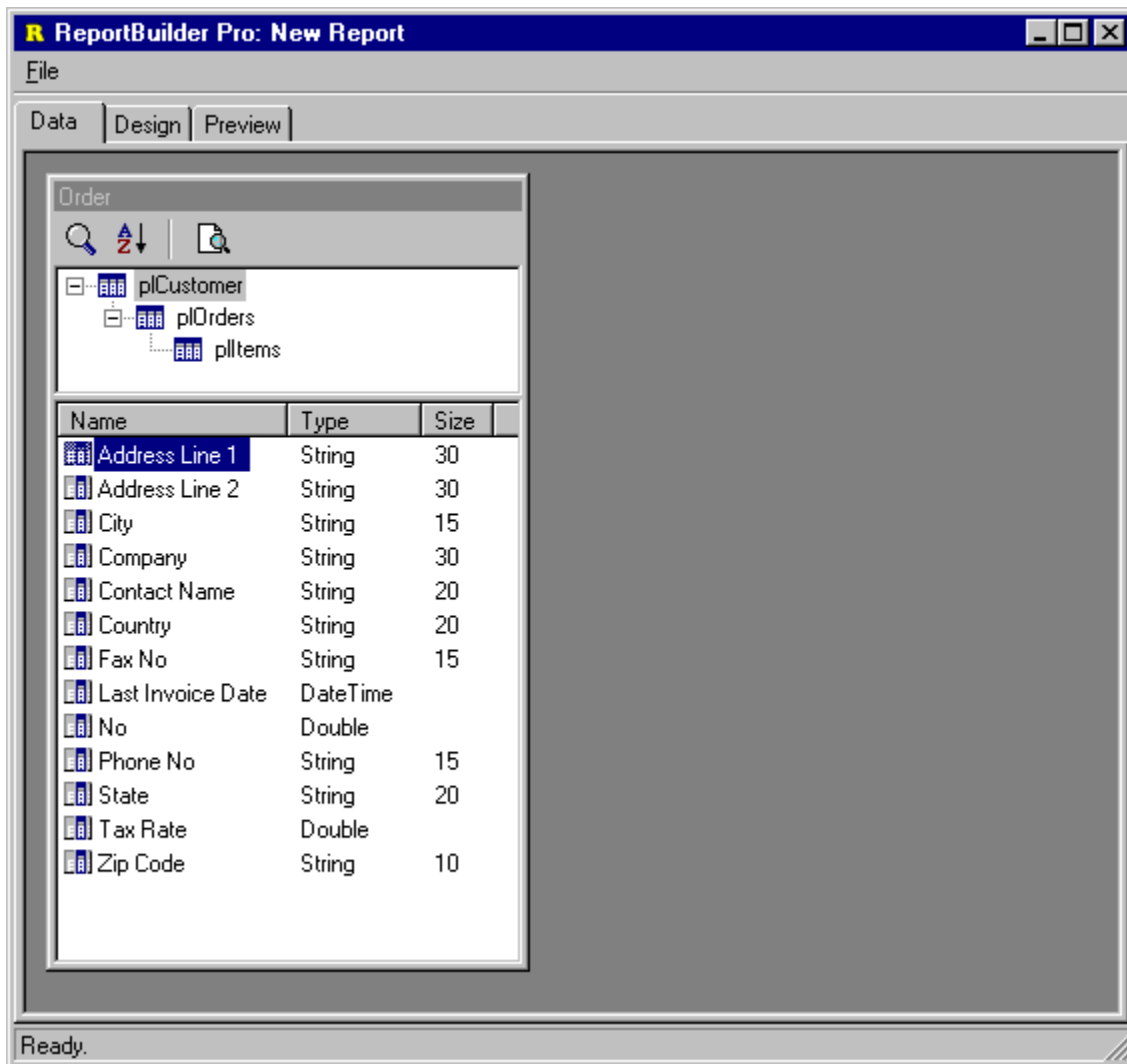
In the development of ReportBuilder Pro, it was discovered that a visual solution for data access was needed for end-users. This realization led to the development of DADE, the Data Access Development Environment. Though DADE consists of an extensive object-oriented architecture ‘under the covers’, it appears as a simple, easy-to-use data workspace within the Report Designer. Pictured below is the data workspace of the Report Designer, containing a completed dataview.



A dataview presents what appears to be a single set of data to the end-user. In reality, the dataview may be composed of one or many Delphi data access components. The implementation of a dataview can be as simple as a single SQL query, or as complex as a

set of linked tables. Whatever the implementation, the dataview always appears the same to the end-user, and the implementation always depends upon the choices you make as a developer.

Dataviews interface with the other workspaces within the Report Designer via the data pipeline or data pipelines which they contain. The diagram below shows a dataview which contains a set of master/detail tables. These tables feed data through standard Delphi TDataSource components, which in turn feed the data through data pipeline components. When this dataview was first created, it assigned the customer data pipeline to the report and the order detail data pipeline to the detail band, so that the end-user does not have to manually connect the data to the report. The items pipeline was assigned manually by the end-user to a subreport placed in the detail band.



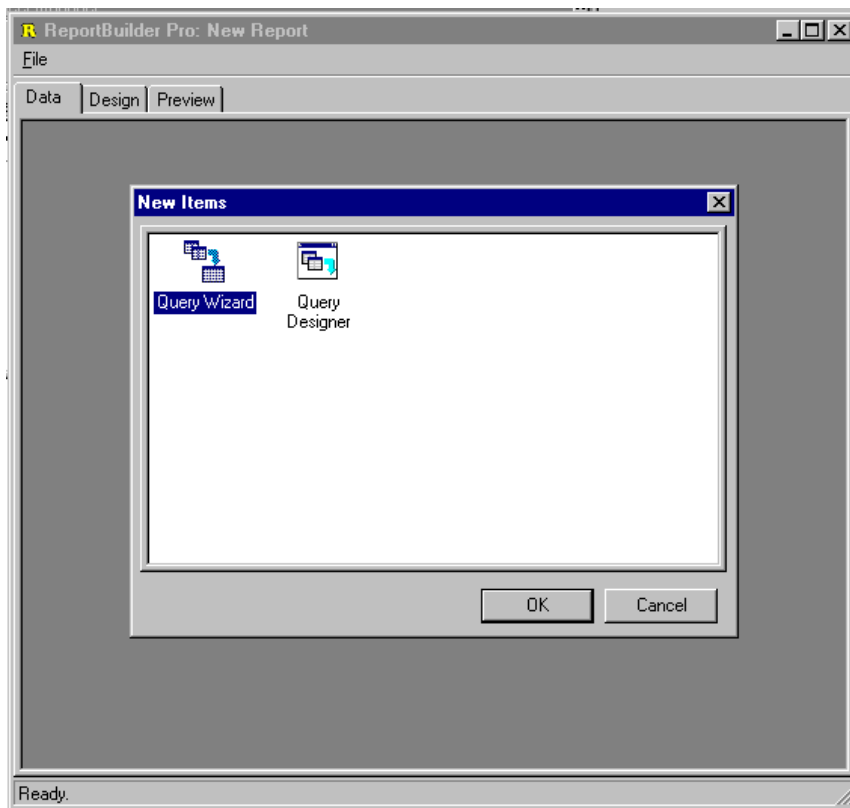
The data pipeline components within a dataview create the interface between the dataview and the other workspaces within the report designer. Within the design workspace, the datapipelines for all dataviews are listed in the data tree tool window, the drop-down list of the edit toolbar and in the data dialog accessible from the main menu. Within the calc workspace, the data pipelines appear in the object list and in the code toolbox – making it easier to code calculations involving field values.

In the following section, we will discuss DADE, dataviews and how you can use this part of ReportBuilder to maximize the productivity of your end-users.

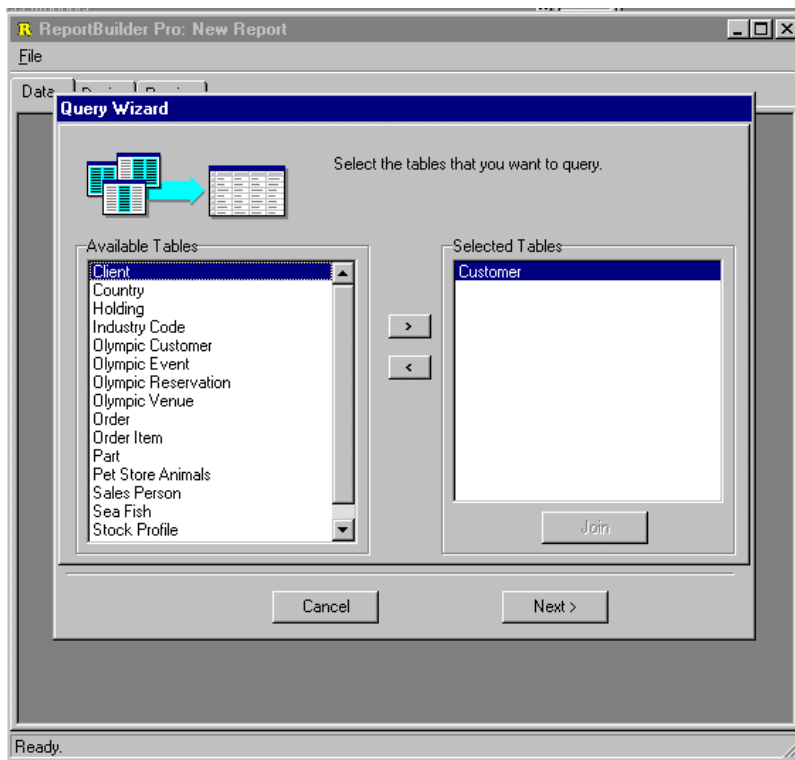
Query Wizard

Within the data workspace, you can select data from your database using an SQL query. This functionality is provided via query-based dataviews, which can be visually created using the Query Wizard and visually maintained using the Query Designer. The following series of screenshots shows how to create a simple query-based dataview via the Query Wizard.

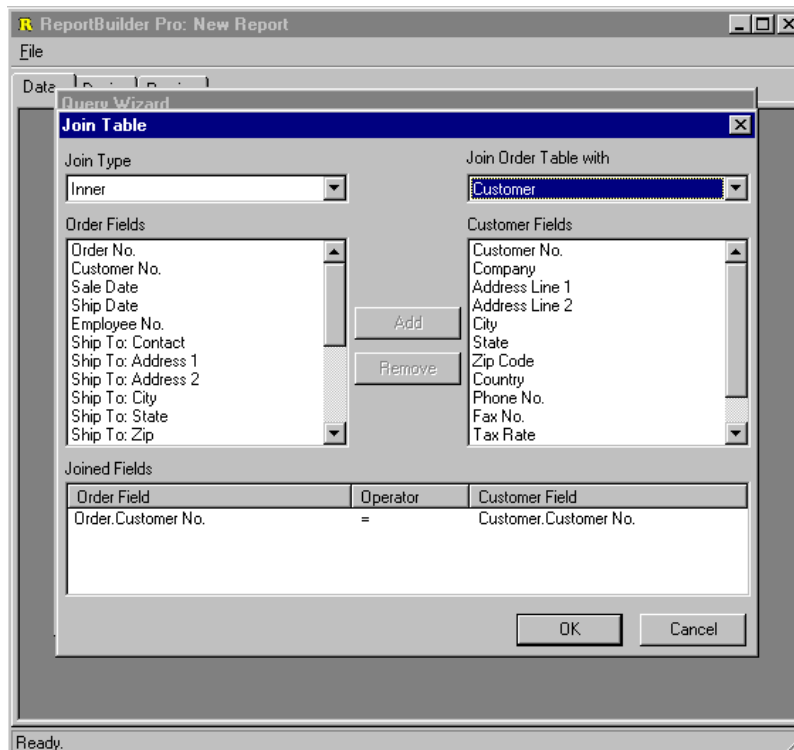
1. Select File | New menu option from within the data workspace. The New Dialog will be displayed. Double-click the Query Wizard icon.



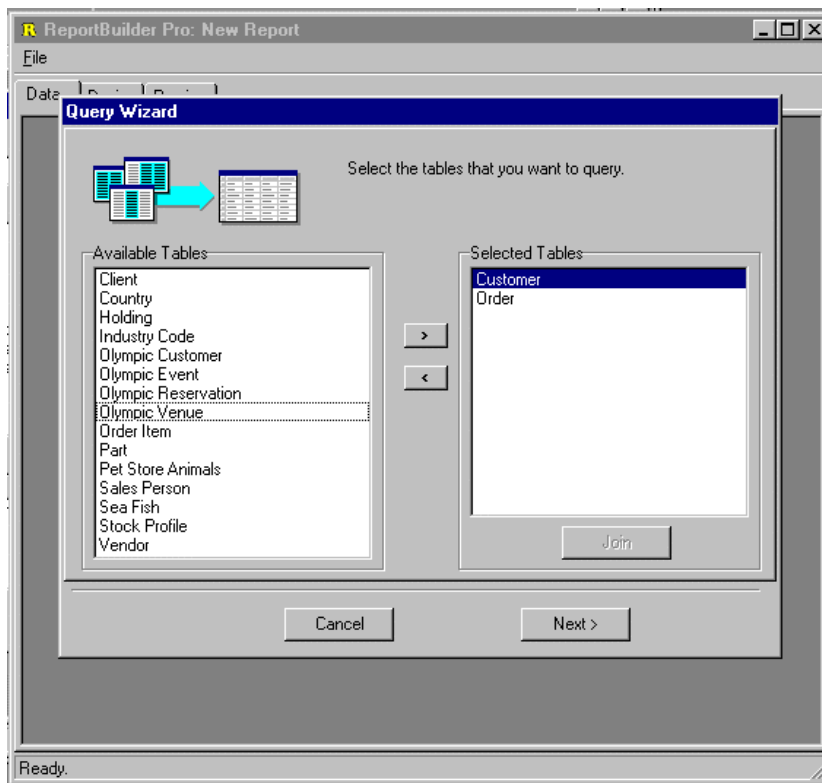
2. Select the first table for the query. The customer table has been selected.



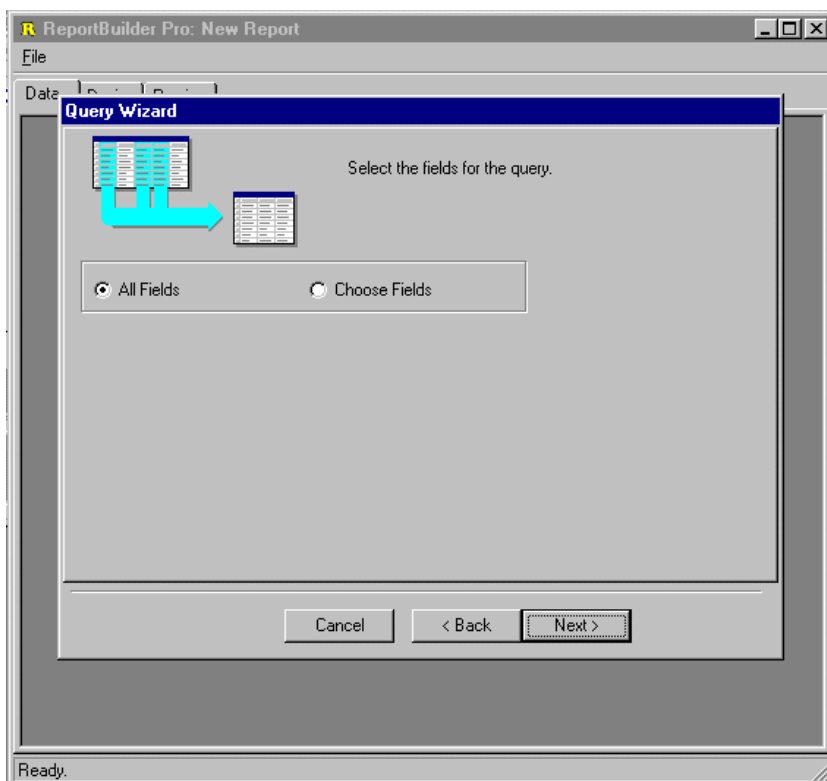
3. Select the second table for the query. The order table has been selected and the Join dialog was automatically displayed. The dialog already contains the correct field linking (Customer No.) and so all we have to do is click OK.



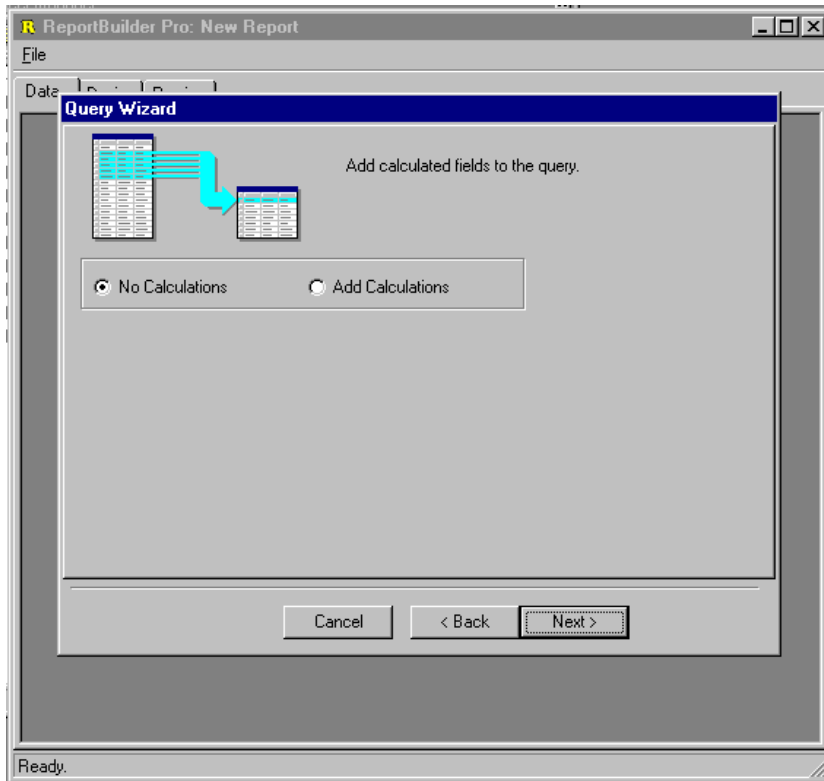
- When we return to the query wizard, both tables are shown as selected.



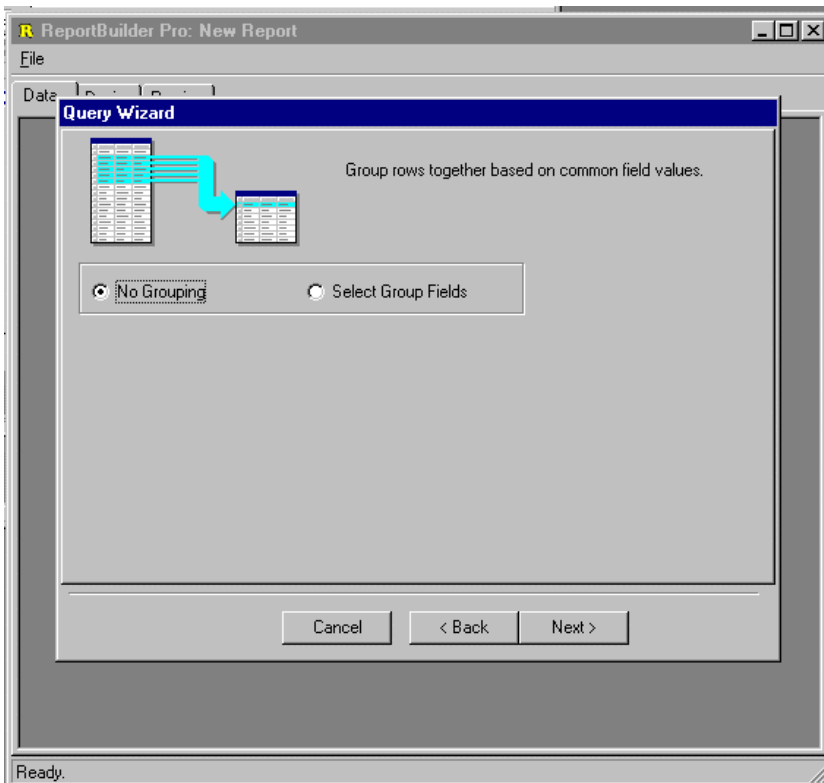
- Skip the fields page, since we want to select all fields.



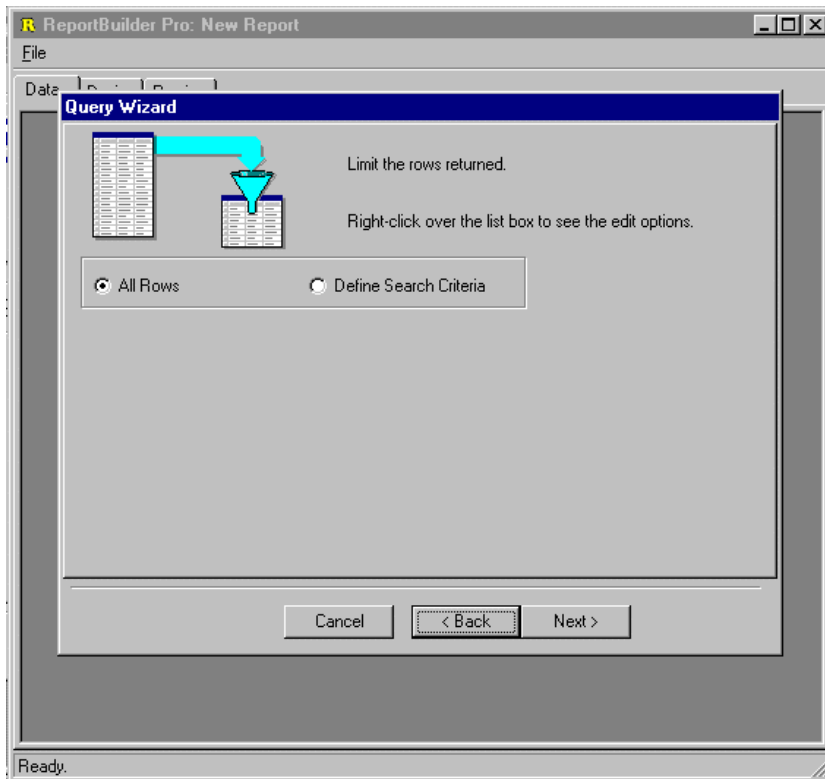
- 6. Skip the calculations page, since this query will not contain calculations.



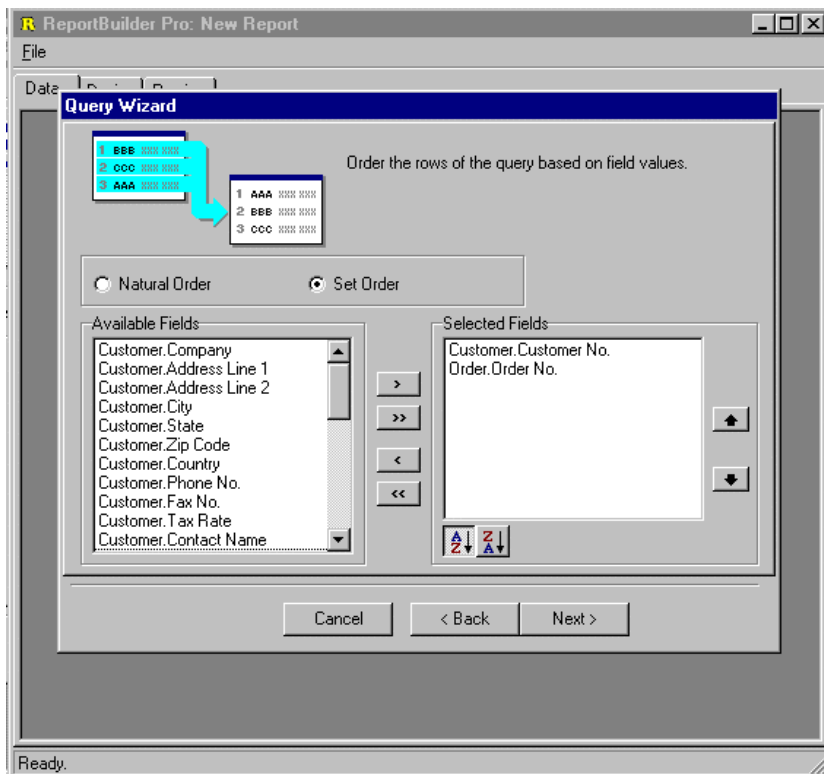
- 7. Skip the groups page, since this query will not be grouped.



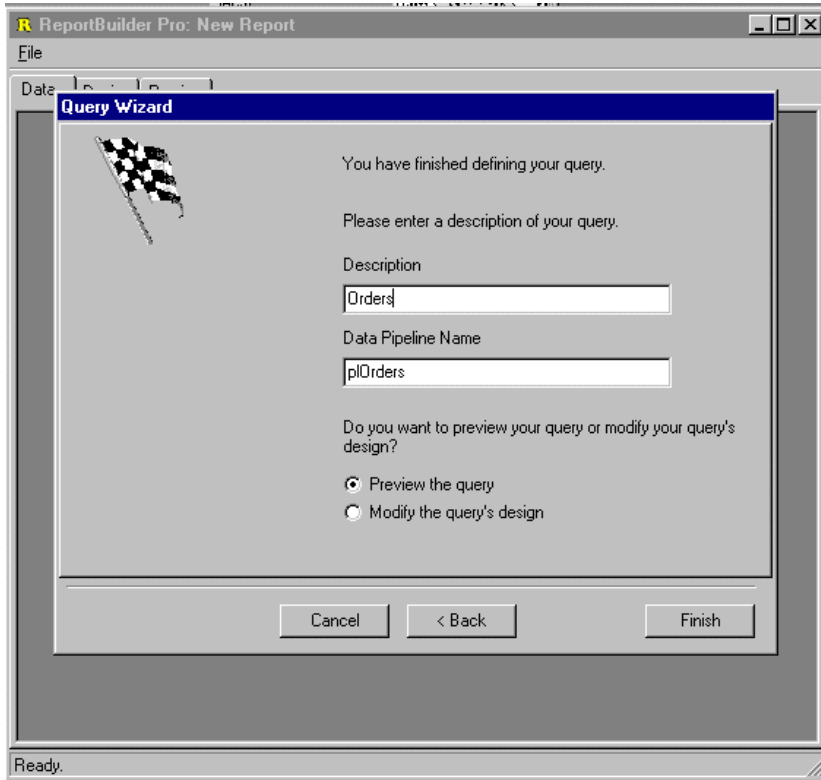
8. Skip the search criteria page, all records will be selected.



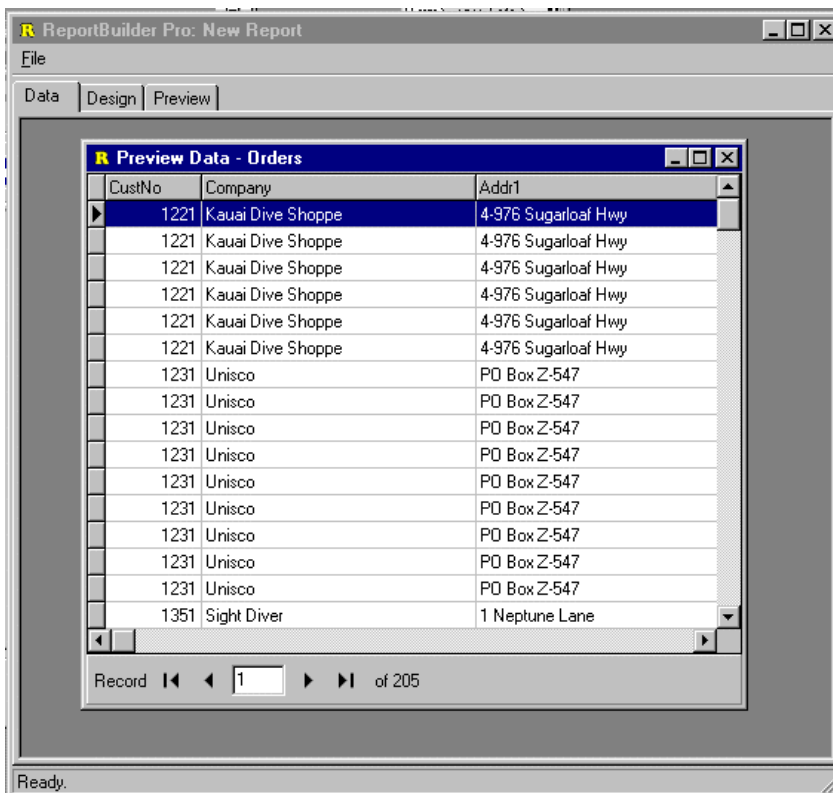
9. Set the order to customer number, then order number.



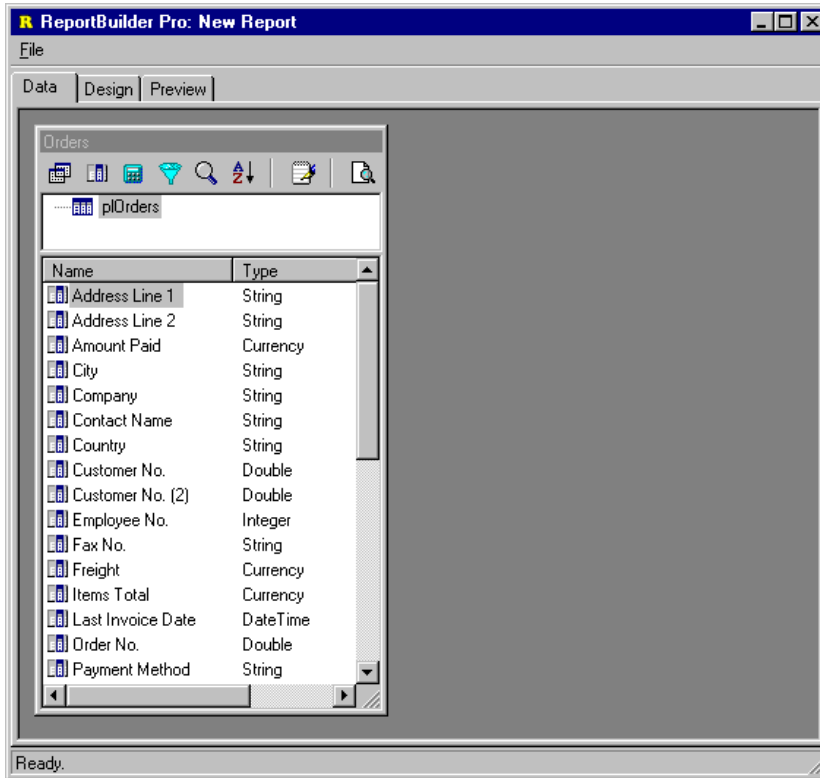
10. Name the dataview. The datapipeline name is automatically generated when we name the dataview. The next action will be to preview the data.



11. View the data to make sure the correct records have been selected.



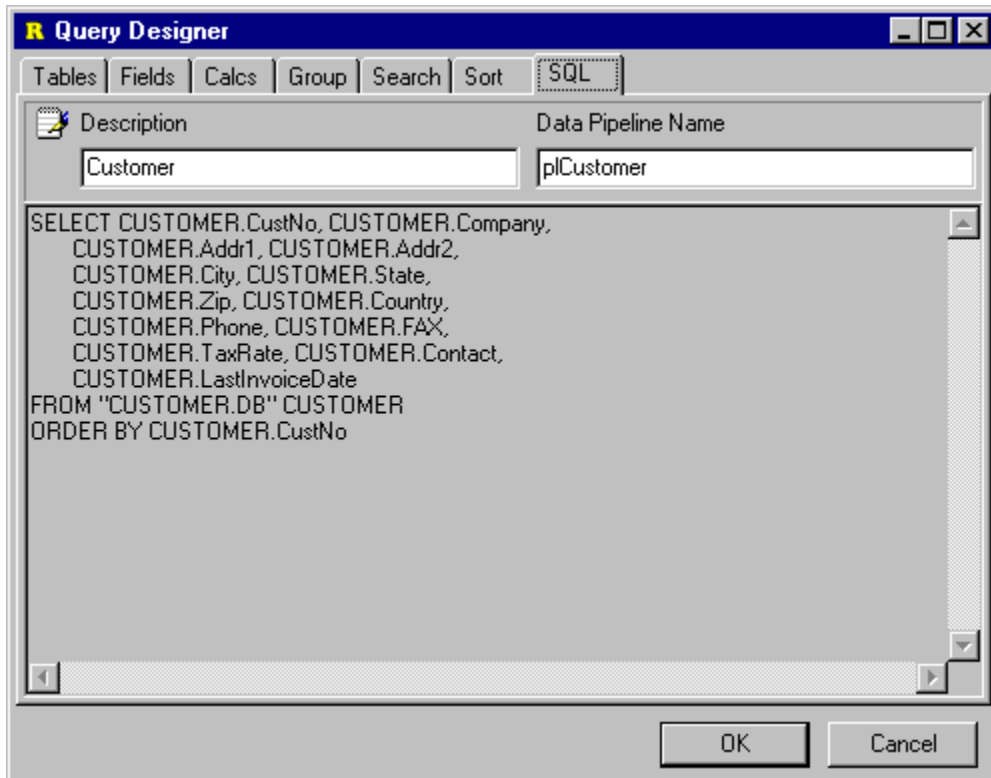
12. Close the preview window. The dataview is then created and displayed in the workspace.



From here we could proceed to the design workspace where we could create a new report layout based on this dataview either manually or through the use of the Report Wizard.

Query Designer

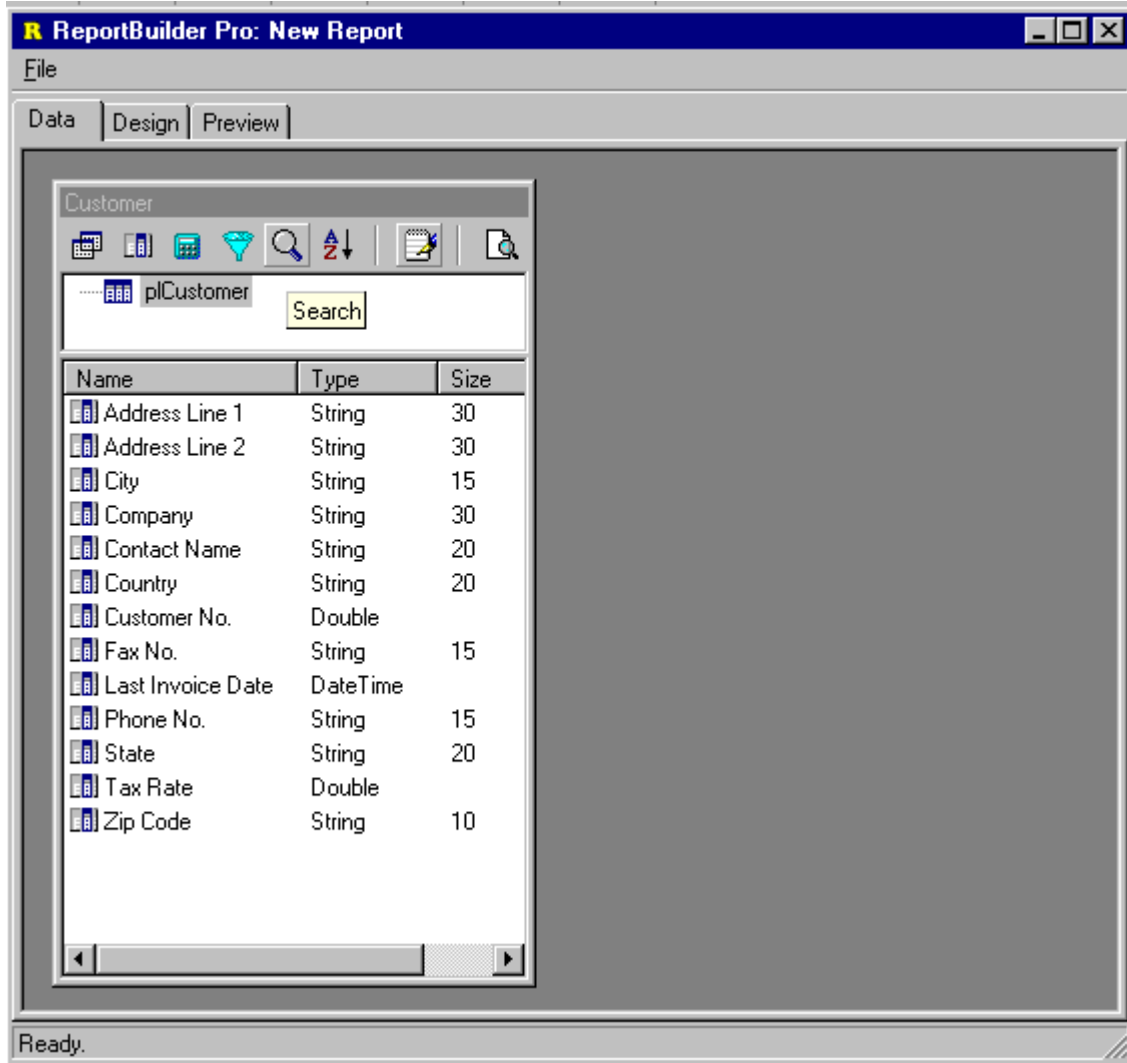
The Query Designer is used to modify query-based dataviews. The query designer presents a series of notebook tabs, each tab representing a different part of the query. The last notebook tab in the Query Designer shows the generated SQL and allows the name of the dataview and datapipeline to be changed. The Query Designer is pictured below.



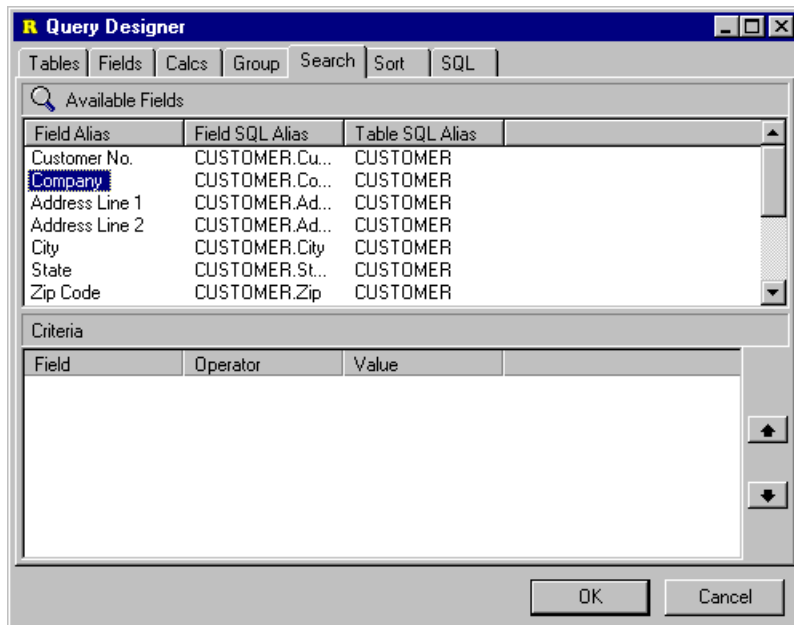
Adding Search Criteria

You can use the Query Designer to add or remove search criteria from your query. In order to add search criteria:

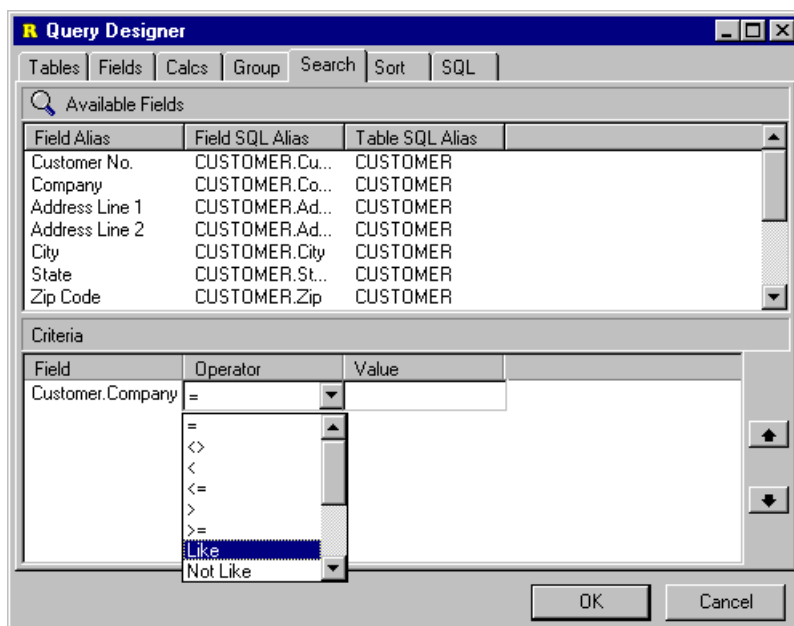
1. Click on the Search icon of the dataview to launch the Query Designer.



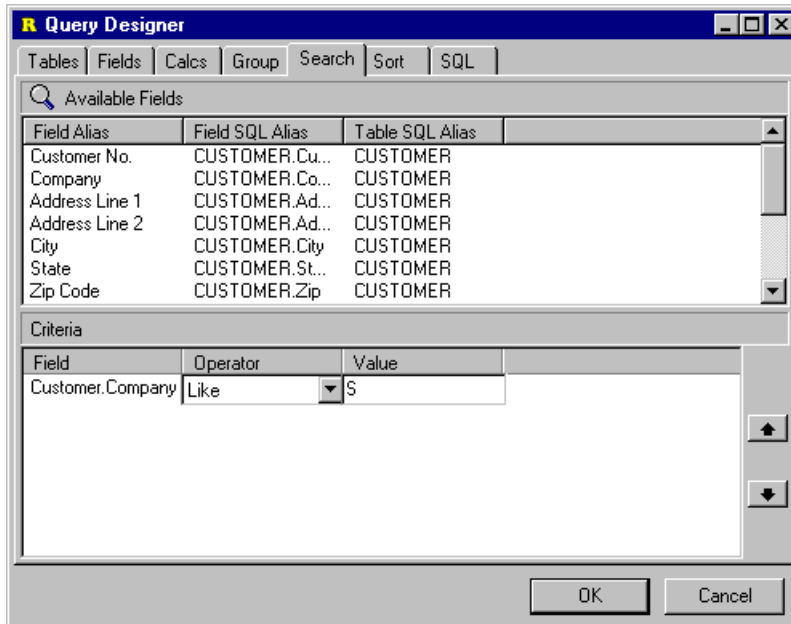
- From the list of fields at the top of the search page, double-click on the field for which criteria needs to be entered.



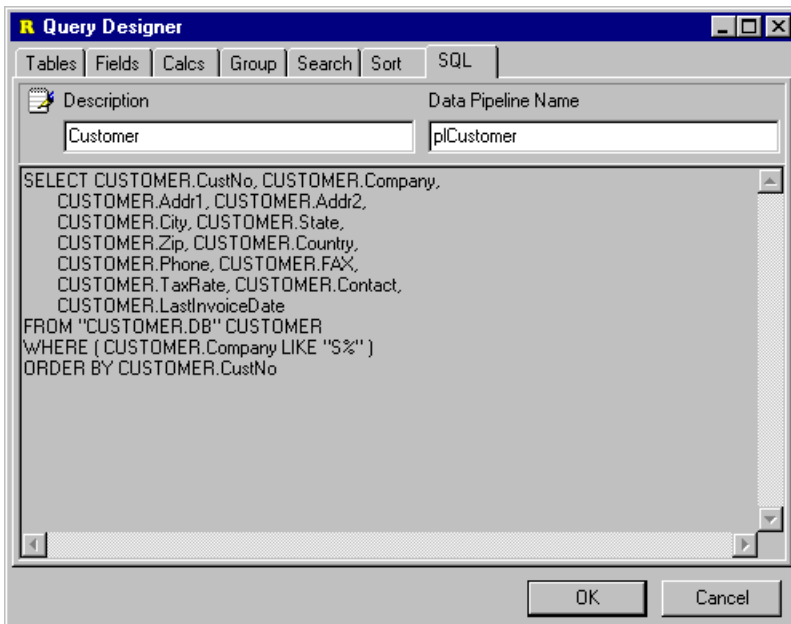
- Click on the field which has been added to the list of criteria at the bottom and select the operator.



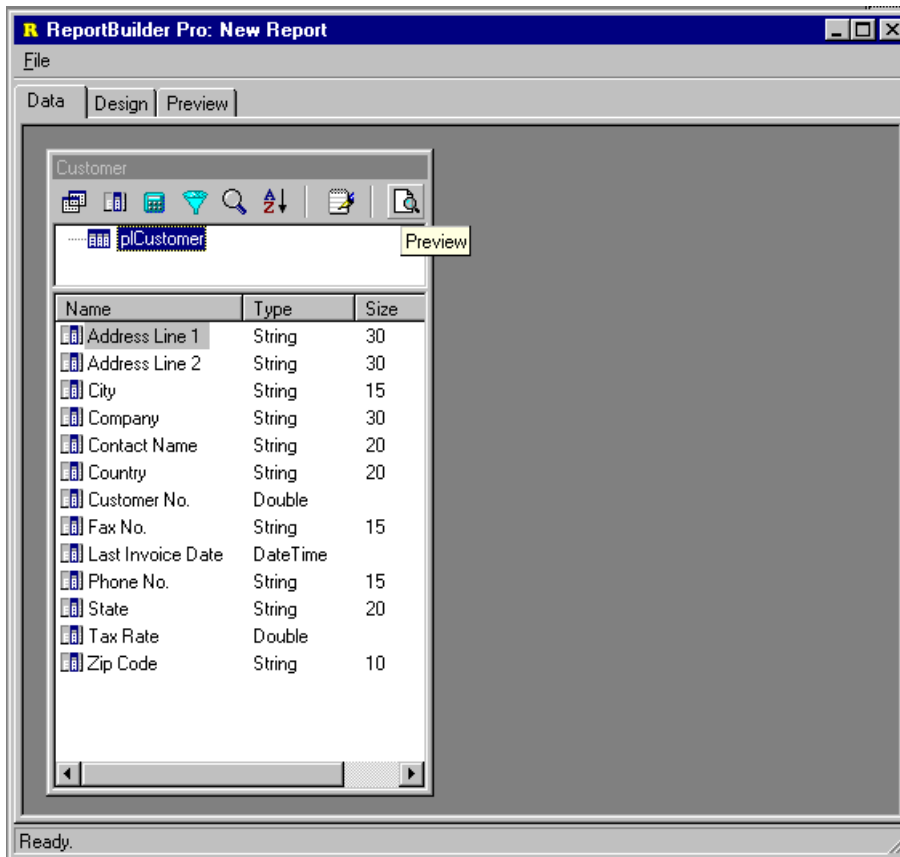
- Click in the edit box and enter the search criteria value. This criteria will find all company names which begin with the letter 'S'.



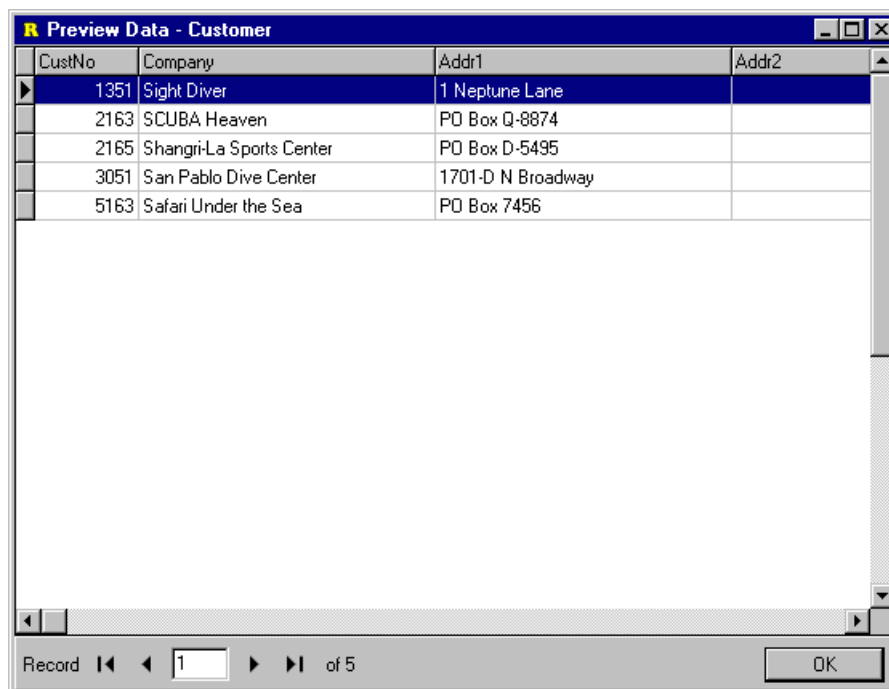
- Click on the SQL tab to make sure the criteria value is valid.



6. Close the Query Designer and click on the preview icon.



7. Preview the data and make sure that the intended records are selected.



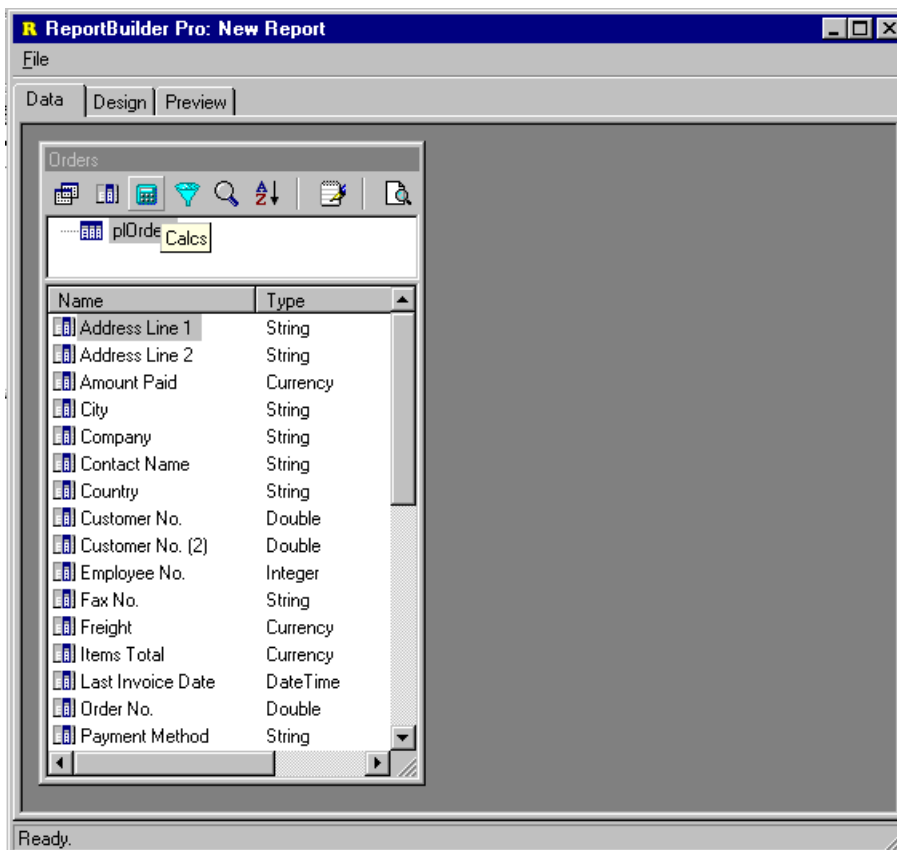
Create a Group Sum

The SQL 'GROUP BY' clause allows you to eliminate rows in your query where the field values repeat. For example, let's assume we have a database table which contains order records. Each order record has the customer number and the amount paid. If we viewed the data in this table, we would see that the value in the customer number field repeats where there are multiple orders for a customer.

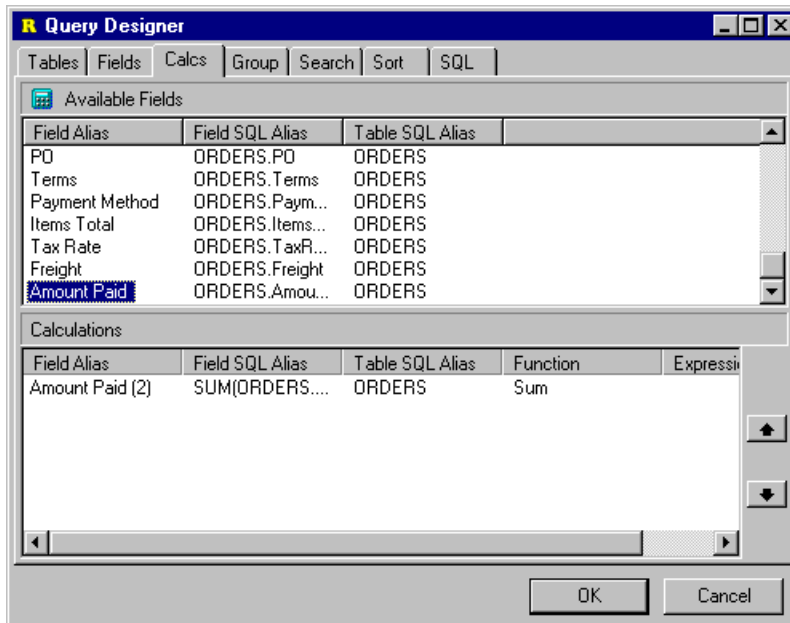
We can use SQL to select data from the orders table and calculate the total amount paid for each customer. We would do this by specifying a group on the customer number field. By specifying the group, we are saying to the SQL engine: create one row in the result set for each customer number found. When the SQL engine runs the query, it will find multiple records for some customers, these will be eliminated from the result set. SQL allows us to perform calculations on these repeated records and store the result in a new field of the result set.

These types of calculations can be created on the Calc tab of the Query Designer. In order to sum the amount paid for all customers in the orders table we would:

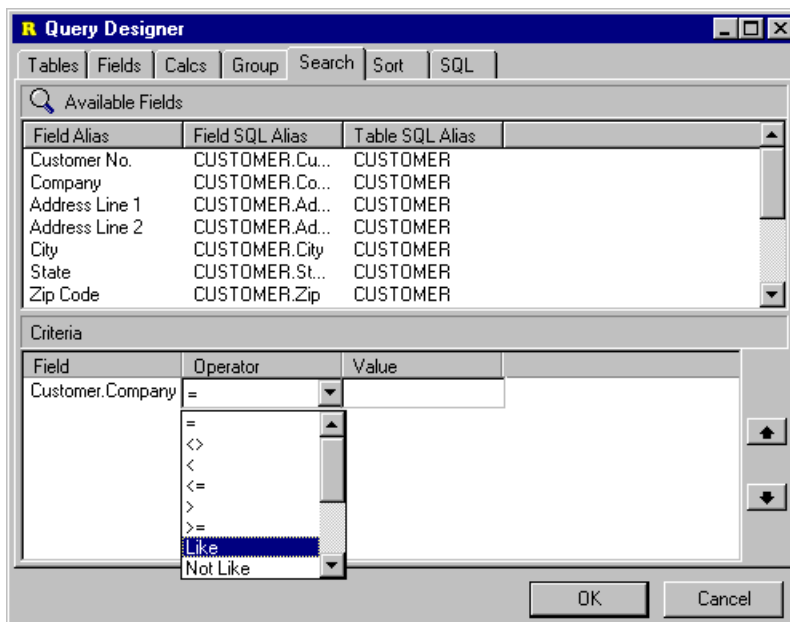
1. Click the 'Calc' icon to launch the Query Designer.



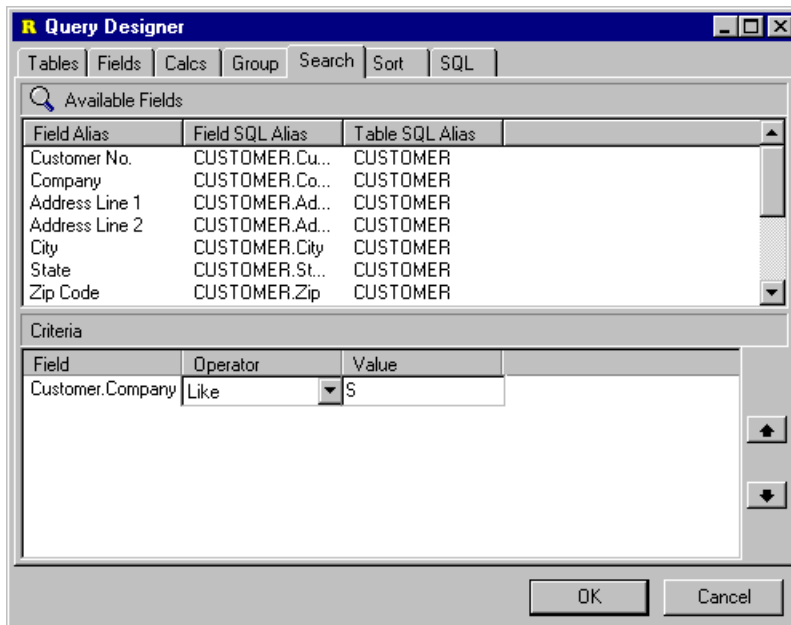
2. Double-click the 'Amount Paid' field from the selection list at the top of the page. Amount Paid will be added to the list of calculations.



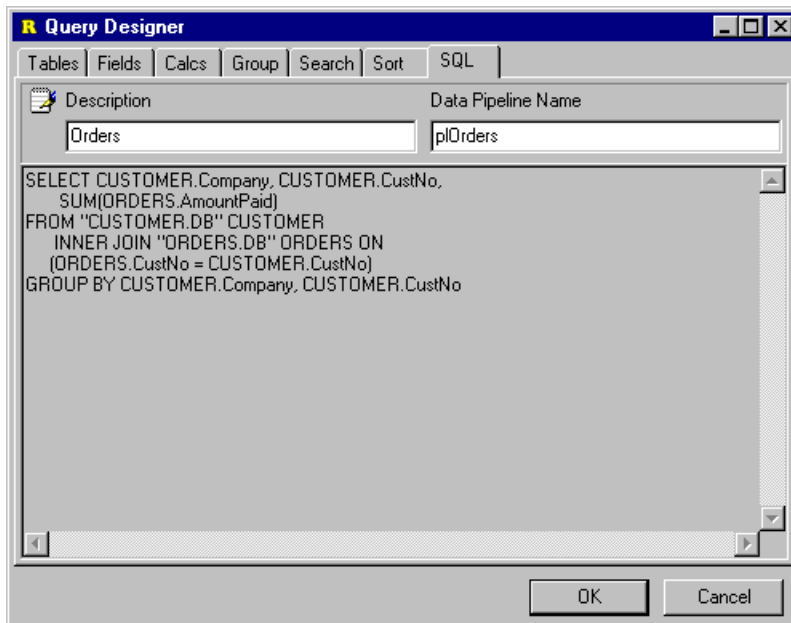
3. Select 'Sum' as the function type for the calculation.



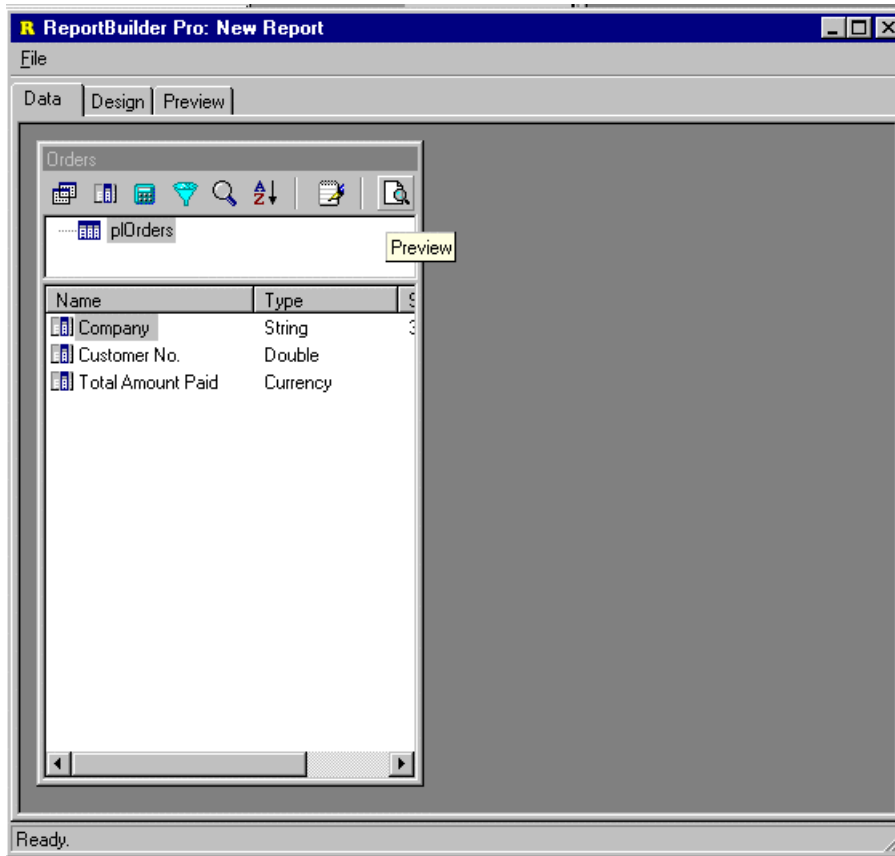
4. Enter the Field Alias we would like to use for this calculated field.



5. Click the SQL tab to make sure the generated SQL is valid.



6. Close the Query Designer and click the Preview icon to preview the data.



7. Check the data to make sure the sum is being calculated as expected.

The screenshot shows the 'Preview Data - Customer' window. The data is displayed in a table with the following columns: CustNo, Company, Addr1, and Addr2.

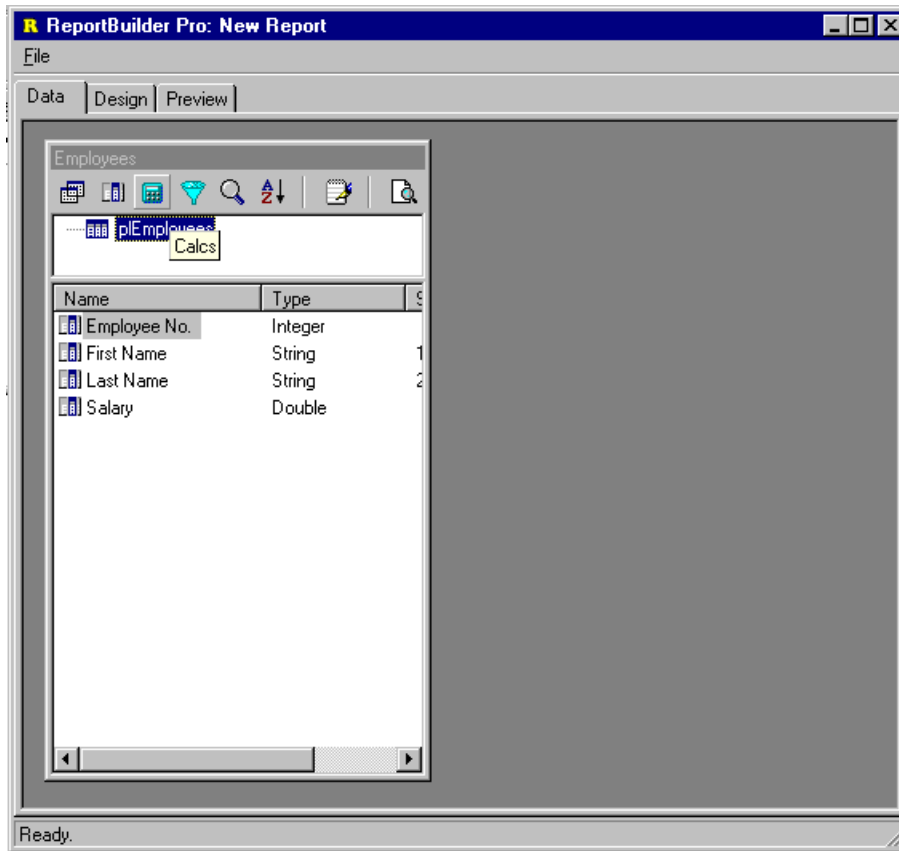
CustNo	Company	Addr1	Addr2
1351	Sight Diver	1 Neptune Lane	
2163	SCUBA Heaven	PO Box Q-8874	
2165	Shangri-La Sports Center	PO Box D-5495	
3051	San Pablo Dive Center	1701-D N Broadway	
5163	Safari Under the Sea	PO Box 7456	

The status bar at the bottom indicates 'Record 1 of 5' and includes an 'OK' button.

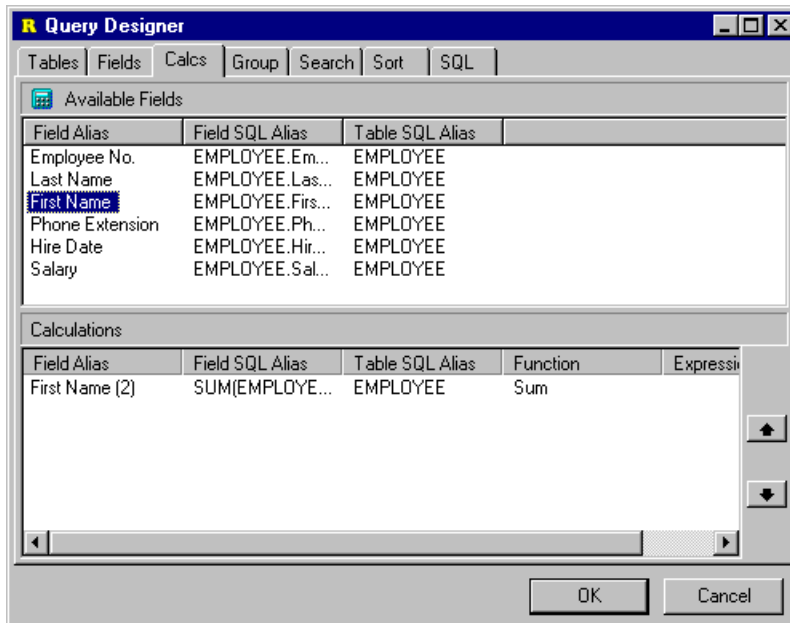
Concatenate Fields

From the Calc tab of the Query Designer, you can enter SQL expressions. The following query selects data from a table of employees. The table has a first name and last name field. In order to concatenate these two fields together using the Query Designer you would:

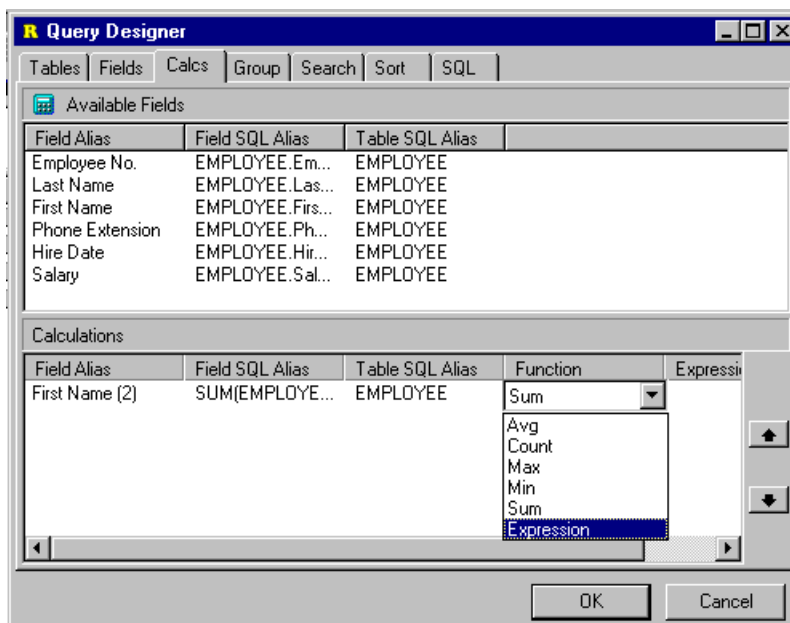
1. Click the 'Calc' icon to launch the Query Designer.



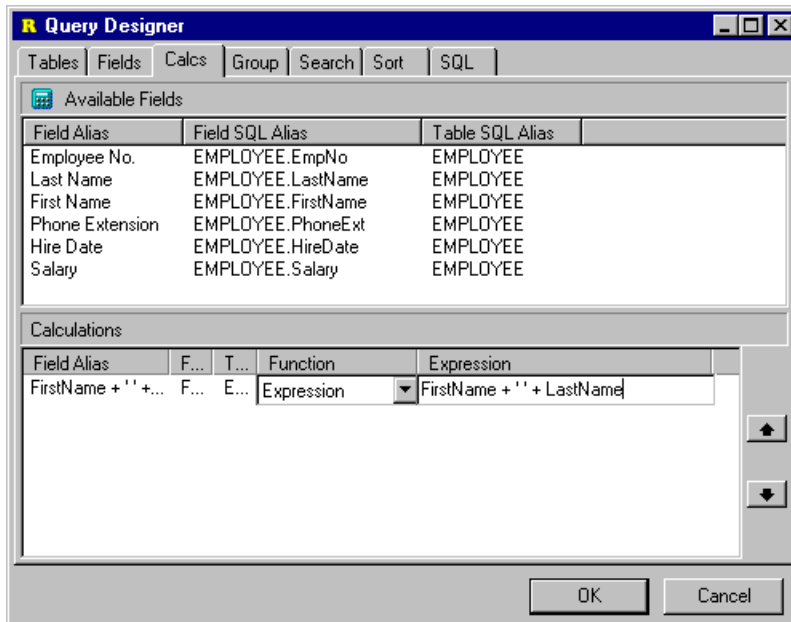
2. Double-click the 'First Name' field from the selection list at the top of the page. 'First Name' will be added to the list of calculations.



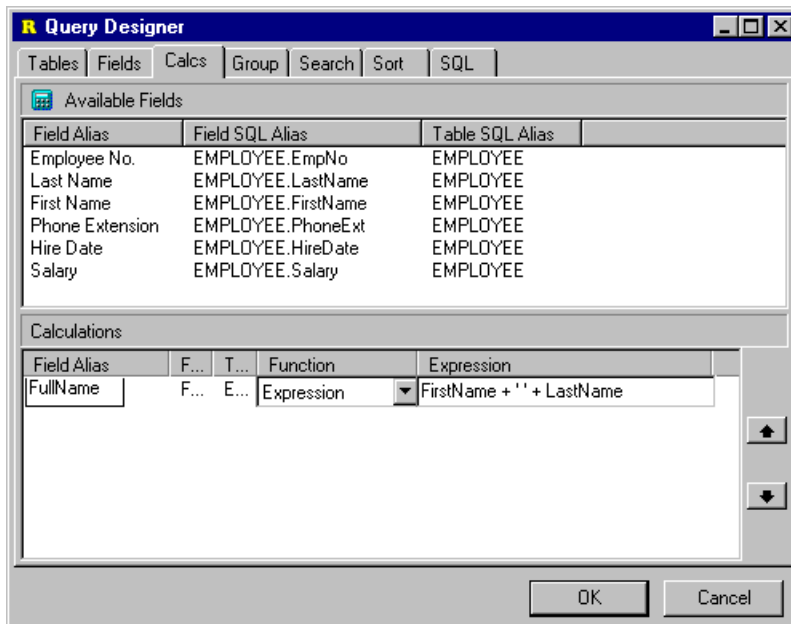
3. Select 'Expression' as the function type for the calculation.



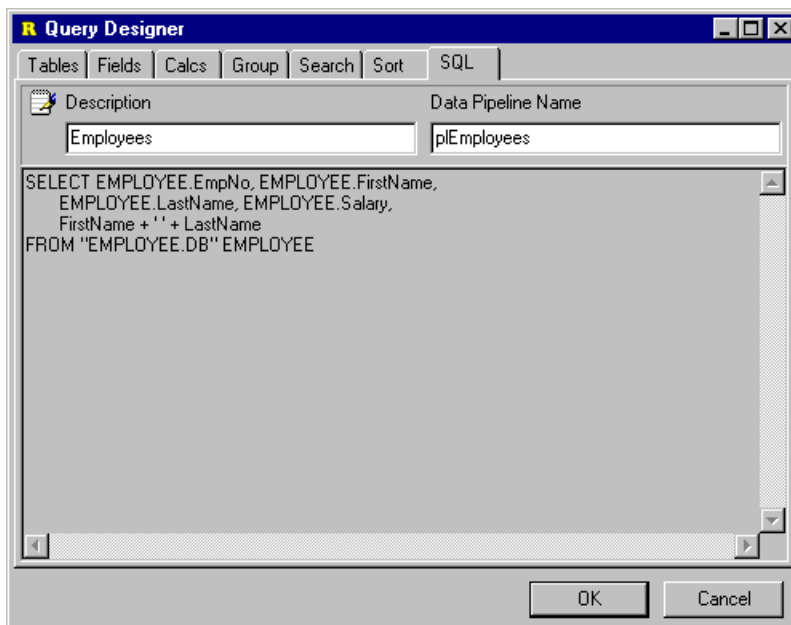
4. Modify the widths of the 'Field SQL Alias' and 'Table SQL Alias' and 'Expression' columns in the calculations list at the bottom of the page so that there is enough space to enter the expression. Then enter the expression:



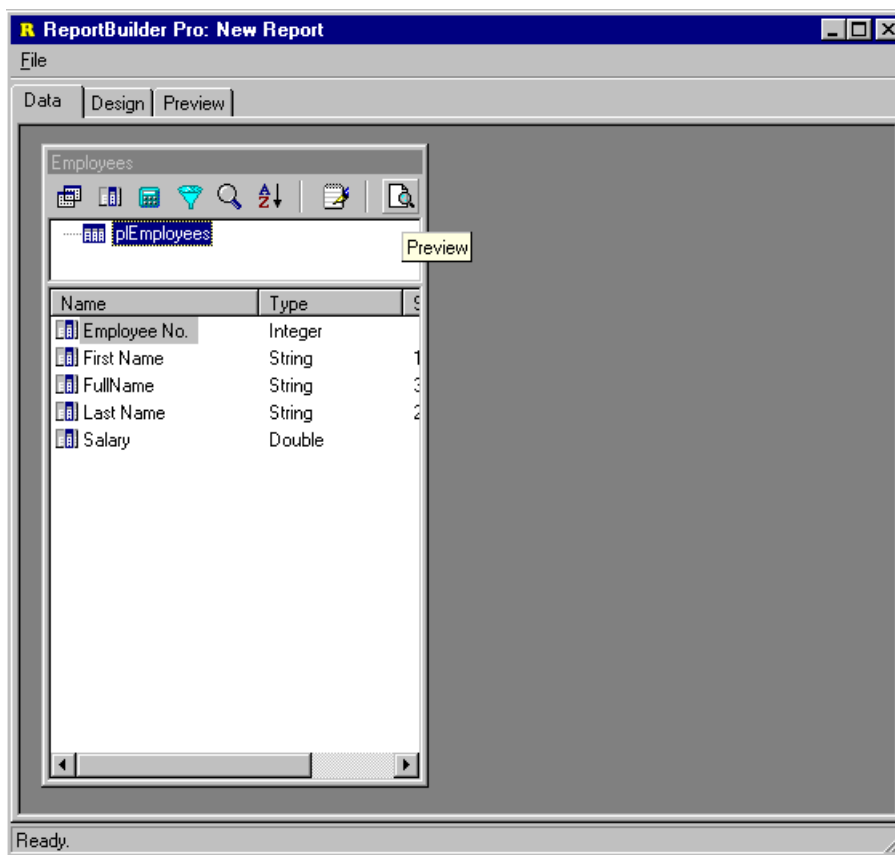
5. Enter the Field Alias we would like to use for this calculated field.



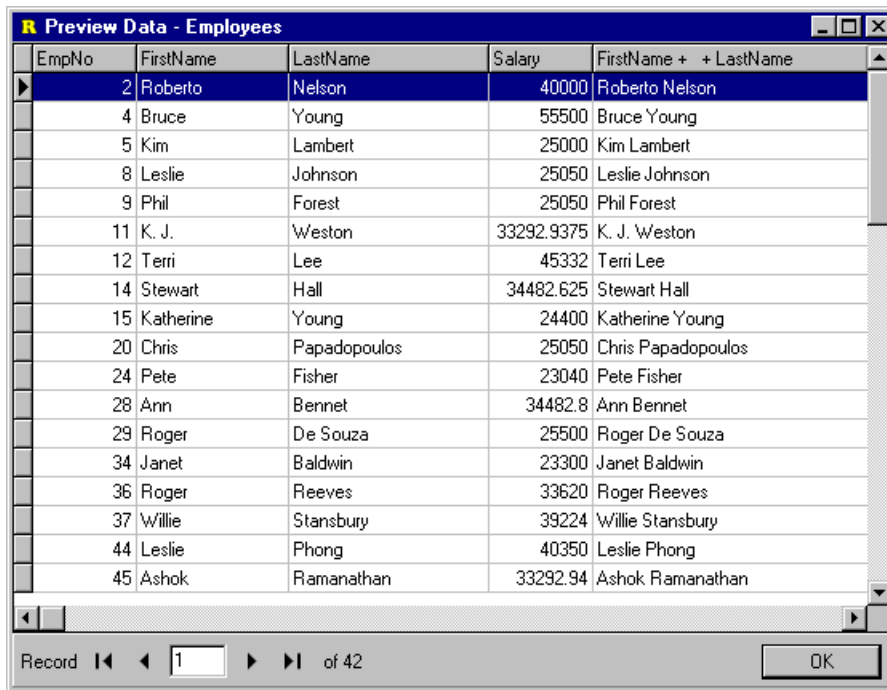
6. Click the SQL tab to make sure the generated SQL is valid.



7. Close the Query Designer and click the Preview icon to preview the data.



8. Check the data to make sure the field is being calculated as expected.



EmpNo	FirstName	LastName	Salary	FirstName + + LastName
2	Roberto	Nelson	40000	Roberto Nelson
4	Bruce	Young	55500	Bruce Young
5	Kim	Lambert	25000	Kim Lambert
8	Leslie	Johnson	25050	Leslie Johnson
9	Phil	Forest	25050	Phil Forest
11	K. J.	Weston	33292.9375	K. J. Weston
12	Terri	Lee	45332	Terri Lee
14	Stewart	Hall	34482.625	Stewart Hall
15	Katherine	Young	24400	Katherine Young
20	Chris	Papadopoulos	25050	Chris Papadopoulos
24	Pete	Fisher	23040	Pete Fisher
28	Ann	Bennet	34482.8	Ann Bennet
29	Roger	De Souza	25500	Roger De Souza
34	Janet	Baldwin	23300	Janet Baldwin
36	Roger	Reeves	33620	Roger Reeves
37	Willie	Stansbury	39224	Willie Stansbury
44	Leslie	Phong	40350	Leslie Phong
45	Ashok	Ramanathan	33292.94	Ashok Ramanathan

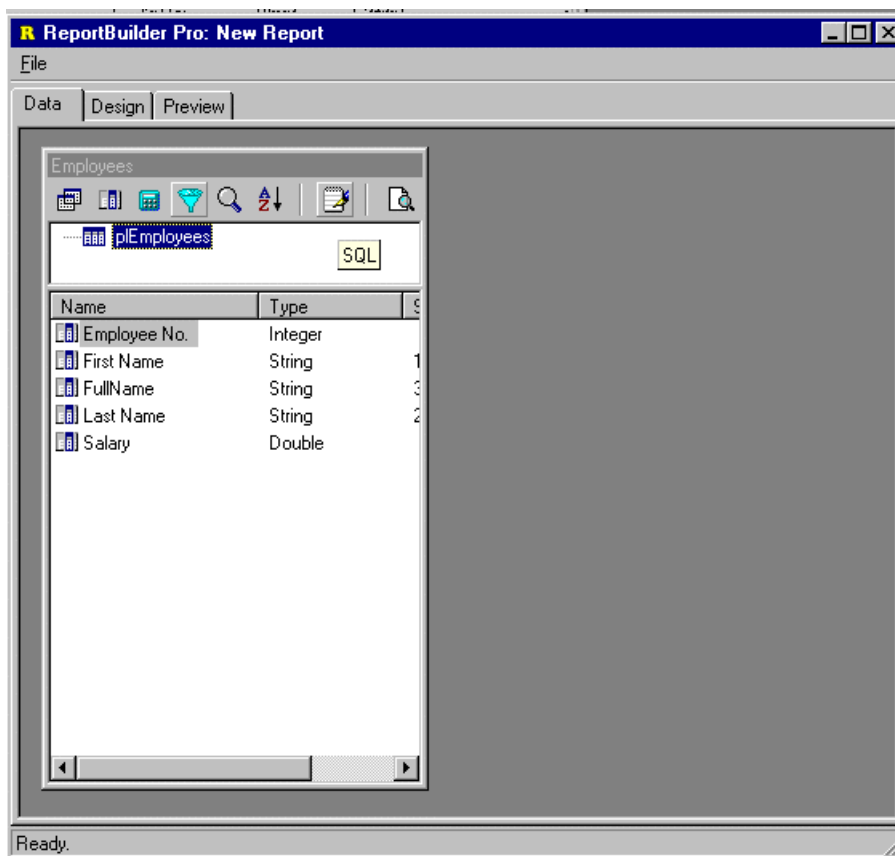
Record 1 of 42 OK

Edit SQL

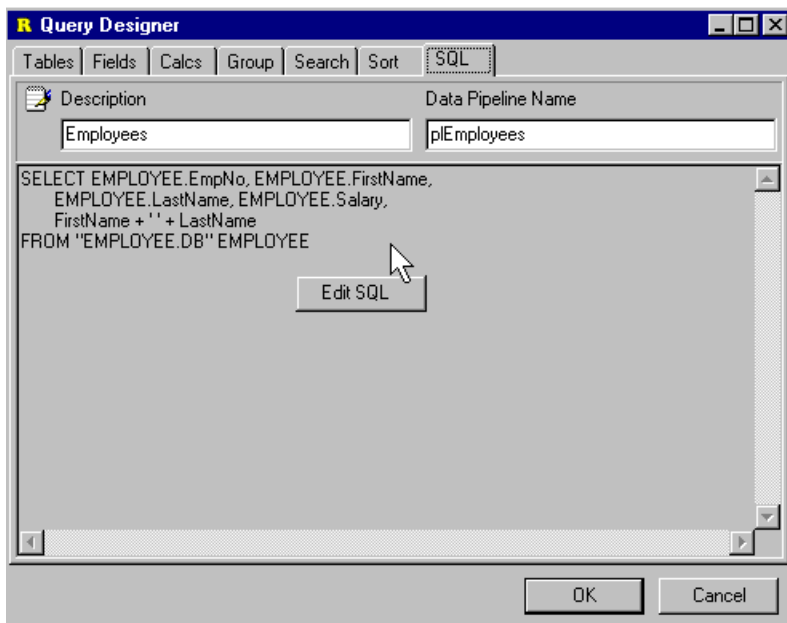
There may be times when you need to utilize advanced features of SQL which cannot be accessed via the visual interface of the Query Designer. In these cases you can edit the SQL manually in the Query Designer. Once you have edited the SQL manually, you must always use the SQL tab of the Query Designer to make future modifications.

In order to edit the SQL generated by the Query Designer you would:

1. Click on the SQL icon to launch the Query Designer.



2. Right-click over the SQL text to display the popup-menu.



3. Select the menu item. Click Yes to the message dialog. You can now edit the SQL.

