REPORT BUILDER™

Business Reporting

GUPTA

Report Builder™: User’s Guide

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Introducing Report Builder

You can use Report Builder to design reports. This chapter describes:

- Our approach to building reports.
- Some of the reports you can build.
- Designing report templates you can use repeatedly with different data sources.

Building reports

Use Report Builder to design and generate reports consisting of data from various sources. With Report Builder, you create report templates to design, test, print, and manage reports.

When you save a Report Builder file, you actually save an encoded representation of all the objects, their formats, and their locations on the report template. As you edit the template, Report Builder writes the representation in the background and saves the changes to file when you save the report template.

Report Builder is different from other report generators because it is not tied to a single data source. Instead, it can accept and use data from SQLWindows and other applications.

Development tools such as SQLWindows can help you create complex report applications using function calls and messages. Report Builder asks for rows of input data, and your application provides the data. Throughout the procedure, you can interactively display, change, and print the report. Alternatively, Report Builder can directly connect to a database, issue a query, and fetch the rows as data for the report all by itself.

Application developers can view or modify a report's design during designtime, and users view the report at runtime. You modify the report design directly through the use of the Report Builder designer workspace, or programmatically through the Report Builder interface to development tools.

For tutorials demonstrating how to build reports with SQLWindows and Report Builder, read Chapter 7.

Types of reports

With Report Builder, you can create many types of reports. Among these are:

- Multi-column (mailing labels) reports.
- Form letters.
- Break group summary reports.
- Two pass totals reports.
- Input cross tabular reports.

For more, read *Chapter 7, Report Builder Tutorials*

Multi-column reports

Use multi-column reports to create a report with two or more columns across the page such as mailing labels or telephone directories, and various other reports where information can be broken into narrow columns.

Form letters

A form letter lets you create a template that contains most of the text in the body of a letter. However, some information, like the customer name must be unique to each letter. Report Builder integrates the unique information with the repeated information to create a personalized form letter.

Break group summary reports

Report Builder can create templates for reports that subdivide data into logical units called break groups. Often you want data summaries by these groups. You can sort data in a way that best fits your report.

For example, a company may have regional offices, departments within each region, and one or more managers within each department. When creating a break group summary report, the company could logically sort these groups of data in order of regions, departments, and managers, that is, from the larger group to the smaller group.

Report Builder lets you summarize each break group. When you define break groups, it automatically adds the break group block captions for the break group where you can add a title for the break group in the header and a summary in the footer.

Two pass totals reports

Two-pass totals, also known as input totals, are another form of input data that Report Builder can use. With two pass totals, Report Builder pre-calculates specified totals or other aggregate types of calculations, and provides the result as input to your report. All input totals are numeric variables that can be assigned to a field, or used by a formula in Report Builder.

With two pass totals reports, Report Builder can pass the data twice to the report. In the first pass, Report Builder calculates the input totals and in the second pass it formats the report, putting those totals wherever you want to see them. The advantage over a one pass report is that with two-pass totals are not restricted to appearing directly after the data.

Input cross tabular reports

Use crosstab reports to gather cross tabular statistics on your report's input rows. The crosstab feature summarizes the information your report receives.

Cross tab reports generate a two dimensional matrix of numeric data based on the categories and data you provide. The size of this matrix depends on the number of unique occurrences of each column and row category you use in your cross tabs definition.

You can have from 1 - 8 row categories and from 1 - 8 column categories in your crosstab. The greater the number of row and column categories, the larger and more complex your crosstab matrix will be.

Report templates

To create a report with Report Builder, you must build a template. Your template contains all the instructions needed to format and display the data provided by other applications or database queries. The input data Report Builder uses is not stored with the template and must be made available by an external source.

Report Builder simplifies the process of creating templates by providing a graphical interface that lets you use keyboard commands or a mouse to build fields, lines, boxes, blocks, and break groups. You can import graphic images and format all report elements using a variety of font styles, sizes, borders, and alignment.

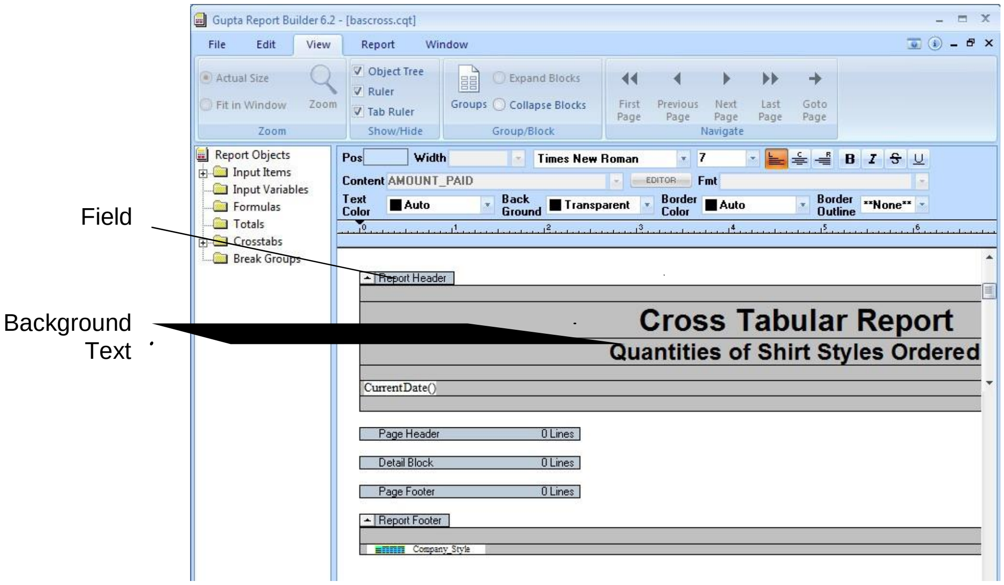
Parts of a report template

As you create and design your report template, you need to understand the basic elements of a report. A report is made up of various components which control how and where the Report Builder presents and stores the data.

Elements of a Report Template	
Block Groups	Lines
Block Group Captions	Fields
Headers	Boxes
Footers	Pictures
Break Groups	Background Text
Detail Block	Graphs
Input Items	Crosstab reports

Block groups are made up of a paired header and footer, and their related lines and associated fields, pictures, and boxes. Report Builder generates a block group for the following headers and footers:

Report Header	Page Header	Break Header
Report Footer	Page Footer	Break Footer



Pos
Width
Times New Roman
7
Content AMOUNT_PAID
Fmt
Text Color Auto
Back Ground Transparent
Border Color Auto
Border Outline **None**

Cross Tabular Report
Quantities of Shirt Styles Ordered
CurrentDate()
Page Header 0 Lines
Detail Block 0 Lines
Page Footer 0 Lines

Block Group Captions appear in a rectangle attached to the block group. These captions are the headings or titles of each block group.

Headers are optional and come in three types: report, group, and page:

- *Report Headers* appear only *once in the report (at the beginning) and contain a report's title.*
- *Page Headers contain messages, page numbers, references, page totals, and so on. In preview mode, they appear once at the top of every page except the first page where the report header appears. If no report header is defined, the page header also appears on the first page.*
- *Group Headers appear before* the first line of a group of records when you define them and prints each time a break group changes.

Footers are optional and come in three types: report, page, and group.

- *Report Footers* often contain report totals and summary information.
- *Page Footers* are located on the bottom margin of each page and typically contain the report page number, page totals, and the date.
- *Group Footers* appear after the last line of a group of records if you define group footers, and are printed each time a new break group changes.

Break Groups group information into subunits such as region or department. Break groups are also used for subtotaling and pagination. Each break group must have an input item that tells the report when to break as the item changes.

Detail Blocks print information from a group of individual rows (called a block) showing the data as it is sorted from the database. Report Builder has only one detail block per template.

Input Items are the individual data elements in a report. An input item is the same as a data field in a record, or a column item in a database table.

All the input items together make up an input row, in the report template. Input items can also come from different sources and occur at different frequencies, such as once in a report header or more frequently in detail blocks. An input item can contain data such as a name, comments, a birth date, or a dollar amount, but requires a name and a data type.

As SQLWindows, or a query, passes input items from a data source to a report template, it moves the data as input items. For example, if you link a table to your report template, the columns in the table become input items in the report template.

Lines are added to block groups and detail blocks with the line tool in the **Tools** menu. Lines can either be blank or contain objects such as fields, boxes, pictures, or background text. You can add various borders to lines.

Lines can have features such as *page break before*, *column break before*, and *blank line suppression*. *Page break before* creates a new page before the line prints. *Column break before* does the same thing with columns. *Blank line suppression* lets you hide blank lines from your printed output.

Fields contain or define the textual information of a report. Fields can contain different types of information including text, input items, or formulas. Fields can also have a fixed or dynamic width and can be enclosed in borders.

Boxes are objects you create using the box tool. Use the box tool to draw a frame around one or more fields, an entire report block, or a group of lines. Once a box has been created, you can re-size it, or move it to any location in the same block.

Pictures can contain graphics and long text (imported as an object). Once you draw your picture object, you can re-size it and move it to any location within the same block group.

Background Text contains fixed text only. You can use background text to:

- *Label the objects in your report template.*
- *Write column headers for the input items in your detail block.*
- *Write* report and page headers and footers.

You can format background text with all character formats available in the report ruler in the same manner that you format report fields. (Read more about the report ruler in Chapter 3.)

Graphs opens a default graph that you can modify by using its tool palette.

Crosstabs opens a crosstab wizard to help you create and set up a crosstab report template.

Running existing reports

Your applications can call the Report Builder executable to launch reports that have already been designed and saved. A series of command-line arguments supply enough information to run the report without user intervention.

The name of the executable varies with the version of Team Developer. Presently it is named REPBI63.EXE. Command-line arguments include:

- /d or -d: Database *name*
- */u or -u: User name*
- */a or -a: Database password*
- */p or -p: Printer name*
- */pt or -pt: Print-to name*
- */h or -h or /? or -? or /help or -help: Presents a help screen showing argument usage.*
- */ini : Configuration file name*. Indicates which copy of the configuration file (often named SQL.INI) should be used for database connectivity information. Optional.

Most arguments are not case-sensitive, but "p" and "pt" are case-sensitive. You can place a blank between the argument tag and the value, but it is not required. For example, "/disland" and "/d island" will both work. If the report uses a database query, and you do not supply all the arguments necessary to connect to the database, a connection dialog will pop up when the report begins and the user will need to complete the database name, user name, and/or password.

Examples of running Report Builder from a command line

```
REPBI63.EXE /ini "c:\my documents\myconfig.ini"
```

Starts Report Builder with a blank "No report" workspace. Uses file myconfig.ini for database connectivity information.

```
REPBI63.EXE "%USERPROFILE%\Team Developer 6.3\samples\formltr.cqt"
```

Starts Report Builder, loads report formltr.cqt, then pauses and prompts the user for database user ID and password., then executes the report and shows it in a separate window. The user is prompted because there is not enough information supplied for Report Builder to make the database connection on its own.

```
REPBI63.EXE "%USERPROFILE%\Team Developer 6.3\samples\formltr.cqt" /d island /u
sysadm /a sysadm
```

Starts Report Builder, loads report formltr.cqt, then executes the report and shows it in a separate window.

```
REPBI63.EXE /p "%USERPROFILE%\Team Developer 6.3\samples\formltr.cqt" /u sysadm /a
sysadm
```

Starts Report Builder, loads report formltr.cqt, then prints it to the current default printer.

```
REPBI63.EXE /pt "%USERPROFILE%\Team Developer 6.3\samples\formltr.cqt" "SnagIt 6"
"SnagIt 6 Printer" "SnagIt6" /d island /u sysadm /a sysadm
```

Starts Report Builder, loads report formltr.cqt, then prints it to the printer name, printer driver, and printer port that are specified in the three arguments following the report file name.

Where to get more information

You can find more information on building reports from the Gupta online help. The online help provides procedures on how to use Report Builder and detailed descriptions on how to use the keyboard, mouse, commands, functions, dialog box options, icons, and screen regions. Press the **F1** key to access online help.

Creating Reports

This chapter introduces you to the report data that Report Builder uses to populate the templates you design. This chapter describes:

- Report data *sources.*
- *Importing Quest files.*
- *Defining a query.*
- *Input items, variables, totals, and crosstabs.*
- *Procedures for* entering input data into report objects.

Report data sources

Before you can create a new report, you must specify a source of data for the report. Report Builder can accept data from several different sources, including:

- *An integrated query.*
- *Gupta SQLWindows or other applications.*
- *Quest* files (.QQT).

Data source requirements

When you do not use an integrated query, you must provide the following information about each input item in the input row:

- **The name of every input item.** Use of spaces and special characters are limited. The underscore is the only special character that is valid. Spaces in the middle of character strings are invalid, unless you use a double quote around the name that contains the space. Trailing or leading spaces are automatically striped out.
- **The data type** of each input item. It can be a character string, number, a date/time value, or an object.
- **The order** in which input items are organized in the input row.
- **The sort order** of your input rows. This sets the break group order of your report. In addition, you must presort all source data in break group order before you provide it to Report Builder.

Using an integrated query

Within Report Builder, define a database query, execute it, and the results of the query populate the report.

Using SQLWindows as a data source

SQLWindows developers or developers using other similar applications need only create applications that pass data to the report template; they do not need to create or format a report within the application.

SQLWindows interfaces with Report Builder by:

- Providing rows of data (input rows) for you to format and use in the report templates.
- Providing report input variables for you to use.
- Using functions to create, view, print, or close your reports. (Read the SQLWindows Function Reference manual or the Gupta Team Developer online help for more information on functions.)

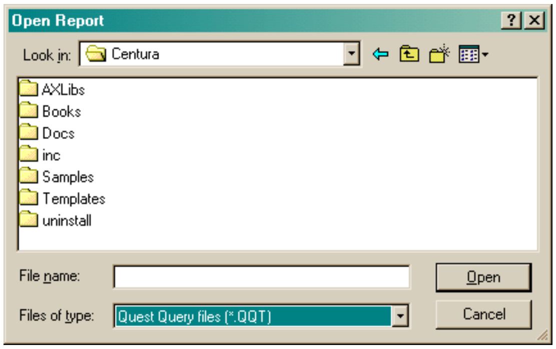
Because Report Builder is not dependent on a single source of input data, it is possible for you to develop and test your report templates and SQLWindows applications independently.

Importing Quest files

You can import your Quest files into Report Builder to use as report templates going forward. The following procedures show you how to do this.

Open a Quest Query

1. To open a Quest Query Template file, select **Open** from the **File** menu in Report Builder. The Open Report dialog appears.

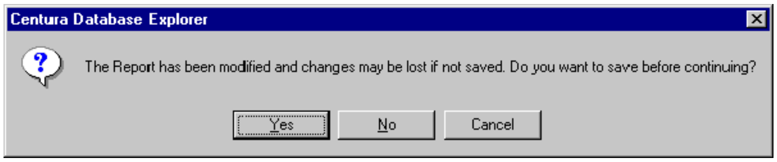


2. In the Files of Type field, select **Quest Query files (*.QQT)**.
3. Browse to your query file, highlight it, and click **Open**.

   Report Builder will execute the Query and display a default report. If you have a Quest Report file that was linked to the query, you can open it now.

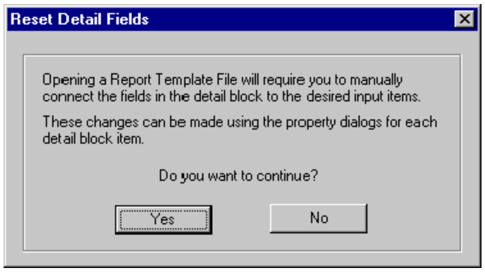
Open a linked Quest report

1. Select **Import Template** from the **Edit** menu. The following dialog appears:



The Report has been modified and changes may be lost if not saved. Do you want to save before continuing?

2. Click **No** if you do not wish to save the default report. The Reset Detail Fields dialog box appears.



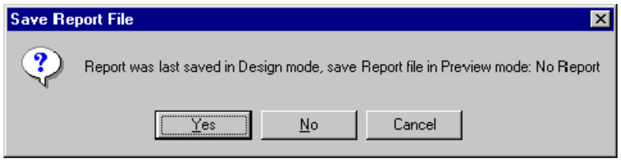
Opening a Report Template File will require you to manually connect the fields in the detail block to the desired input items.

These changes can be made using the property dialogs for each detail block item.

Do you want to continue?

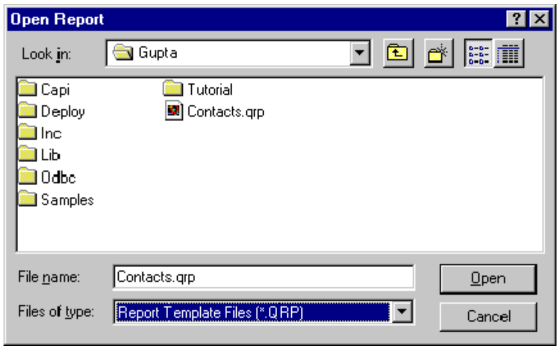
   This box is warning you that you may need to rematch the data columns of the query with the input items of the report template.

3. Click **Yes**. The Save Report File dialog appears.



Report was last saved in Design mode, save Report file in Preview mode: No Report

4. Click **No** unless you want to continue working with the Default Report. The Open Report dialog appears.



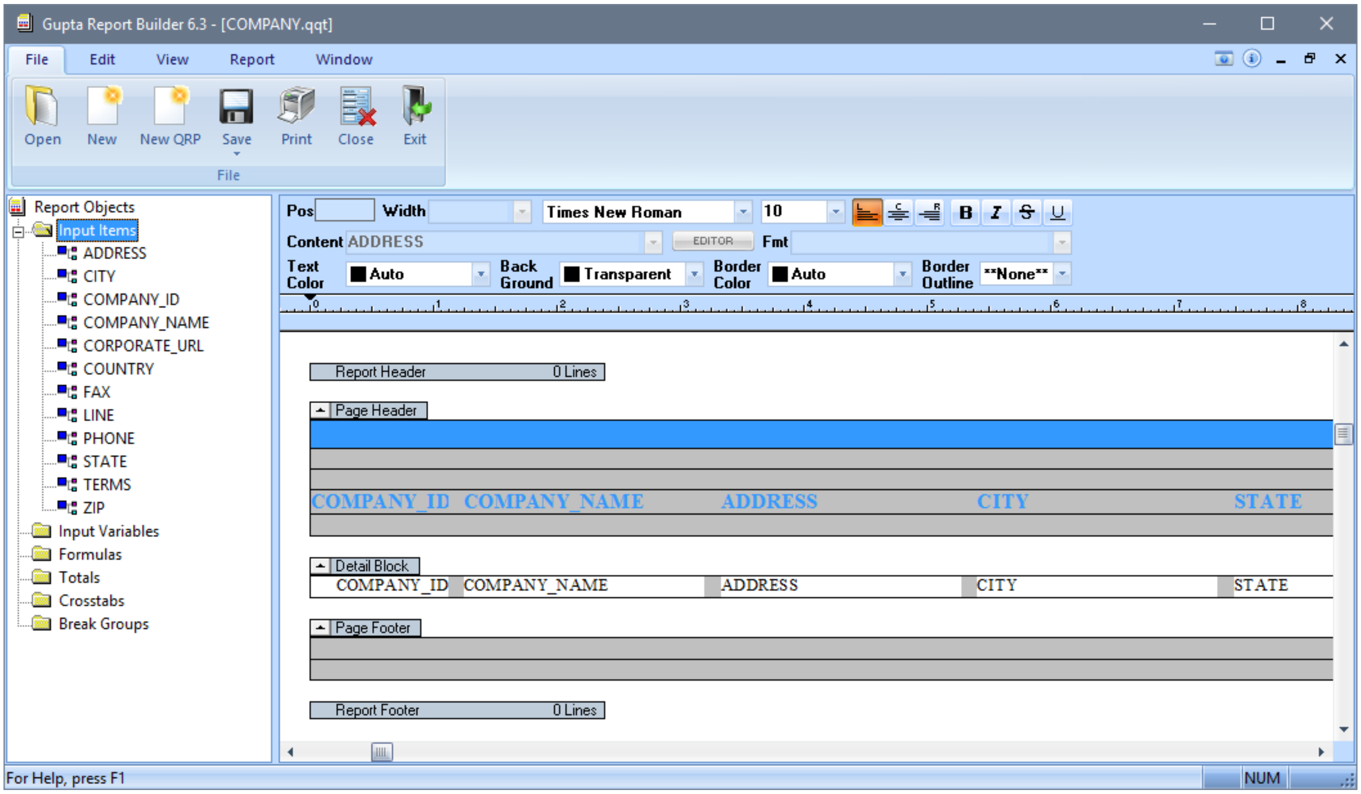
Look in: Gupta

File name: Contacts.qrp

Files of type: Report Template Files (*.QRP)

5. In the **Files of type** field, select **Report Template Files (*.QRP)** and select your report template so the file name appears in the **File name** field.

6. Click **Open**. The report template appears.



Pos Width Times New Roman 10

Content ADDRESS Fmt

Text Color Auto Back Ground Transparent Border Color Auto Border Outline **None**

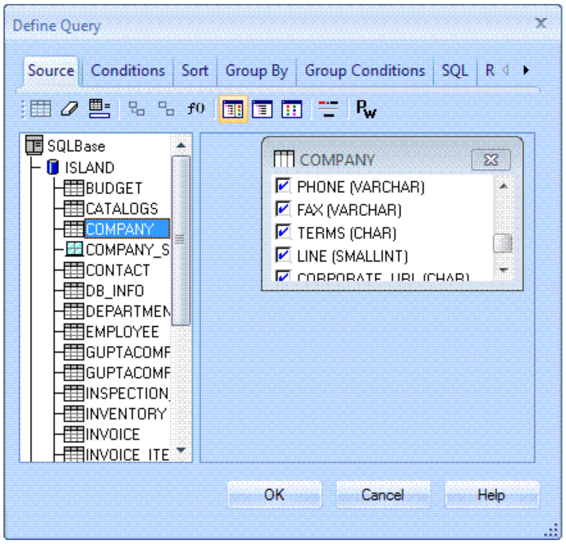
For Help, press F1

Defining a query

To define a query is to select one or more database tables and then specify how the data will be displayed. You must define a query before you can create a report.

The Define Query property pages allow you to define the queries for your report. You select the Define Query property pages when you create a new report (**File, New**), or when you wish to define a query from an existing report (**Report, Define Query**).

These are the Define Query property pages as they appear initially.



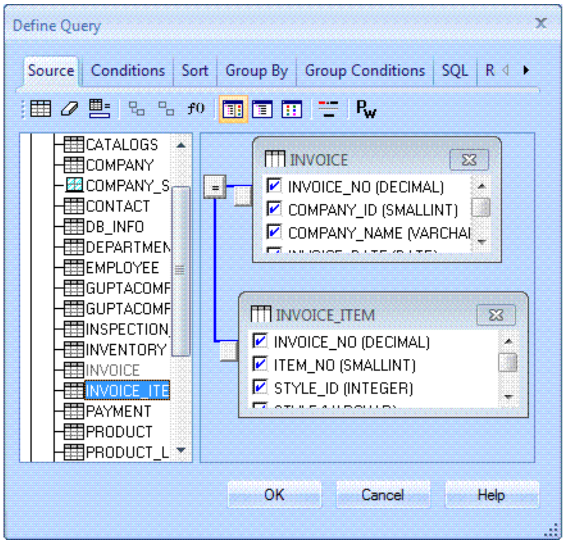
To select a property page, click on the tab at the top of the property page. There are six property pages that you can use:

- **Source** select tables or views.
- **Conditions** defines the conditions that must be met for the data to be included in the result set.
- **Sort** defines how the data will be sorted in the report.
- **Group By** defines how the data will be grouped in the report.
- **Group Conditions** defines the conditions which decide how the data will be grouped in the report.
- **SQL** displays the SQL that will be generated to create the query.
- **Result** displays the actual data that will be returned.

Source property page

Use the Source property page to select the table(s) or view(s) for your query.

The source property page initially shows the available servers (e.g., SQLBase, Oracle, Sybase, Informix, etc.) on the left-hand side of the page. This is the Source property page.



To select a table

1. Double-click on the desired server.

   The databases associated with the selected server appear.

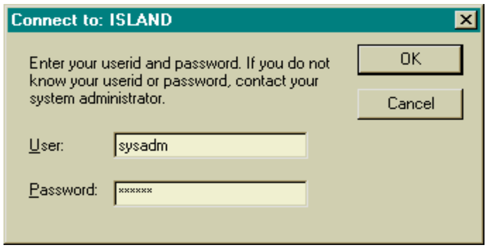
   Note: *If you do not see the database you wish to connect to, you may need to add it to the list manually. To do this, right-click on the desired server. Select Add to List... from the context menu. The Add to List dialog box appears. Use the Server tab to add a new server to the list by name (this applies only to SQLBase database servers, or DB servers if you are using Gupta SQLHost to connect to DB2). Use the Database tab to add a new database to the list by name.*

2. Double-click on the desired database.

   The **Connect To** dialog appears.

3. Enter a **User Name** and **Password** on the Connect To dialog and click **OK**.

   Note: *Before you can select tables from the ISLAND database, you must log in. Use sysadm as the login name and password as shown below.*



Connect to: ISLAND

Enter your userid and password. If you do not know your userid or password, contact your system administrator.

User: sysadm

Password: ******

   The tables and views associated with the selected database appear under the database.

4. Double-click on the desired table(s) or view(s), or drag the desired table(s) or view(s) over to the right-hand side of the screen.

   You can select multiple tables or views. When you select more than one table or view, the links between the tables or view are displayed. If you wish to change the links between the tables or views, click on the button with the equal sign (=). When you select a table or view, the columns that can appear within the table or view are displayed.

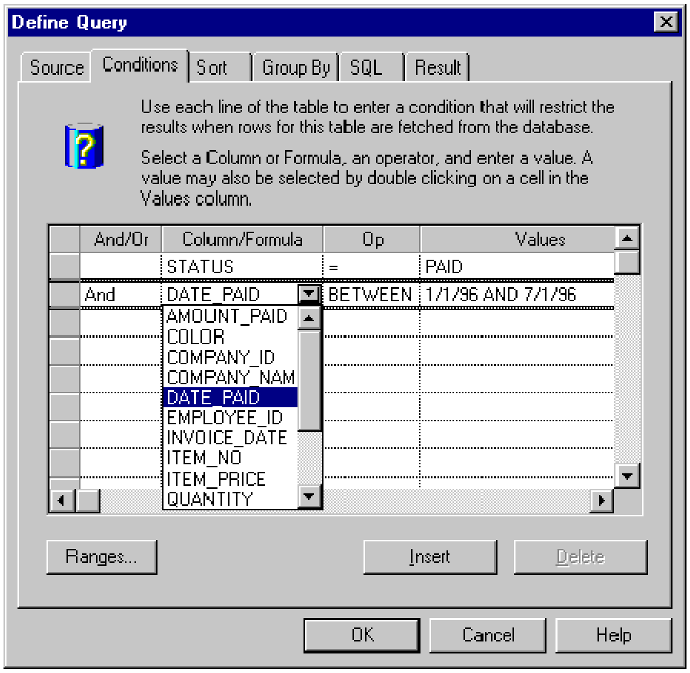
5. Select the columns that you wish to appear in your report.

   All the columns that can appear within the selected table are displayed. You can select/deselect a column by clicking the box next to the column A check mark appears next to the columns that will appear in the report.

Conditions property page

Use the Conditions property page to define the conditions that must be met for data to be included in your report's result set. Use each line of the table to enter a condition that will restrict the results when the rows for the table are fetched from the database.

This is the Conditions property page.



Use each line of the table to enter a condition that will restrict the results when rows for this table are fetched from the database.

Select a Column or Formula, an operator, and enter a value. A value may also be selected by double clicking on a cell in the Values column.

And/Or	Column/Formula	Op	Values
	STATUS	=	PAID
And	DATE_PAID	BETWEEN	1/1/96 AND 7/1/96

To define a condition

1. Select a Column or Formula.

   To select a column, place your cursor in the Column/Formula field and click the left mouse button. A list of the available columns associated with the selected table are displayed. To select a formula, click the **Formulas** button, select the desired formula from the Formula Editor screen, and click **OK**.

2. Select an operator.

   To select an operator, place your cursor in the Op field and click the left mouse button. A list of the available operators is displayed.

3. Enter a value

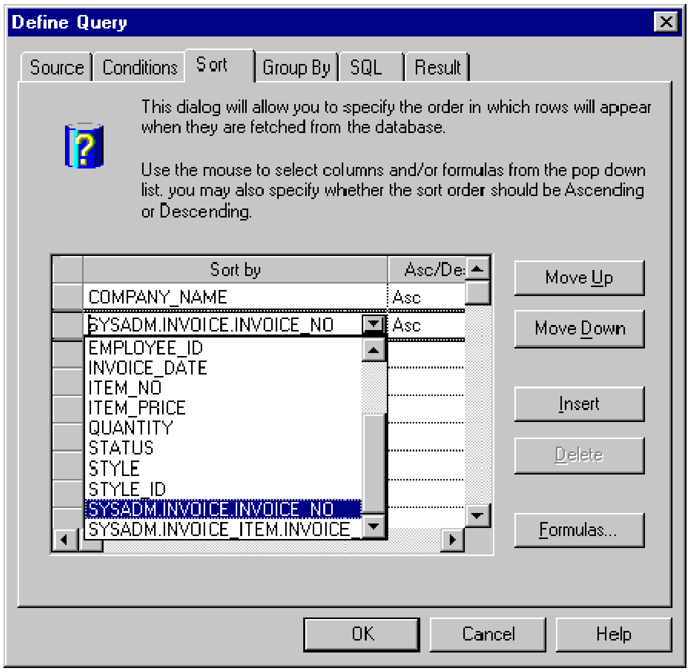
   You can either enter a value or double-click on a cell in the Values column to access the Condition Value screen. The Condition Value screen helps you to select a value for the condition.

   ***Note:* Use **AND** or **OR** to group multiple conditions together.**

Sort property page

Use the Sort property page to specify how you want to sort the data in your report (that is, the order in which rows appear when fetched from the database).

This is the Sort property page



This dialog will allow you to specify the order in which rows will appear when they are fetched from the database.

Use the mouse to select columns and/or formulas from the pop down list. you may also specify whether the sort order should be Ascending or Descending.

Sort by	Asc/De:
COMPANY_NAME	Asc
SYSADM.INVOICE.INVOICE_NO	Asc

To define how you wish to sort the data

1. Select the columns and/or formulas by which you wish to sort.

   To select a column, place your cursor in the Sort By field, click the left mouse button, and select a column from the list that appears. To select a formula, click the Formulas button, select the desired formula form the Formula Editor screen, and click **OK**.

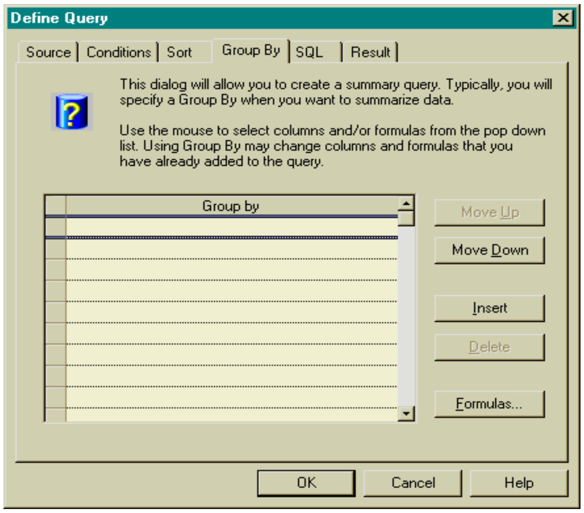
2. Specify whether the data should be sorted in ascending or descending order.

   To select how the data will be sorted, place your cursor in the Asc/Desc field, click the left mouse button, and select either **Asc** or **Desc**.

Group By property page

Use the Group By property page to define how to group the data in your report. The Group By property page allows you to create a summary query. Typically, you will specify a Group By when you want to summarize data. Select the column(s) and/or formula(s) by which you wish to group the data.

This is the Group By property page.



This dialog will allow you to create a summary query. Typically, you will specify a Group By when you want to summarize data.

Use the mouse to select columns and/or formulas from the pop down list. Using Group By may change columns and formulas that you have already added to the query.

To select a column

Place your cursor in the Group By field, click the left mouse button, and select a column from the list that appears.

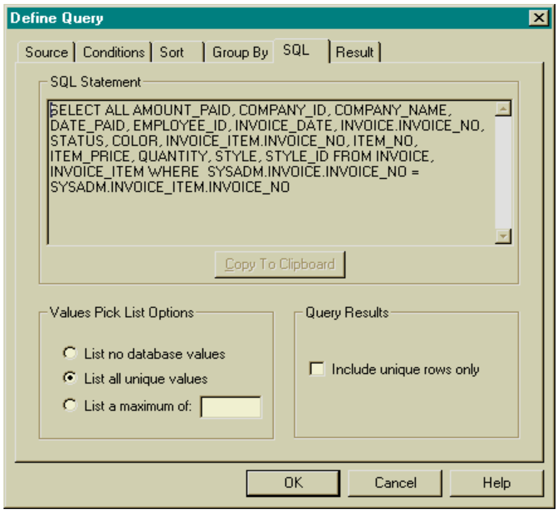
To select a formula

Click the Formulas button, select the desired formula from the Formula Editor property page, and click **OK**.

Note: Using the Group By property page may change the columns and formulas that you have already added to the query.

SQL property page

The SQL property page displays the SQL that will be generated to create the query. This is the SQL property page.



```
SELECT ALL AMOUNT_PAID, COMPANY_ID, COMPANY_NAME,
DATE_PAID, EMPLOYEE_ID, INVOICE_DATE, INVOICE.INVOICE_NO,
STATUS, COLOR, INVOICE_ITEM.INVOICE_NO, ITEM_NO,
ITEM_PRICE, QUANTITY, STYLE, STYLE_ID FROM INVOICE,
INVOICE_ITEM WHERE  SYSADM.INVOICE.INVOICE_NO =
SYSADM.INVOICE_ITEM.INVOICE_NO
```

○ List no database values
● List all unique values
○ List a maximum of:

□ Include unique rows only

Select the values you wish to include in the SQL by clicking next to one of the following options under the Value Pick List Options section of the page:

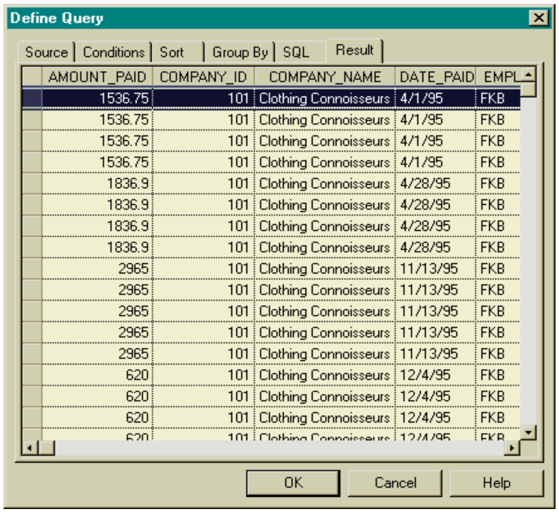
- List no database values
- List all unique values
- List a maximum of

If you wish to include unique rows only, click the box next to **Include unique rows only** under the Query Results section of the property page. If you wish to copy the SQL to the clipboard, select the data under the SQL Statement section of the property page and click the **Copy to Clipboard** push button.

Result property page

Based on the information you have entered in the other property pages on the Define Query screen, the Result property page displays the actual data that will be returned in your report.

This is the Results property page.



AMOUNT_PAID	COMPANY_ID	COMPANY_NAME	DATE_PAID	EMPL
1536.75	101	Clothing Connoisseurs	4/1/95	FKB
1536.75	101	Clothing Connoisseurs	4/1/95	FKB
1536.75	101	Clothing Connoisseurs	4/1/95	FKB
1536.75	101	Clothing Connoisseurs	4/1/95	FKB
1836.9	101	Clothing Connoisseurs	4/28/95	FKB
1836.9	101	Clothing Connoisseurs	4/28/95	FKB
1836.9	101	Clothing Connoisseurs	4/28/95	FKB
1836.9	101	Clothing Connoisseurs	4/28/95	FKB
2965	101	Clothing Connoisseurs	11/13/95	FKB
2965	101	Clothing Connoisseurs	11/13/95	FKB
2965	101	Clothing Connoisseurs	11/13/95	FKB
2965	101	Clothing Connoisseurs	11/13/95	FKB
2965	101	Clothing Connoisseurs	11/13/95	FKB
620	101	Clothing Connoisseurs	12/4/95	FKB
620	101	Clothing Connoisseurs	12/4/95	FKB
620	101	Clothing Connoisseurs	12/4/95	FKB
620	101	Clothing Connoisseurs	12/4/95	FKB

Input data types

The data Report Builder accepts is called report inputs. You can use a variety of input data to populate your report templates. These variations include:

- Input items
- Input variables
- Input totals
- Input crosstabs

Each kind of report input listed above provides a different type of information for the report to use.

Input Items are similar to a data field in a record or a column in a database table. The combined input items make up an input row. Report Builder processes one input row at a time. The input row is updated after every input fetch. You must define the name and data type of each input item received by your report and enter the input items in the same order they appear in your input row.

Input Variables are values set in Report Builder by your application. Unlike input items, input variables do not need to be updated with each input fetch.

Input Totals let you display aggregate statistics in your report fields. Input items or formulas are evaluated to return an aggregate value. This aggregate value is used as an input to the report. All formulas are evaluated and statistics accumulated immediately after each input row is fetched. You can calculate sums, averages, percentages, and so on, before or during report generation with input totals.

Input Cross Tabs is an advanced report feature that you can use to gather cross tabular statistics on the report template’s input rows. All category items are evaluated and statistics accumulated immediately after each input row is fetched. The resulting matrix is used as input to your report.

Input Items

Input items define the data elements used by the report. Input items are one of the following four main data types:

- A string, that is, any combination of alphanumeric characters.
- A number, being numerical value of up to 22 digits.
- A date or time, which has a three-part data value (dd/MM/yy or hh:mm:ss).
- An object, meaning a picture.

Note: *All input rows must be sorted in break group order before you provide them as input data to Report Builder. If you add, modify, or delete input items from your report, you must also change the result set of the corresponding linked application so that your report can receive a matching set of data.*

Defining input items

Every item in the input row must be assigned a unique name Report Builder can use to refer to it. You must define the input item names in the same order they appear in the input row.

Before using the **Input Items** command in the **Report**, **Format** menu, you must know the format and layout of your input row. To define your input items, you need the following information:

- A *name* for each input item. (All input items in the input row must be listed, even if you do not plan to use all of them in your report template.)
- The data type (String, Number, Date/Time, or Object) of each item.
- The order in which the input items appear in the input row.

Entering input item names

This is one of the first procedures you must perform when creating a new report. Enter input item names for each report that receives and uses data from an external source, that is, from a database or an application program.

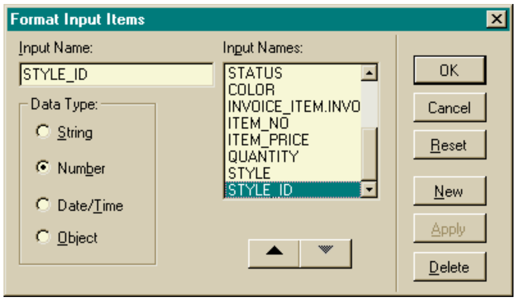
Note: *If you have created or imported a query, Report Builder automatically generates the report inputs for you.*

Enter the names of all the input items that make up your input row and enter the input items in the same order they appear in the input row. Your report uses this information to read the data from the data source.

Refer to the naming rules on page 2 of this Chapter as a guide to naming your input items.

1. Right-click on the input items node in the left pane and choose **New**.

   This dialog box lists all of the currently defined input items. If you have not defined the input items, the **Input Name** text box is empty.



Format Input Items

Input Name: STYLE_ID

Data Type:
○ String
● Number
○ Date/Time
○ Object

Input Names:
STATUS
COLOR
INVOICE_ITEM.INVO
ITEM_NO
ITEM_PRICE
QUANTITY
STYLE
STYLE_ID

2. Enter the input item name in the **Input Name** box.
3. Select the data type of the input item.

   You can choose **String**, **Number**, **Date/Time**, or **Object**.
4. Click **New** to add the input item in the **Input Names** list box.
5. Repeat Steps 2 through 4 for all the remaining input items in the input row.

   You must enter the input items in the order they appear in the input row.

   Use the **Up** and **Down** arrow buttons to change the order of the input items as necessary.
6. Click **OK** to apply all changes to the report and to close the dialog box.

   Click **Cancel** to close the dialog box without saving any changes.

Input variables

Input variables are another type of input data that your report uses. Unlike input items which are passed with every report fetch, input variables are passed to your report only when they are set by the application. For example, you can use input variables to pass information like a graphic image to your report template each time a break group footer is printed.

Like input items, input variables must be one of four data types:

- String
- Number
- Date/Time
- Object

SQLWindows applications use input variables in the report to send information to, and return information from the report engine. SQLWindows does this by using functions to modify your report.

Refer to the *SQLWindows Function Reference* for information about the SalReport functions.

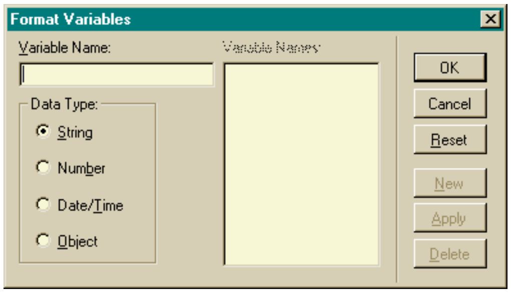
Defining input variables

Use the following procedure to define the input variable values your SQLWindows application passes to your report.

Defining input variables for your report

1. Right-click on input variables in the left pane.

   Report Builder opens the property page with a list of all defined input variables. The list is empty if you did not define any input variables.



2. Enter the input variable name in the **Variable Name** text box.

   The names you assign to input variables must be unique among Items, Variables, Totals, and Cross Tabs.

3. Select the data type of the input variable.

   You can choose from **String**, **Number**, **Object**, or **Date/Time**.

4. Click **New** to add the input variable name in the **Variable Names** list box.
5. Repeat Steps 2 through 4 for any other input variables you want to include.
6. Click **OK** to apply all changes and exit the dialog box.

   Click **Cancel** to exit the dialog box without saving any changes.

Input totals

Report Builder pre-calculates specified totals or other aggregate types of calculations, and provides the result as input totals to your report. Input totals can also be two-pass totals. All input totals are numeric variables assigned to a field, or used by a formula in your report template.

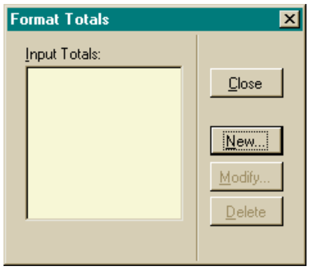
Use the Format Totals dialog box to define, modify, and delete the input totals in your report. You can assign input totals to fields, just like input items and input variables.

In the Define Total dialog box, set the pre-process flag ON to have the totals calculations performed before your report output is generated. If you do this, the report data is passed once to the report engine and processed twice by the report. The first pass calculates your report input totals, the second pass formats the report.

Alternatively, you can set the pre-process flag OFF. If you do this, the report engines calculates the totals on an on-going basis as the report data is fetched for the first and only time.

Defining input totals for your report

1. Right-click on Input Totals in the left pane.



2. Click **New** to create a new input total using the **Format Totals** dialog box.

3. Enter a name for your new input total.

   The name cannot have spaces in it. The only special character that is allowed is the underscore.

4. From the **Formula** drop down list box, select the item you want to evaluate.

   The items in the **Formula** drop down list box must first be defined. If you do not define a formula, it shows only inputs. The item in this list box can be any numeric formula or an input item.

   Pressing the **Formula** push button opens the **Formula Editor** dialog box where you define formulas.

5. Select the type of statistic you want to calculate from the **Statistic** drop down list box.

   Each input total can evaluate one statistic. Select **Value** if you want to display the last value of the item you selected in the **Formula** list box.

6. Choose when you want to zero your totals from the **Restart Event** drop down list.

   This list box shows all the break group items. Report Builder restarts totals calculations whenever the selected break group changes.

7. Repeat steps 5 to 9 to create all your input totals.

8. Click the **Pre-Process** check box if you want Report Builder to calculate your totals before it formats your report.

   Use this if you plan to display break group totals at the beginning of a break group (for example, in the break group header) rather than at the end of the break group. By setting **Pre-Process** ON, you ensure a valid total display at the beginning of the break group.

9. Close the open dialog boxes to return to your report template.

Adding input totals to your template

1. Drop fields in the report template for each one.

   Drop the fields in appropriate locations in your template. If you have totals for a certain break group, you can draw the fields in the appropriate header or footer blocks.

2. Assign the input totals to each field.

   Right click on the field and select **Properties** then use the **Edit** button to assign the total to the field.

3. Select **Report, Preview** to view your report with the input totals.

Input crosstabs

Use the *input crosstabs* feature to gather cross tabular statistics on your report input rows and to summarize the information your report template receives.

The **Cross Tabs Data Collector** generates a two-dimensional matrix of numeric data based on the categories and data you provide. The size of this matrix depends on the number of unique occurrences of each column and row category you use in your crosstabs definition.

You can have from 1 to 8 row categories and from 1 to 8 column categories in your crosstab report. The greater the number of row and column categories, the larger and more complex your crosstab matrix is.

You must identify each crosstab with a unique name. A report can contain any number of crosstabs.

Formatting your crosstab matrix

Your *crosstab* computations result is a two-dimensional numeric matrix that you assign to any field in your report template. You must set **Dynamic Line Wrapping ON** for the field containing your input crosstab matrix since you cannot determine the size of your crosstab matrix until all calculations are complete. See the **Format Fields** command in the Report Builder online help for more information on this feature. Use the crosstab wizard to format your crosstab matrix.

Crosstab Formula Editor functions

Get information on the number and names of the rows and columns in your crosstab matrix by using the following report functions in the **Formula Editor**.

XTabGetColHeadings returns a tab-separated string of column names for the crosstab matrix. Each column name is a unique combination of the values returned by your column categories. You need to use this function to build a label for each combination of column categories in your crosstab.

XTabGetRowHeadings returns a tab separated multi-line string of row names for the crosstab matrix. Each row name is a unique combination of the values returned by your row categories. You need to use this function to build a label for each combination of column categories in your crosstab.

XTabGetColCount returns the number of columns generated by this input crosstab matrix.

XTabGetRowCount returns the number of rows generated by this input crosstab matrix.

In addition, Report Builder provides several functions that let you format the two- dimensional matrix generated by crosstab calculations. Apply these functions against the crosstab matrix.

StrTabSeparate returns a string with a tab inserted between each word. You can use this function to tab separate each column of your crosstab matrix.

StrTabColSuppress returns a string with repeating column values suppressed. It does not suppress repeating tabs. You can use this function with your crosstab matrix to suppress repeating column titles.

StrTabRowSuppress returns a string with repeating row values suppressed. You can use this function with your crosstab matrix to suppress repeating row titles in your matrix.

For more information on functions, refer to *Chapter 5*, *Creating Formulas*, or the Gupta online help.

Assigning objects to pictures

Use the picture object in Report Builder to display graphic images. You enable the **Report**, **Format**, **Picture** command when you select a picture object in your report template. If you select multiple pictures, Report Builder disables the command.

Use the **Picture** command in the **Format** menu to set the width, style, scaling, and contents of your picture object. You can also draw borders around the contents of the picture object.

With the **Picture** command, you control the:

- Scaling of the picture.
- Graphic items imported into your report.
- Dimensions of your graphic.

Pictures contain graphic items. You can assign one of three categories of information to a report picture object:

- **Static objects** are any type of object that do not change in the report, from graphics to text blocks. You can copy graphic items to your report and place them in a picture. The graphics appear in both design and preview modes.

  Report Builder lets you import a number of different graphic formats, such as .BMP, .DIB, .GIF, .TIFF, .PCX, .WMF, and .JPG.

- **Input objects** are any input items with a data type of OBJECT. This information passes to your report from a SQLWindows application.
- **Variable objects** are any report input variables with a data type of OBJECT. This information passes to the report by a SQLWindows application.

Static objects

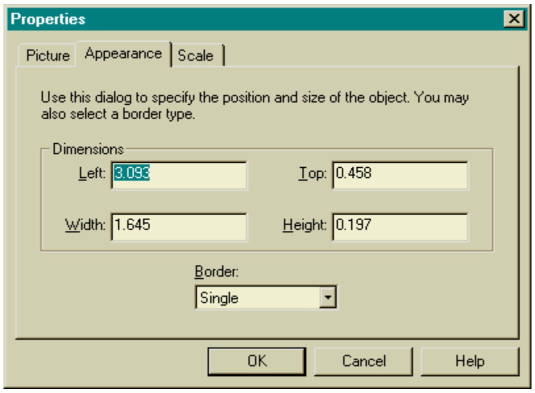
Report Builder accepts a large variety of graphic formats as input into your picture object.

Importing a static object to your report

1. Choose your picture object and select **Report**, **Format, Picture** to open the **Format Picture** property pages.

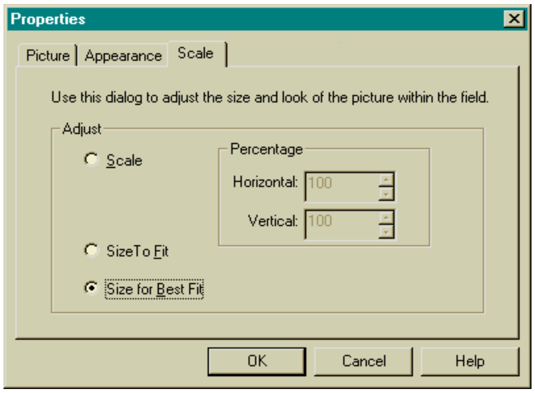
   You can also right-click on the picture object, then select **Properties** from the context menu, to open this dialog box.

2. Set the picture dimensions on the **Appearance** property page. You can also drag the borders of your picture object to resize it.



Use this dialog to specify the position and size of the object. You may also select a border type.

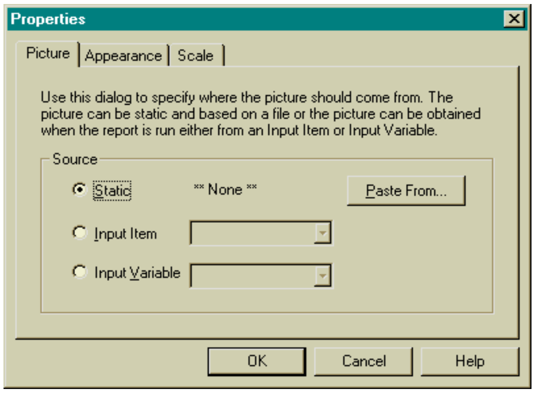
Left: 3.093
Top: 0.458
Width: 1.645
Height: 0.197
Border: Single



Use this dialog to adjust the size and look of the picture within the field.

○ Scale
Horizontal: 100
Vertical: 100
○ SizeTo Fit
● Size for Best Fit

3. Accept the default **Static** option on the **Picture** property page.



Use this dialog to specify where the picture should come from. The picture can be static and based on a file or the picture can be obtained when the report is run either from an Input Item or Input Variable.

● Static ** None **

○ Input Item

○ Input Variable

This tells Report Builder that you are going to import an object, but are not going to link the template to the application in which the object was created.

4. Click the **Paste From** push button to open the **Paste From** dialog box.
5. Select a file type from the **List Files of Type** list box at the bottom of the dialog box.

   This list box shows all the file formats you can import into your report template. When you select a file type, Report Builder lists all the files in that format under the **File Name** text box.
6. Select the file you want to import and click OK to return to the Format Picture dialog box.
7. Select the type of border you want to surround your object and click **OK**.

   Report Builder imports the contents of the selected file into your report. You can see this object in both design and preview modes of the report.

Input objects

You can assign input items with an **Object** data type to your report picture objects.

Assigning inputs to your picture object

1. Double-click the picture object to open the **Format Picture** dialog box.
2. Set your picture dimensions in the **Appearance** property page.
3. Click **Item** in the **Object** group box to indicate that the content of this picture comes from an input item.
4. Select the input item you want from the appropriate drop down list box and click **OK**.
5. Report Builder assigns the selected input item to the picture object.

   You can see the contents of the picture object when you are in preview mode for the report.

Variable objects

You can assign input variables with an **Object** data type to your report picture objects.

Assigning variables to your picture object

1. Select your picture object and choose **Format, Picture**.
2. Set your picture dimensions in the **Dimensions** group box.
3. Click **Variable** in the **Object** group box to indicate that the content of this picture comes from an input variable.
4. Select the input variable you want from the appropriate drop down list box and click **OK**.
5. Report Builder assigns the selected input variable to the picture object.
   You can see the contents of the picture object when you are in preview mode for the report.

Report Builder Workspace

The Report Builder workspace is the area where you create report templates. This chapter describes the following:

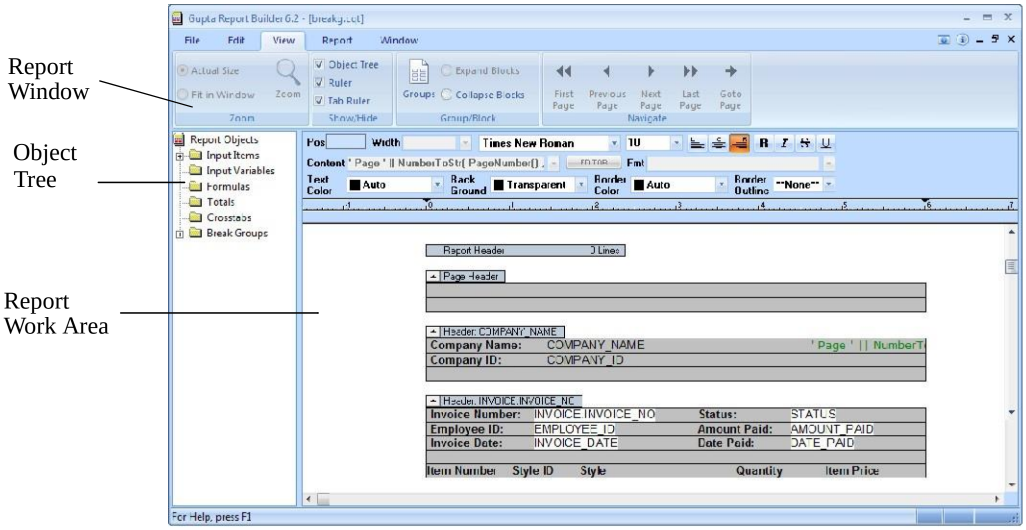
- Report work area and the object tree
- Rulers
- Menus and toolbars
- Viewing reports
- Report objects and how to modify them

Report Builder work area and object tree

When you create a new report template, you do so in the report work area. The work area appears initially with the following components:

- Report Header block caption
- Page Header block caption, with the data and column headings based on the query
- Detail Block caption with fields for the query data
- Page Footer block caption, with the page number
- Report Footer block caption

Report Builder adds new header and footer block captions to the report template as you define break groups. The report work area is shown below.



Pos
Width
Times New Roman
10
Content ' Page ' || NumberToStr(PageNumber() ,
Fmt
Text Color: Auto
Back Ground: Transparent
Border Color: Auto
Border Outline: --None--

Report Header 0 Lines

Page Header

Header: COMPANY_NAME

Company Name: COMPANY_NAME ' Page ' || NumberT

Company ID: COMPANY_ID

Header: INVOICE.INVOICE_NO

Invoice Number:	INVOICE.INVOICE_NO	Status:	STATUS
Employee ID:	EMPLOYEE_ID	Amount Paid:	AMOUNT_PAID
Invoice Date:	INVOICE_DATE	Date Paid:	DATE_PAID

Item Number Style ID Style Quantity Item Price

The object tree displays all of the currently-defined report objects, such as:

- Input Items
- Input Variables
- Formulas
- Totals
- Crosstabs
- Break Groups

The object tree organizes the report objects into folders. It lets you list and display the properties of objects, and allows you to drag and drop objects into your reports.

When it is displayed, the object tree appears in a frame to the left of the report window. You can define whether to display the object tree by selecting Object Tree on the View menu.

To display the contents of a folder, double-click on the folder for the desired object. For example, to display all the currently-defined input items, double-click on the input items folder.

To access a property page for an input item, input variable, formula, total, crosstab, or break group, select the item, click the right mouse button, and select Properties from the popup menu.

To add an object to your report, position the pointer over the object that you wish to place into your report. While pressing the left mouse button, drag the object to the line on the report where you want it to be, then release the mouse button.

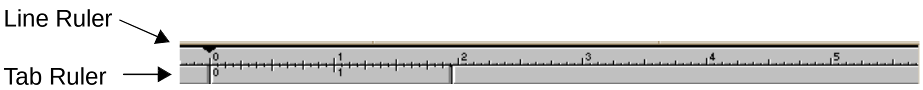
Rulers

Two rulers appear at the top of the workspace:

1. The line ruler displays the margins and paper size of your report. This ruler is only displayed if ruler is checked in the view menu, and you are in Report Design mode.

2. The tab ruler shows the width of the currently-selected field or background text object. Tabs for a field can be changed by manipulating the graphical tab icons on the tab ruler. This ruler is only displayed when a report object is selected in the design layout and tab ruler in the view menu is selected.

The rulers are shown below.



Line ruler

This ruler displays the margins and paper size of your current report. The top border of the ruler line also displays the grid increments when the Grid is on.

When you drag a Report Builder object across a line, Report Builder displays a black box in the Ruler Line. This black box has the same width and location as the selected Report Builder Objects ruler to precisely position Report Builder objects in your Report Builder template.

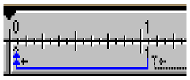
Tab ruler

When enabled from the **View** menu, the tab ruler displays in the bottom half of the Report Builder ruler. You can set and control the tabs for a field by manipulating the graphical tab icons on the tab ruler. The tab ruler also shows the width of the currently-selected field or background text object.

The tab ruler is an alternative to using the **Report**, **Format**, **Tabs** property page. Double-click on any tab icon to open the **Report**, **Format**, **Tabs** property page.

Note: *The tab ruler will not appear unless the line ruler is also selected.*

When you select a field or background text, the tab ruler shows the size of the field, all the tabs that are assigned to it, the tab justification, and the width of each tab.



Each tab icon (shown at the left) is made up of a:

Head (pointed arrow). The tab head shows the beginning of the tab. Click and drag the head to change the starting position of the tab. Normal tabs have a single arrowhead and are shown in black. A master repeating tab has a double arrow head and is shown in a bright blue color. All subsequent representations of repeating tabs are shown with a truncated arrow head, a gray color, and cannot be directly modified.

Body (straight line). The tab body shows the width of the tab. Click and drag the tab body to move the tab to a new location without changing its size.

Tail (right angle). The tab tail shows the end of the tab. Click and drag the tail to change the ending position of the tab.

Justification Icon. The tab justification icon is a small arrow within the tab body. This arrow can point right (right justified), down (center justified), or left (left justified).

To add tabs, left click on the tab ruler to add a new tab in this field. By default, Report Builder always inserts a left justified repeating tab.

To delete tabs, select a tab icon and drag it off the tab ruler to delete that tab.

To repeat tabs, ctrl-right click on a tab to toggle repeating tabs on and off. Repeating tabs are shown in bright blue with a double arrow head. All new tabs are created as repeating tabs by default.

To change tab justification, click the right mouse button over an existing tab. This is an easy way to change the justification (right justified, left justified, and centered) of a tab.

To size and position the tab, drag the tab head towards the tail of the preceding tab. Report Builder shrinks the size of the preceding tab to make room for your change. When you drag the tail of a tab towards the head of the next tab, Report Builder pushes all subsequent tabs to the right. This does not cause resizing of subsequent tabs.

To view or hide the tab ruler, choose the **View Tab Ruler** command to view or hide the tab ruler. A check mark beside this command indicates that the tab ruler is currently selected.

Menus and toolbars

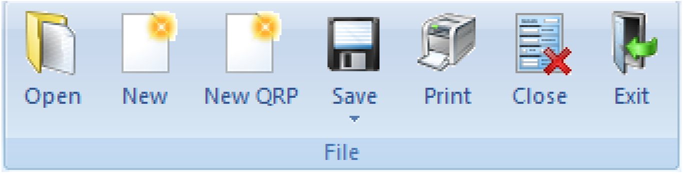
As you design your reports, you can execute commands from the menu bar, context menus (the pop-up menus that appear when you click the right mouse button), and toolbars. The menu bar contains the five available pull-down menus and their commands.

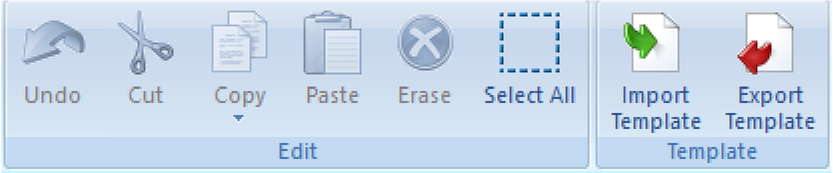
For example, the Edit menu has commands that let you cut, copy, and paste text or other objects. There are also keyboard shortcuts listed beside many of the commands.

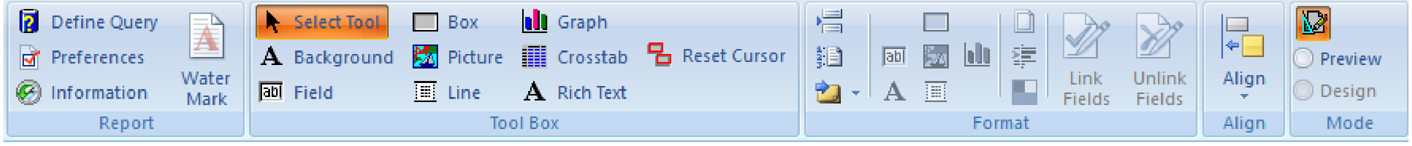
You may press **Esc** at any time to exit both the menu and the menu bar. You may get on-line help by doing either of the following:

- Select **Help, Contents** or,
- Press **F1** to see the help for that command or dialog box.

The Report Builder toolbar provides 13 of the most common functions to make it more convenient to design reports. It may be turned on or off from the **View, Toolbars** menu and moved anywhere on the screen. The Report Builder toolbar is shown below.



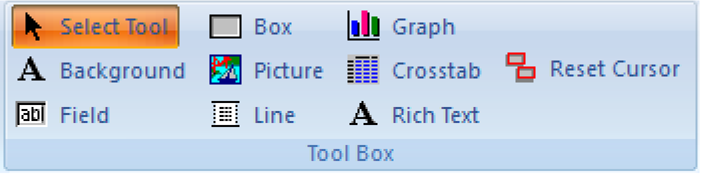




- **New Report** creates a new report and prompts you to define a query for the report.
- **Open Report** opens an existing report or query
- **Save Report** saves the current report to a file. The saved report has a default file extension of .CQT.
- **Cut** removes a selected object from the Report Builder template and places it in the Clipboard. This command works only when an object is selected.
- **Copy** copies the selected object from the Report Builder template to the Clipboard. This command works only when an object is selected.
- **Paste** inserts the contents of the Clipboard at the insertion point in the current report.
- **Copy SQL** copies the SQL generated by the query to the clipboard.
- **Print** sends the current report to the printer.
- **Import** imports a template.
- **Export** exports a template.
- **Define Query** opens the Define Query property page.
- **Toggle Mode** switches between the Report Builder’s design and preview modes.
- **Zoom** enlarges or reduces the size of the report. This command is available only in preview mode.

Tools toolbar

As you develop your report template, you add objects such as boxes, fields, lines to the work area. The Tools toolbar allows you to add these objects to your template. Like the Report Builder toolbar, the Tools toolbar can be turned on or off from the **View, Toolbars** menu and can be moved anywhere on the screen. The tools and commands on the Tools toolbar are also available in the **Report, New** menu. The Tools toolbar is shown below.

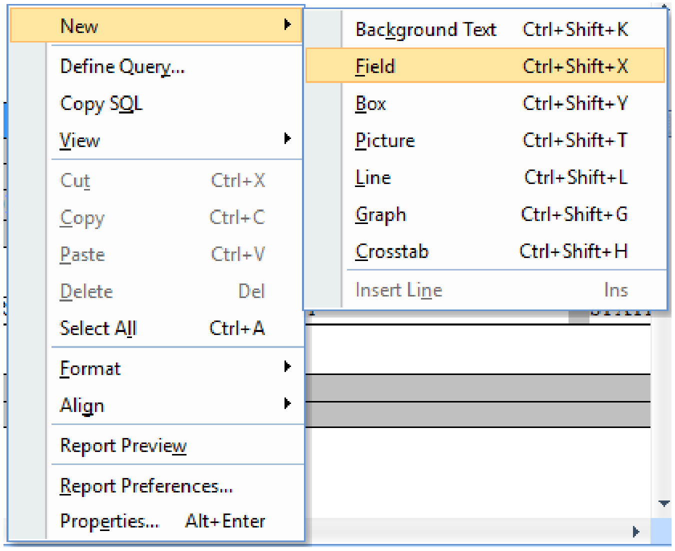


- **Select Tool** selects objects in the Report Builder template
- **Background Tool** enters background text in the template.
- **Field Tool** draws fields in the template.
- **Box Tool** inserts new boxes in the template.
- **PictureTool** adds new picture objects to your report.
- **LineTool** adds lines to the template.
- **Graph Tool** inserts a graph into the template.
- **Crosstab Tool** inserts crosstabs in the template.
- **Reset Cursor** automatically causes Report Builder to return to the selector tool after each use of another tool.

Note: *The Tools toolbar is available only in design mode.*

Context menus

If you click the right mouse button over a report object, a context menu appears. The context menus provide a copy of the same commands you would see if you pulled down a menu from the menu bar. The example of a context menu you will see in design mode is shown below. In this example, the Field tool is being selected.



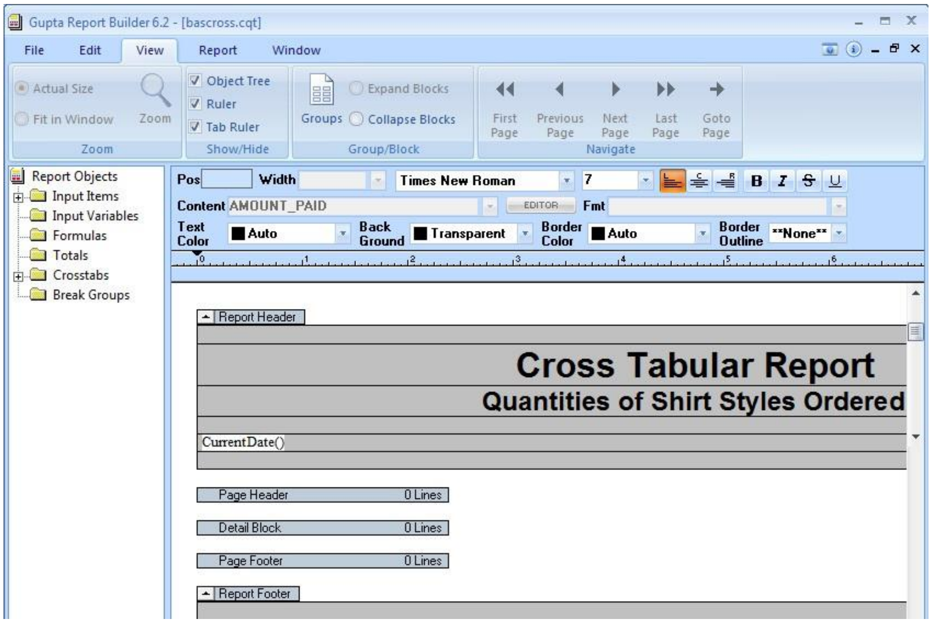
Viewing your report

View your report either in *design* mode or in *preview* mode. Each new report template begins in design mode. Preview mode shows you how your report appears when it is printed.

Design mode

Design mode displays your report template, so that you can add lines, fields, boxes, and graphics to your report layout by using tools from either the **Report** or context menus, or the Tool toolbar. You can also include input items, formulas, break groups, and other report elements by using the object tree.

A report in design mode is shown below. This same report is shown in *Preview mode* on page *3-11*.



Pos Width Times New Roman 7

Content AMOUNT_PAID Fmt

Text Color Auto Back Ground Transparent Border Color Auto Border Outline **None**

Cross Tabular Report

Quantities of Shirt Styles Ordered

CurrentDate()

To view different parts of the work area, use the vertical or horizontal scroll bars, or press the **Page Up** or **Page Down** key to view different parts of the window.

Each template shows block caption bars and objects associated with each block group. Many menu commands in the **Report** menus are enabled in design mode and disabled in preview mode.

The design window is independent of your data source, so you can design your report template before linking data to the report.

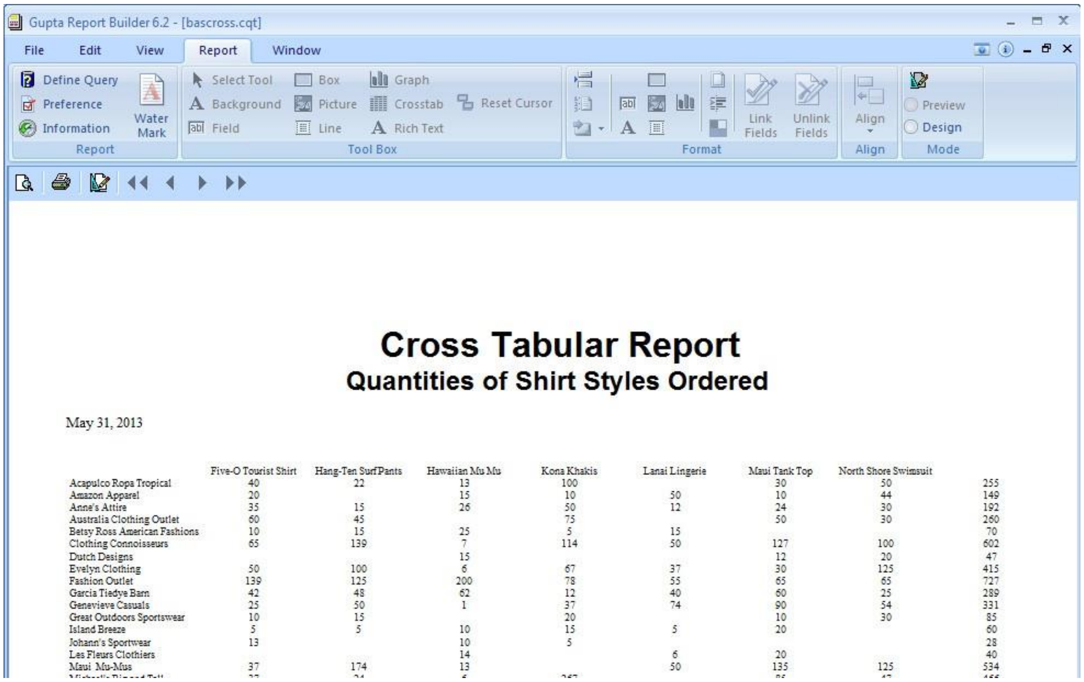
Preview mode

In preview mode, you cannot modify the layout of the report or change any of the report inputs; you can only see how the report looks when it contains data.

Viewing your report in preview mode

1. Select **Report, Report Preview**.

   The report work area is replaced by the report. If you are linked to a query, the data appears in the window. The graphic below shows the preview mode of the report shown in *Design mode* on page *3-10*.



Cross Tabular Report

Quantities of Shirt Styles Ordered

May 31, 2013

	Five-O Tourist Shirt	Hang-Ten SurfPants	Hawaiian Mu Mu	Kona Khakis	Lanai Lingerie	Maui Tank Top	North Shore Swimsuit	
Acapulco Ropa Tropical	40	22	13	100		30	50	255
Amazon Apparel	20		15	10	50	10	44	149
Anne's Attire	35	15	26	50	12	24	30	192
Australia Clothing Outlet	60	45		75		50	30	260
Betsy Ross American Fashions	10	15	25	5	15			70
Clothing Connoisseurs	65	139	7	114	50	127	100	602
Dutch Designs			15			12	20	47
Evelyn Clothing	50	100	6	67	37	30	125	415
Fashion Outlet	139	125	200	78	55	65	65	727
Garcia Tiedye Barn	42	48	62	12	40	60	25	289
Genevieve Casuals	25	50	1	37	74	90	54	331
Great Outdoors Sportswear	10	15		20		10	30	85
Island Breeze	5	5	10	15	5	20		60
Johann's Sportwear	13		10	5				28
Les Fleurs Clothiers			14		6	20		40
Maui Mu-Mus	37	174	13		50	135	125	534

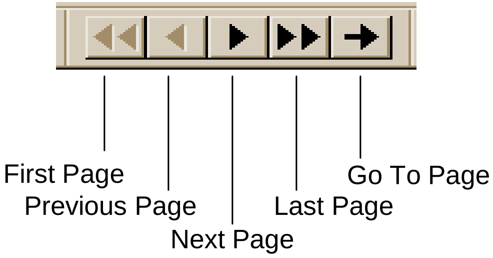
2. Select **Report, Report Design** to return to the design window.

Use preview mode to see what your report looks like when it prints. Because you cannot edit a report in preview mode, the report ruler disappears and the commands that effect the design and layout of the report page are disabled.

The **First**, **Next**, **Previous**, **Last**, and **Goto** commands in the **View** menu, are active only in preview mode to view different pages of the report. These commands are also available from the Scroll toolbar.

Scroll toolbar

In Report Preview, you can select the Scroll toolbar from the **View, Toolbars** menu. The Scroll toolbar is shown below.



The arrows let you page through the report. They correspond to the **First**, **Next**, **Previous**, **Last**, and **Go To Page** commands in the **View** menu.

First Page displays the first page of the current report.

Previous Page displays the previous page of the current report.

Next Page displays the next page of the current report.

Last Page displays the last page of the current report.

Go to Page allows you to select and go to any page in the current report.

Note: *The* ***Last Page*** *arrow or command may take some time to execute if you are working with a large amount of data.*

Report objects

Each element in the report template is an *object*. Some objects are:

- **Background Text**, such as page headers and footers, column headers, and labels of other objects.
- **Lines**, in headers, footers, or detail blocks.
- **Fields**, containing content for report inputs, literal text, and formulas.
- **Boxes** that surround groups of fields or entire blocks.
- **Pictures**, containing graphics or other objects
- **Graphs**, containing business charts.
- **Crosstab Reports** to display two-dimensional matrices of report data.

You create report objects with the object tools in the **Report** or context menu, or the tool toolbar. Use the **Format** property pages to modify the format for many of the report objects.

Background text

Use the background text tool to enter literal text in your report template. You can use background text to label:

- The objects in your report template.
- Column headers for the input items in your detail block.
- Report and page headers and footers.

Inserting a background text object

1. Select the **Background Text** command from the **Report, New** menu, the context menu, or background text tool from the Tool toolbar.

   The pointer changes to the background text icon.

2. Place the tool where you want to add a static label and press the left mouse button to insert the new object.
3. Enter the label information and press **Enter**.

Note: *Entering literal text in a field, with single quotes around the text, provides the same result as using the background text field.*

You can format background text with character formats such as bolding, italics, underline, strikeout, fonts, sizing, borders, tab setting and alignment. You can apply many of these options using the object's property page.

Rich Text

A rich text control can be populated with text of various colors, styles, sizes, fonts, etc., as well as images.

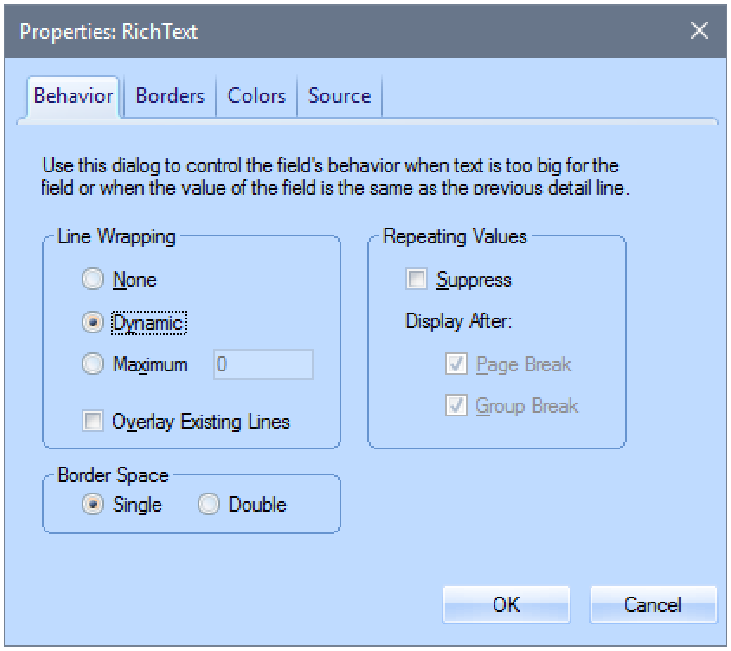
Inserting a Rich Text object

1. Select **Rich Text** from the **Report** menu, **Tool Box** section. The pointer changes to the rich text icon.
2. Place the tool where you want to add a Rich Text field and press the left mouse button to insert the new object.
3. Enter the data source and press Enter.

Changing Rich Text Properties

1. Choose the **Select** Tool from the Report menu, Tool Box section.
2. Right-click on the Rich Text object. Make sure the object is selected, and not the text within the object.

3. Select Properties.
   The Properties dialog box will display. Change properties as desired.



Use this dialog to control the field's behavior when text is too big for the field or when the value of the field is the same as the previous detail line.

Line Wrapping

○ None
● Dynamic
○ Maximum 0
□ Overlay Existing Lines

Repeating Values

□ Suppress

Display After:

☑ Page Break
☑ Group Break

Border Space

● Single ○ Double

Lines

The line tool lets you insert new lines into the report template. There are four ways to insert new lines:

- Use the Line tool in the Tools menu.
- Use the Insert Line command from the Tools menu.
- Select a block caption and press the Insert key.
- Select any item and press the **Insert** key to add a line to the bottom item selected.

Apply formatting to any line by using the **Line** command from the Report Format menu or by right clicking a line and choosing **Properties** with the selector tool to open the Format Line dialog box.

Note: *Normally the Report Header block prints at the top of page one, and the Page Header block prints at the top of all subsequent pages. However, if there are no lines present in the Report Header block, the Page Header will print at the top of page one.*

Inserting a line using the line tool

1. Select the line tool from the **Report, New** menu, the context menu, or line tool from the Tool toolbar.
   The pointer changes to the line tool icon.

2. Place the line tool where you want to add the new line.
   To insert a new line above a line, click above the center of the line. To insert a new line below a line, click below the center of the line.

3. Press the left mouse button to insert the new line.

4. Continue inserting lines as necessary.

Deleting a line

1. Choose the selector tool, either from the tool palette or the **Tools** menu.
   The pointer changes to the selector tool.

2. Select the line you want to delete from the report design window.
   To select more than one line, press and hold the **Shift** key as you click successive lines. To select all lines in a block, hold down **Ctrl** and click on the caption block. To select a line under other objects, press **CTRL** and left-click.

3. Select **Cut** from the **Edit** menu, press **Ctrl+x**, then press the **Delete** key.
   Report Builder deletes the selected line, and all the objects on the line.

Fields

Use this tool to create the fields in your report. Every field must contain content of one of the following types:

- **Report inputs,** including input items, variables, totals, and crosstabs.
- **Literal strings, created by entering text directly into the field inside single quotes.**
- **Formulas c**reated using the Formula Editor and assigned from the object tree.

Inserting a field into the report template

1. Select the field tool from the **Report, New** menu, the context menu, or from the Tool toolbar.
2. Position the pointer where you want the field to appear and click the left mouse button.
   Use the vertical line in the ruler to position the field on the line. Report Builder always creates new fields with dynamic width. Change the field size using the mouse.
3. To enter the field content value, enter the text you want in the field using single quotes around the text.
   You must enclose all literal text entries within single quotes. You can assign report inputs or existing formulas by selecting them from the object tree, then dragging them to the report.

   Note: *Using the background text field provides the same result as entering literal text in a field.*
4. Press **Enter** to save the new contents of the field.
   The field remains selected until you click elsewhere in the report window.

Resizing a field with the resizing cursor

1. Position any tool over the right or left edge of the field.
   The cursor changes to the two-headed arrow so you can now resize the field.
2. Click and drag the edge of the field to change its width.
   As you drag, a vertical line in the ruler shows your exact position.
3. Release the left mouse button when the field is the desired width.
4. Repeat Steps 2 and 3 for the opposite edge if you want to resize the other side of the field.
5. Click anywhere outside of the field to deselect it.

Deleting a field

1. Select the selector tool.
2. Select the field you want to delete from the report template.
   Press **Shift+Click** to select multiple fields.
3. Select **Edit, Cut**, press **Ctrl+x**, or press the **Delete** key to remove the selected field.

Boxes

Create boxes around a group of fields or an entire block using the box tool. Use the Format Box dialog box to move, resize, and reformat the boxes. Right click on a box to open the Format Box dialog box.

Boxes are fixed in size. If the text inside a box grows, the box does not automatically grow to accommodate the extra text. If you want a box around a field with a dynamic width or with line wrapping, use field borders instead of boxes.

Creating a box

1. Select the box tool from the Report, New menu, the context menu, or from the Tool toolbar.

2. Position the pointer where you want the starting corner of the box.
   The box must be within the boundaries of the block, so you must start drawing from within a line.

3. Click and drag the mouse, holding down the left button, to create the box.
   Report Builder displays an outline, showing the size of the box, as you drag. When you release the mouse, the gray outline is white and the box is filled until you select another object on the template, or click anywhere outside the box.

Resizing a box with the resizing cursor

1. Position any tool over the edge of the box to be resized.
   The cursor changes to the horizontal, two-headed arrow so you can resize the box.

2. Drag the edge of the box to enlarge or reduce its size.

3. Click anywhere outside of the box to deselect it.

Deleting a box

1. Select the selector tool.

2. Select the box you want to delete from the template.
   Press Shift+Click to select multiple boxes.

3. Select Edit, Cut, press Ctrl+x, or press the Delete key.
   Report Builder deletes the selected boxes.

Pictures

Create picture objects in your report template by using the picture tool. Picture objects contain graphic images.

Use the Report, Format, Picture... dialog box to move, resize, or reformat a selected picture. Right click the picture object to open this dialog box. You can assign static objects, input items, or input variables with an object data type as its contents.

Creating a picture object

1. Select the picture tool.

2. Position the pointer where you want the starting corner of the picture to begin.

You must place the picture within the boundaries of the block, so draw the picture from within a line.

3. Press and drag the mouse, holding down the left button, to create the picture.

Report Builder displays a gray outline, showing the size of the picture, as you drag. When you release the mouse, the gray outline is white and the picture is filled.

Graphs

Graphs in Report Builder provides the following business graphics functionality:

- True 3D graphs
- Statistics and curve fitting
- Formulas for the graph titles
- Elevation, rotation, and perspective control
- Font control over titles and labels
- Color controls for graph elements and backgrounds
- Axis styles

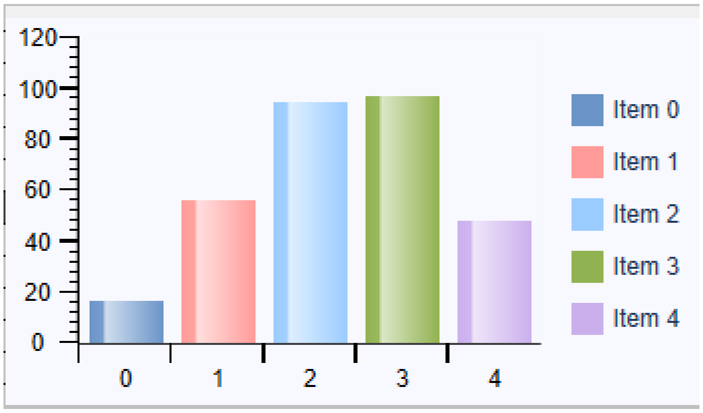
- Grid styles and control

Creating a graph object

This procedure shows you how to create and format a graph in your report.

1. Use the line tool to add several lines to the Detail Block.
2. In the design window, click the graph tool on the tool palette and drop a graph object on your report.

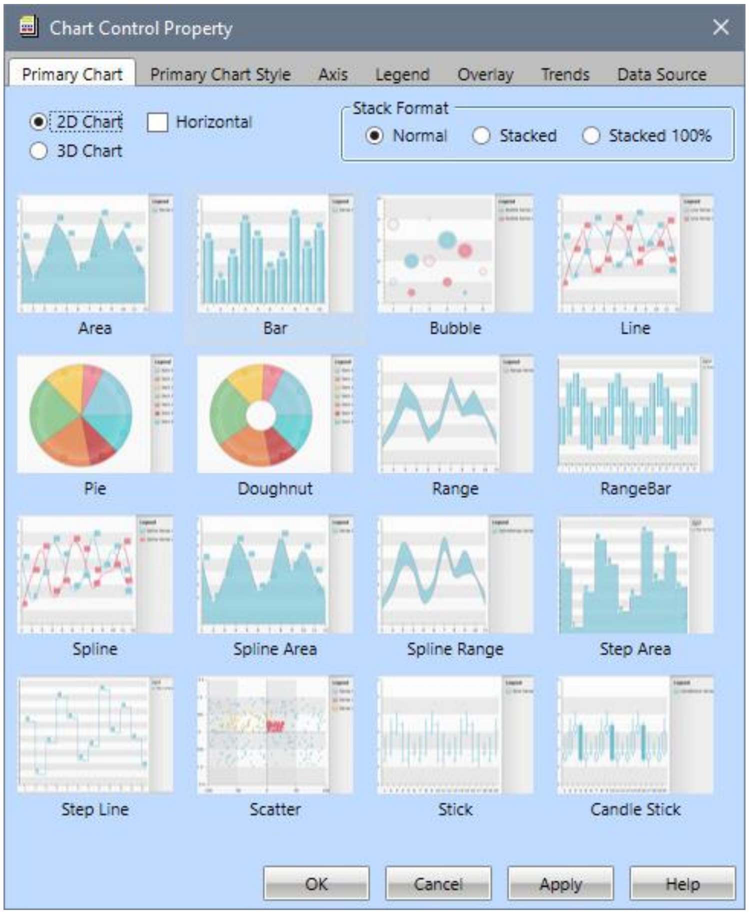
   The graph control window on your report displays a sample graph with a tool bar above it.



3. Right click on Graph control and then click on Properties menu item and then click on "QuickGraph Properties" button to open Quick Graph property dialog box.

   Note: *You can access other property pages with the other toolbar buttons, but only the "magnifying glass" button allows you to access the Data Source tab, which MUST be customized first in order for other property changes to take effect.*

4. Before making any other changes in the graph, select a data source in the Data Source tab:
5. After you have chosen a data source, use the two Labels tabs to indicate which input items you would like on each axis.
6. Customize the graph according to your preferences.



● 2D Chart □ Horizontal
○ 3D Chart

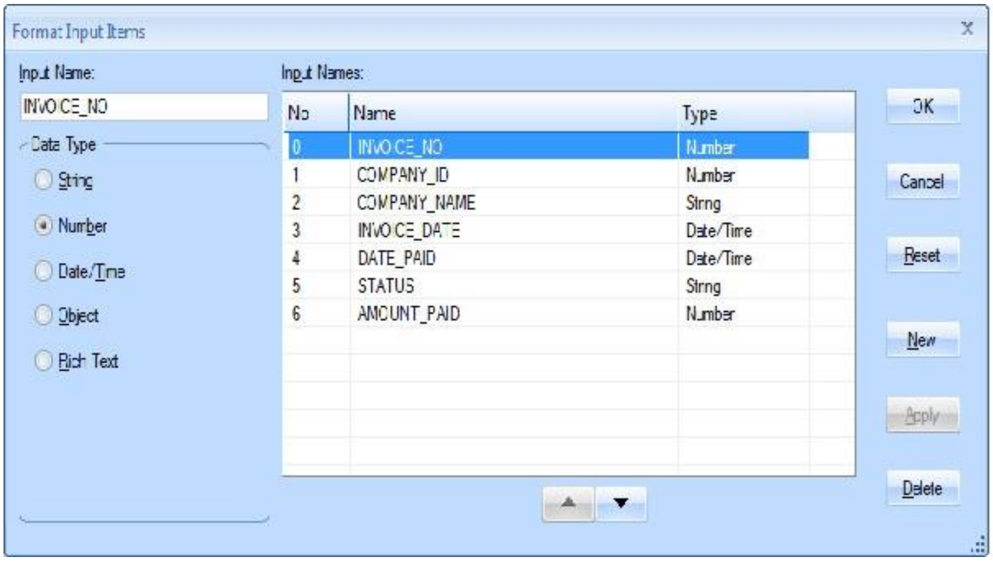
Stack Format: ● Normal ○ Stacked ○ Stacked 100%

Crosstab reports

Use the crosstab tool to open a wizard to help you create a crosstab in your report. Before creating your crosstab, you must define the input item names in the same order they appear in the data source's input rows.

Creating a crosstab object

1. Define the input items in the Format Input Items dialog box.



Input Name: INVOICE_NO

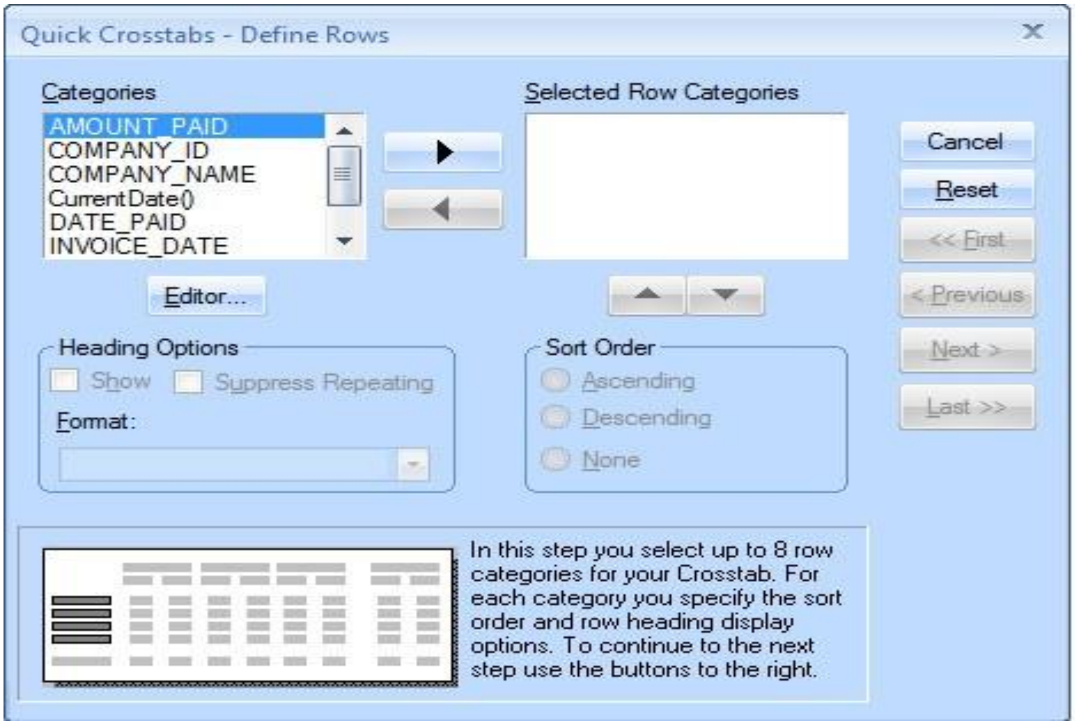
Data Type
○ String
● Number
○ Date/Time
○ Object
○ Rich Text

Input Names:

No	Name	Type
0	INVOICE_NO	Number
1	COMPANY_ID	Number
2	COMPANY_NAME	String
3	INVOICE_DATE	Date/Time
4	DATE_PAID	Date/Time
5	STATUS	String
6	AMOUNT_PAID	Number

2. Add a line in the Report Footer block.

3. Select the crosstab tool and click the tool on the line in the Report Footer block to open the crosstabs wizard. All the inputs you defined in Step 1 are listed in this wizard.



In this step you select up to 8 row categories for your Crosstab. For each category you specify the sort order and row heading display options. To continue to the next step use the buttons to the right.

4. Enter data for each step of the wizard and click **Next** to move on to the next step.

   The wizard asks you for the row, column, and cell values. In addition you will define the statistic the crosstab uses. (Sum is the default.) Select summary statistics, column and row headings, and name the crosstab.

5. Click **OK** when you are at the **Final** step to add the crosstab object to the Report Footer block.

   Report Builder adds a crosstab icon and the name of the crosstab in the crosstab object.

6. Click **OK**.

7. Select **Report, Preview** to preview the data in your crosstab.

Moving report objects

All mouse cursors become the move cursor when they are placed over a moveable object in the design window.

The only exception is when you have just created a new field. In that case, the cursor remains an insertion point until you enter text, choose a report input (literals, variables, cross tabs, or totals) or formula, or press **Enter**.

Moving a report object

1. Select the object you want to move.

   Press **Shift+Click** to select multiple objects. The cursor changes to a four-headed arrow indicating that you can move the object in any direction.

2. Drag the object to another position within the same report block, or use **Cut** and **Paste** commands from the **Edit** menu to move an object to another block.

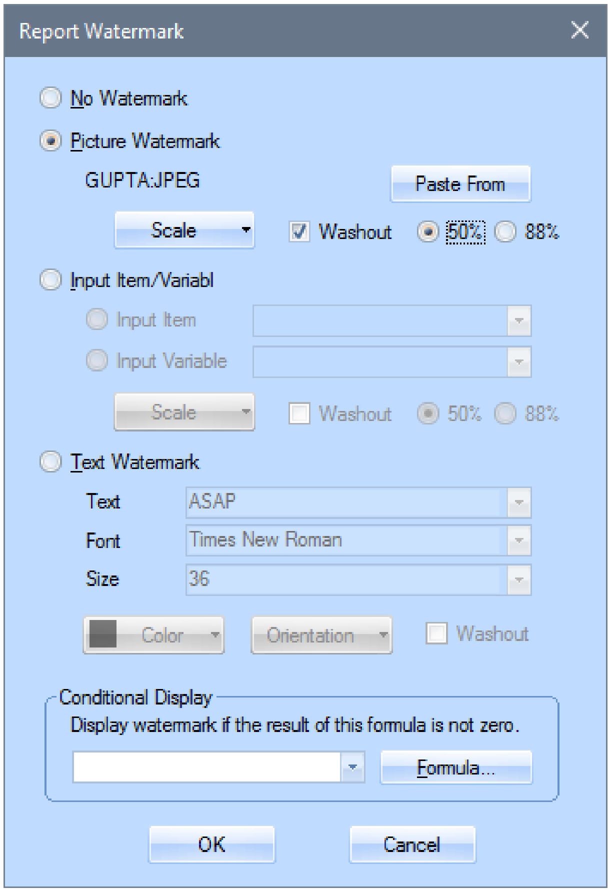
3. Release the mouse button and click anywhere to deselect the object.

Cutting, copying, or pasting report objects

Cut, copy, or paste any report object by using the commands in the **Edit** menu. For example, you can move a field from one block to another or paste it in more than one place. You can also change the field after you have cut, copied, or pasted it elsewhere in the report template.

Watermarks

You can place a watermark in the background of your report by clicking "Water Mark" in the Report Menu. In the dialog box that is displayed, select whether you would like No Watermark (default), a Picture Watermark, Input Item/Variable or a Text Watermark. You can also specify condition formula to determine whether show watermark or not.



Report Watermark

○ No Watermark

● Picture Watermark

GUPTA:JPEG

☑ Washout ● 50% ○ 88%

○ Input Item/Variabl

○ Input Item

○ Input Variable

□ Washout ● 50% ○ 88%

○ Text Watermark

Text: ASAP

Font: Times New Roman

Size: 36

□ Washout

Conditional Display

Display watermark if the result of this formula is not zero.

Picture Watermark

You can use any of the following file types as the source for a picture watermark: BMP, DIB, GIF, TIFF, PCX, WMF, and JPEG. To select a file, click "Paste From" in the Report Watermark dialog box, select the file type, and then select a file.

By default, the image is resized to fit in the background of the report. If you'd rather specify a size (in percentage of the original file dimensions), choose from the "Scale" dropdown list.

The image will automatically be faded slightly. Check the "Washout" checkbox if you would like the image to be faded more noticeably.

Dynamic Watermark

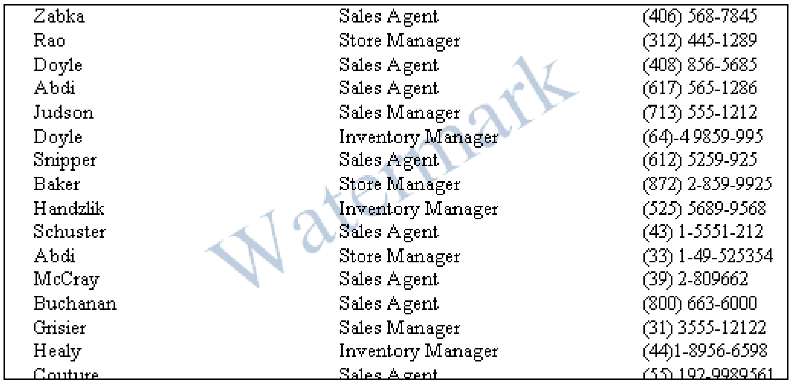
The user can dynamically set the watermark of a report via an input variable. The user can have a watermark dynamically assigned, and not hard-coded into the QRP/CQT. When the WaterMark ribbon button in ReportBuilder is clicked, the Report Watermark dialog box opens with now a fourth radio button "Input Variable," which has a combo box showing all of the input variables of the datatype "object". The user then can call the Sal function SalReportSetObjectVar to pass in the image to be used as the watermark.

Text Watermark

The text that will appear in a text watermark is specified within the Report Watermark dialog box (default text is "ASAP"). You can change this text, choose a font and size, select a color, change the vertical/horizontal orientation of the watermark, and specify whether you would like the watermark to be washed out. Unlike a picture watermark, text watermarks are NOT faded unless specified by a check in the "Washout" checkbox. In order to avoid illegibility due to report contents overlapping with a dark watermark, choose a light color and/or check the "Washout" box.

The watermark will appear in the center of the report.

***Note:** "Default" orientation of a text watermark is diagonal, as represented below.*



Zabka	Sales Agent	(406) 568-7845
Rao	Store Manager	(312) 445-1289
Doyle	Sales Agent	(408) 856-5685
Abdi	Sales Agent	(617) 565-1286
Judson	Sales Manager	(713) 555-1212
Doyle	Inventory Manager	(64)-4 9859-995
Snipper	Sales Agent	(612) 5259-925
Baker	Store Manager	(872) 2-859-9925
Handzlik	Inventory Manager	(525) 5689-9568
Schuster	Sales Agent	(43) 1-5551-212
Abdi	Store Manager	(33) 1-49-525354
McCray	Sales Agent	(39) 2-809662
Buchanan	Sales Agent	(800) 663-6000
Grisier	Sales Manager	(31) 3555-12122
Healy	Inventory Manager	(44)1-8956-6598
Couture	Sales Agent	(55) 192-9989561

Conditional Watermark

The user can display watermarks, conditionally based on the value of a report "formula." This new setting will be in the Report Watermark dialog box, opened by clicking on the Watermark button on the ribbon bar (Report ribbon group). There will be a drop-down menu with the caption "Conditional Display." The dropdown will contain the names of the report formulas. If a conditional display formula is provided, the formula will be evaluated for each report page to determine whether or not that page should display the watermark.

Designing Report Templates

This chapter first provides step-by-step procedures on how to modify templates. It describes the following procedures:

- Planning your report
- Setting up the report template
- Formatting the field contents

Planning your report

Before you even open a report template, you should have an idea of the kind of report you want to create. Do you want to generate form letters, print mailing labels, or display tabular statistics? You can create all these types of reports with Report Builder.

You should also decide whether you want to include calculated values (formulas) or graphics in your report. In addition, you must know what your source of data is. Read Chapter 2, Creating *Reports*.

The procedures in this chapter discuss issues you will want to consider when deciding what kind of report you want to design.

Getting started with report templates

This section begins the step-by-step procedures for creating a report template. The procedures you learn (defining inputs, formatting fields, and so on) are the same procedures you will use most often when you build a report template.

For additional information on using Report Builder, press the **F1** key for the Team Developer in-build help, which contains Report Builder help.

Design mode and preview mode

Report Builder has two modes; Design mode and Preview mode. You do not enter a mode until you either open a report file or define a query. While you create report templates, you need to be in Design mode. While in Design mode, you can add all report objects such as fields, lines, boxes, and graphics. You can also format these objects and arrange them as required. Design mode is also where you can link your report to data sources.

To verify that you are in Design mode, click on the **Report** menu and see if the **Design Mode** option is disabled. If so, this means it is already selected and you are in Design mode. If **Preview Mode** is disabled, then you are in Preview mode. Select **Design Mode** to continue modifying your template.

Setting up the report template

In Chapter 2, you defined queries that tell Report Builder how to populate your report. A default report is created every time you create a query. You can format this default report to display the data in an orderly fashion.

You can also create a report template without first creating a query. Using the Import and Export items in the Edit menu, you can use the same report template to format data from several different queries, as long as the query data matches the report inputs.

In this section, you tell Report Builder how to format your report template. Report Builder uses the .CQT file format which combines a query and a report template. When .CQT files are used, the query is executed, the data is fetched, and a report is generated as specified in the report template.

Report Builder also supports the older .QRP file format which just contains a report template. With .QRP files, the data for a report must be provided by the application or a Quest Query template (.QQT) file. To use .QRP files with Report Builder, use the Import and Export menu items under the Edit menu, or the equivalent toolbar buttons.

Importing a template

To start a new .QRP report, do one of the following:

- Select "New QRP" from the File menu (version 6.0 and later).

  OR

- Import the NEWREP.QRP template file located in your Team Developer directory:
  1. Select **Edit**, **Import Template** to display the Open dialog.
  2. If you use **File**, **Open** to get this dialog, you will be asked to define a query.
  3. Browse to the Team Developer #.#/Templates directory and select **NEWREP.QRP**.

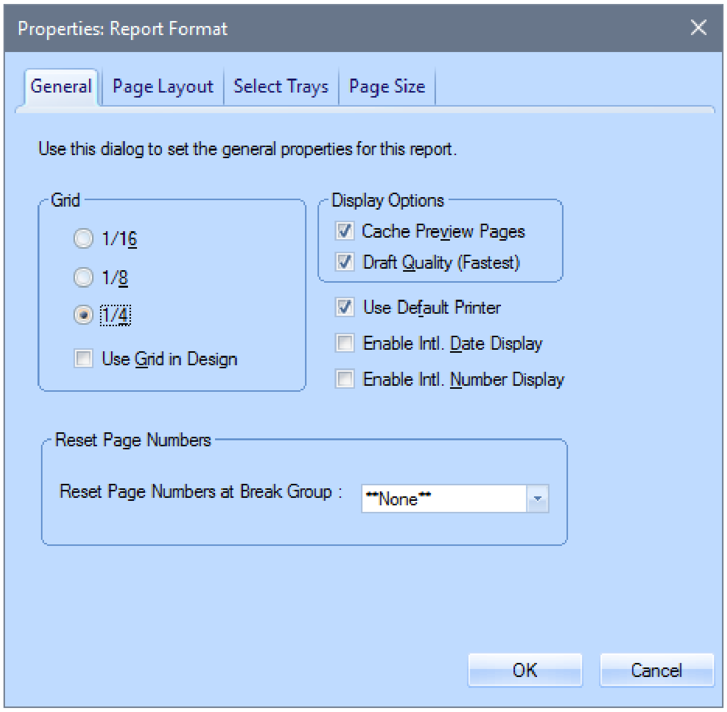
  An unpopulated report template appears.

Setting up your report page layout

The page layout specifications are those that you apply to the page when it prints or when you preview the page layout.

In this procedure, you set the page properties for your report. This information is required to begin working on a template so defaults are provided. You can change these settings at any time in Design mode.

1. Select **Report, Format Report** to display the Properties pages.



Use this dialog to set the general properties for this report.

Grid

○ 1/16
○ 1/8
● 1/4
□ Use Grid in Design

Display Options

☑ Cache Preview Pages
☑ Draft Quality (Fastest)

☑ Use Default Printer
□ Enable Intl. Date Display
□ Enable Intl. Number Display

Reset Page Numbers

Reset Page Numbers at Break Group : **None**

There are four tabbed pages available:

- **General**, to select grid and display options.

  If you do not select the Use Default Printer option, your reports will print on the last selected printer.

- **Page Layout**, to select page margins and columns for the report.

Page margins control the print area within each report. Most laser printers require at least 1/2 inch margins on all sides.

The number of columns applies to the Detail and Break Group blocks only. It has no effect on the report block groups or the page block groups.

If you specified only one column, Reports ignores the field. If you specified multiple columns, the space between each column on the page.

- **Paper Source**, to select which source (printer drawer) should be used for printing the first page and which source should be used for printing all subsequent pages.
- **Page Size**, to select paper dimensions and orientation.

  You can click on any of the available page sizes or choose **Custom** and enter a width and height if your printer can handle non-standard paper sizes.

  The portrait option displays and prints the report taller than wider. The report prints across the page. Landscape rotates the page 90 degrees. The page is wider than it is tall and is printed across the length of the page.

2. Set display options (for this procedure, use the default settings) and click **OK** to close the dialog box and save the settings.

   Notice that default settings are already selected. You can change these to customize your report template.The default settings are 8 1/2” by 11" paper, with 1" top and bottom margins, and 1.25" left and right margins on a 1/8” grid. The paper orientation of the page is portrait.

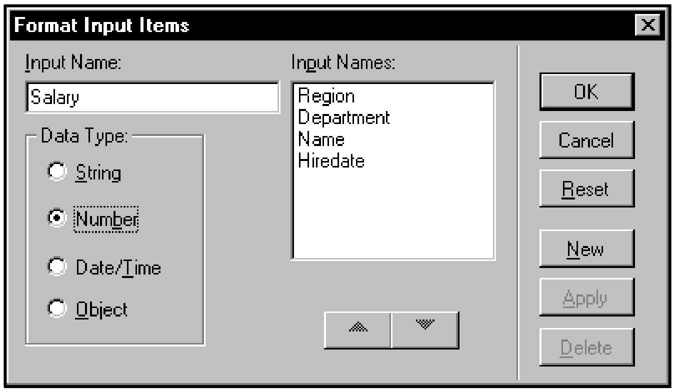
Entering input items

In this procedure, you specify the name and data type of each input item in your input row. Enter input items in exactly the same order as they appear in the input row. The information you provide is used by the report engine to populate the template with input rows from the data source.

1. Select **Report, Format, Input, Input Items** to open the Format Input Items dialog.

   Use this dialog to name, order, and assign data types to the input items.

2. Type an input name in the Input Name field, then select a data type from the radio buttons provided below it.



Input Name: Salary

Data Type:
○ String
● Number
○ Date/Time
○ Object

Input Names:
Region
Department
Name
Hiredate

Enter these names and their data types in the following order:

Input Name	**Data Type**
Region	String
Department	String
Name	String
Hiredate	Date/Time
Salary	Number

Click **New** after you enter each input item to save your entry and start the next one.

Note: *You must enter the input items in the order that they appear in the input row. If you entered your input items in the wrong order, use the up and down arrow buttons under the* ***Input Names*** *list box to re-order the list.*

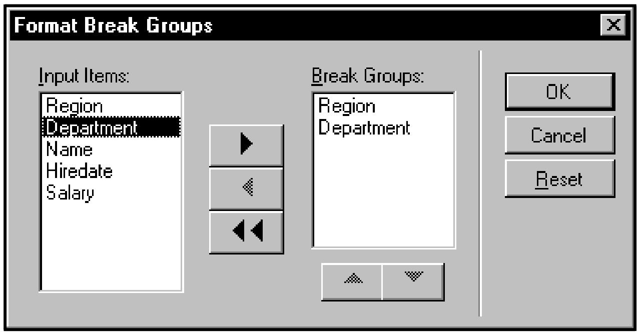
3. Click **OK** when you finish entering *all* the input items.

Entering the break groups

Break groups are determined by the order your data is sorted in the data source file. BOTH the list order of your break groups and the sort order of your input data must match *exactly.*

For example, if you want your report to break on region and department, then your input data must be sorted first by region, then by department, *before* you link the data to your report template.

1. Select **Report, Format, Break Groups** to open the Format Break Groups dialog box.



2. Select the break groups you want to use, in the correct order.

   Double-click on an item name to select the break group item; this automatically copies it to the **Break Groups** list box. You can have a maximum of eight break groups in each report template.

   For our report, select the break group items **Region** and **Department**, in that order.

   If you select break group items in the wrong order, use the arrow keys below the **Break Groups** list box to re-order them.

3. Click **OK** when you finish.

   Your report work area changes when you add new break groups. Reports adds new header and footer block captions to your report template for each break group you selected.

Adding lines and creating fields

Inserting a line

Use this procedure to insert lines in your report template.

1. Select the detail block caption by clicking on it with the selector tool.
2. Select **Report**, **New, Line** to insert a line in the block group.

Creating fields

Use this procedure to create fields in your report template. Fields can hold different types of contents.

These include:

literal text typed characters within single quotes (').
input items drag each item from the object tree in the left pane, or type them in.
formulas created by, or chosen from the Formula Editor.

Assigning literal text to a field

1. Select **Report, New, Field**.
2. Click the left mouse button anywhere on a line to add a field.

   The insertion point appears within the new field.

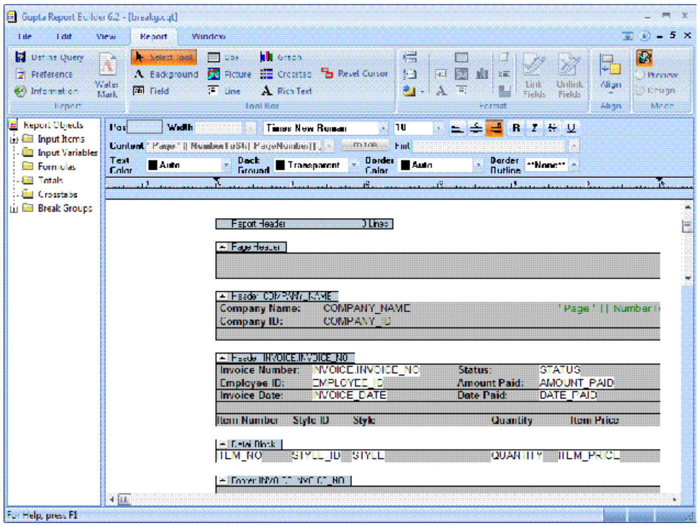
3. Type'Salaries by Region and Department' in your field (include the single quote marks) and press **Enter** when you finish entering the literal text.

   You can now see the literal text in the line.

Assigning an input item to a field

1. Double-click the **Input Items** folder in the left pane of your report template to open it.
2. Drag each item to a line in your report.

   Your report template might look like this:



Assigning a formula or a function to a field

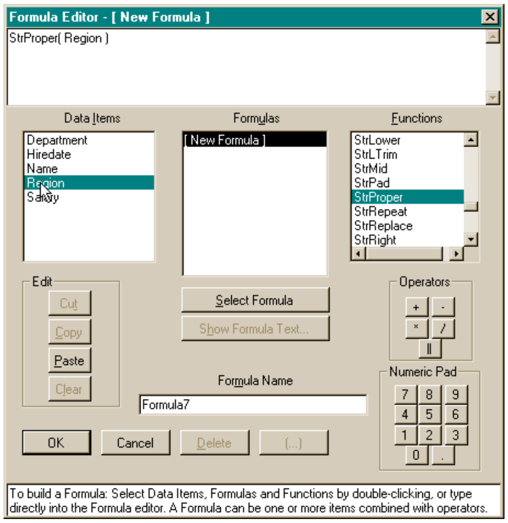
1. Insert a new line in the Detail Block, then add a new field on the line.
2. Select the field, right-click to bring up the object menu, and select **Properties**.

   The first tab in the **Properties** dialog is the **Field** tab. Click **Edit Field Formula** to open the **Formula Editor** dialog box.

3. Scroll through the **Functions** list box and double-click on **StrProper**.

   This function creates an initial cap on the first letter of the region name, and leaves the remaining letters in lower case. When you double-click on the function, the **Formula Editor** places **StrProper(String)** in the text box at the top of the dialog box.

4. Highlight the function parameter **String**, then double-click on **Region** in the **Data Items** list box.



StrProper(Region)

Formula Name: Formula7

To build a Formula: Select Data Items, Formulas and Functions by double-clicking, or type directly into the Formula editor. A Formula can be one or more items combined with operators.

This replaces the word **String** with the word **Region**.

5. Name the formula **InitCap** and click **OK** to assign the formula to your field.
6. Click OK in the Properties dialog.

   The function format is displayed as the field contents. The **Formula Name** shows in the field.

Formatting the field contents

Use the following procedures to learn how to format the field contents. These formats include:

- Assigning fonts.
- Justifying field contents.
- Bolding, underlining, etc. field contents.
- Suppressing repeating values.

For more detailed information, including formatting procedures and options, refer to the Gupta online help by pressing **F1** while the application is open.

You can do simple formatting of colors and borders quickly by using the dropdowns in the toolbar ribbon. But to get more complete formatting, such as conditional formatting, you need to use the menu items described below.

Assigning a different font

1. Select a field. Right-click on the field, then select **Properties** from the object menu.

   It is unnecessary for text to be in a field to format it. You can also select one or more fields at a time.

2. Select the **Font** tab.

   The Font list box displays all the available fonts in your system.

3. Select the font you want to use by clicking it. You can also indicate style and point size in this tab.

Conditional formatting

You can make the choice of font conditional by using the controls in the **Conditional Display** portion of the tab. Choose an existing formula or create a new one. At runtime, if the formula evaluates to TRUE (non-zero for a number, non-empty for a string), the specified font will be used; otherwise, the default font will be used. If there is nothing entered in the Conditional Display controls, the specified font will always be used.

You can also specify a font style (bold, italic, etc.), and make the font style conditional just as described above.

In the Colors tab in the same dialog, you can make each color selection conditional in the same way.

Justifying the field contents

1. Select one or more fields.
2. Right-click on the field, then select **Properties** from the object menu. Observe the Justify radio button group in the **Field** tab.

Suppressing repeating values

1. Select one or more fields.
2. Right-click on the field, then select **Properties** from the object menu. Select the **Behavior** tab.
3. Check the **Suppress** check box and indicate whether at page break

   When you select this option, Reports prints the first occurrence of the value, then suppresses all repeating occurrences until the value changes.
4. Click **OK** to suppress the repeating values and close the dialog box.

Exporting (saving) your template

It is a good idea to periodically save your report template. You must name your file the first time you save the report template.

1. Select **Edit, Export**.
2. Select the destination directory for your new report template.
3. Type in **Region** as the name of the new report in the text box.

   You do not need to enter the extension. Report Builder automatically adds a file extension type of **.QRP** when it saves the report.
4. Click **Save** to save the report and return to your open template.

Creating Formulas

This chapter provides instructions on how to use the Formula Editor to create formulas for the report fields. Specifically, this chapter describes:

- The types of functions available.
- How to create a formula.
- How to edit a formula.
- How to assign a formula.
- Aggregate and non-aggregate functions.

About the Formula Editor

The Formula Editor is a tool in Report Builder that lets you create formulas in report fields. A formula can be a mathematical expression or statement that is made up of arithmetic operators, functions, data items, and constants. A formula can also be string or date/time.

The Formula Editor lets you:

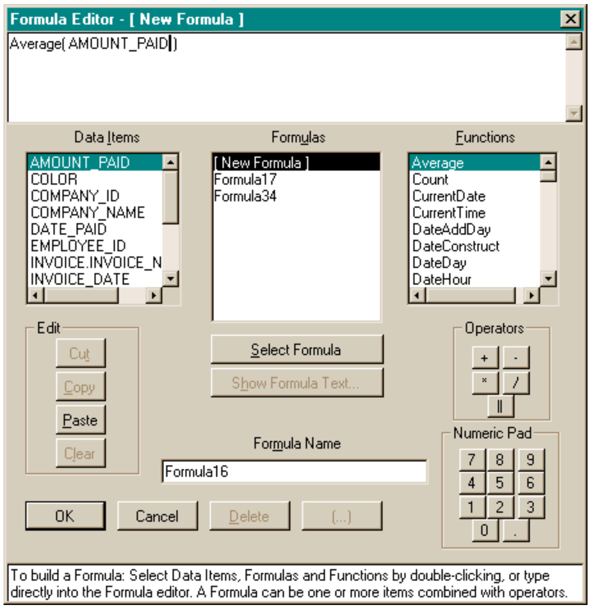
- Create formulas for the report fields.
- Create formulas to control lines and blocks in cross tabs and totals.
- Modify long literal text in a report field.

The formulas you create with the Formula Editor can be:

- Assigned to a field in your report template.
- Displayed in their own columns of a query result set.
- Passed as an argument to a query or report function.
- Simple or complex mathematical formulas.

Formula Editor features

The Formula Editor lets you create formulas for your reports using report functions. Refer to the Gupta online help for a complete list and description of functions you can use with the Formula Editor.



Formula Editor - [New Formula]

Average(AMOUNT_PAID)

Formula Name: Formula16

To build a Formula: Select Data Items, Formulas and Functions by double-clicking, or type directly into the Formula editor. A Formula can be one or more items combined with operators.

Edit Box

You can use this area to enter your formula text. You can either enter the text yourself, or double-click on the contents of any of the list boxes to enter the selected item in the edit box.

Data Items

This list box shows a list of the input items, variables, input totals, and input cross tabs used by your report. Double-click on an item to add it to the formula you are building in the edit box.

Formulas

This list box shows the formulas you defined for your report.

To modify a formula in this list box, select the formula, and click **Select Formula**. The formula text appears in the edit box at the top of the screen. Modify the formula as needed, and click **OK** to save the formula, and close the dialog box.

Formulas can be used as parameters for functions, or as part of another formula. Formula results can be used in the same way you use input items. You can display them in a report field, use them as parameters for functions, apply picture formats to them, or use them as part of another formula.

Functions

This list box provides a list of report functions from which you can choose.

To get help on each function as you are using it, select the function from the **Functions** list box, and press **F1**. Report Builder displays the help topic for the selected function.

Edit

These buttons are used to cut, copy, or paste text in the Formula Editor Edit box.

Cut cuts the selected portion of the formula to the Clipboard.

Copy copies the selected portion of the formula to the Clipboard.

Paste pastes the contents of the Clipboard at the insertion point in the edit box.

Clear deletes the selected text without copying it to the Clipboard.

Operators

The operators palette provides the most common operators used in formulas and equations.

Arithmetic operators require numeric values on either side of them. They do not work with Date/Time values, or with string data types. You can:

- Click the plus sign (+) button to insert a plus sign to the right of the insertion point.
- Click the minus sign (-) button to insert a minus sign to the right of the insertion point.
- Click the asterisk (*) button to insert a multiplication sign to the right of the insertion point.
- Click the virgule or forward slash (/) button to insert a division sign to the right of the insertion point.
- Click the double parallel lines (||) button to insert a string concatenation operator. Concatenates two or more strings together to form a single string. You can only use this operator with String data types on either side of the operator.

Formula Name

Use the **Formula Name** text field to name the current formula. After you name the formula, click **Select Formula** or **OK** to apply the name change to the formula.

Numeric Pad

This pad is equivalent to the number pad on your keyboard. You can use it to enter numeric values in the edit box. Alternatively, you can use the number pad on your keyboard to directly enter the numbers with **Num Lock** on.

Select Formula

This button serves two purposes:

- It displays the formula text in the edit box. You can select a formula from the Formulas list box, then click the Select Formula button to display it in the edit box.
- It saves formula changes and continues to let you work in the Formula Editor after creating or modifying a formula.

Show Formula Text

Click this button to open the **Formula Text** dialog box. This floating dialog box lets you view the syntax of any formula in the **Formulas** list box. You cannot edit the selected formula until you click **Select Formula** again.

(...)

Click this button to place parentheses around the selected portion of the formula.

Delete

Click this button to delete the selected formula from the **Formulas** list box.

OK

Click **OK** to execute the changes to the formulas and close the dialog box.

Cancel

Click this button to cancel any changes and close the dialog box.

Using the Formula Editor

Opening the Formula Editor

You can right click on a formula in the object tree in the left pane of Report Builder, then select **New** from the context menu, to bring up the Formula Editor. Or follow these steps:

1. Open a report in design mode. If your report is in preview mode, select **Report, Report Design**.
2. Right click on a field and choose **Properties**.
3. Click on the **Edit Field Formula** button.

Creating formulas

Formulas are created in the scrollable edit box that stretches across the top of the **Formula Editor** dialog box. You can type directly into this text box or double-click data items, operators, functions, and other formulas from the various list boxes to enter data in the edit box.

Creating a formula

This procedure assumes the Formula Editor is open. If not, open it now. Refer to the previous procedure for instructions on opening the Formula Editor.

1. Select a function from the **Functions** list box.

Double-click on the function name to display it in the **Formula Editor** edit box. One or a series of parameters also appears in the edit box with the selected function. Each data type represents a parameter that must be defined. For example, “Number” means you need to enter a data item that is a number data type.

2. Enter the parameters required (if any) by the selected function.

   Replace each parameter with the appropriate value. Refer to the specific information on each function in the online help, for parameter details.

   You can use any of the data items from the **Data Items** list box or you can enter a literal string, date, or number.

3. Enter the formula name in the **Formula Name** text box.

   A default name already exists (Formula1, Formula2, etc.). You can keep this name or give it a more descriptive one.

4. Click **OK** when finished.

   If you assign the results of the function to a report field, the field contains the format of the results, while the **Content** box shows the formula name or the formula structure.

Creating formulas with operators

The following procedures tell you how to create a formula with operators. Operators let you add, subtract, multiply, divide, and concatenate input items, dates, strings, numbers, or other formulas. Arithmetic operators can be combined with functions. The operands of a mathematical statement can have different data types. Below are some examples:

- DateTime + Number = Date/Time
- DateTime - Number = Date/Time
- DateTime - DateTime = Number of days

The Date Arithmetic keywords are:

- DAY(S)
- HOUR(S)
- MINUTE(S)
- SECOND(S)
- MONTH(S)
- YEAR(S)

Arithmetic operators do not work on character values. The concatenate operator only works with character values.

Suppose you want to concatenate the NAME column in GUEST_WT with the string, *is a good sales prospect*. When you concatenate a string, you are adding to it or linking it with another string. To add the string, *is a good sales prospect*, you need to create a formula with the concatenate operator.

Creating a formula with an operator

This procedure assumes the Formula Editor is open. If not, open it now.

1. Select an item from the **Data Items** list box.

   Double-click on the name to select and move it to the formula edit box at the top of the dialog.

2. Click on an operator in the **Operators** group box.

   The operator appears next to the data item you selected in Step1.

3. Select a second item from the **Data Items** list box by double-clicking on the name to select and move it to the formula edit box.

Be sure items in the operation have the same data type. Date/Time and number combinations are valid.

4. Enter a name for the formula in the **Formula Name** text box, if required.

   Report Builder already assigned a name to the formulas as Formula1, Formula2, etc. You can keep this name or give it a more descriptive name.

5. Click **OK** to save the changes and close the Formula Editor.

Editing formulas

Sometimes you may want to modify a formula you already created. The Formula Editor contains an edit box and editing buttons that let you copy already created formulas, paste them into the edit box, delete or add sections to eliminate the need of retyping entire formulas over.

The following procedures assume you created some formulas and that the Formula Editor is open.

Editing an existing formula

1. Select a formula name from the **Formulas** list box.

   Click a formula name once to highlight it. If you decide that you want to create a *new* formula and not edit an existing one, select **New Formula** instead.

2. Click **Select Formula**.

   This makes the formula current and displays the formula in the edit box.

3. Make any required changes to the formula.

   You can use the **Copy**, **Cut**, or **Paste** buttons when editing. The information in the text box must be selected before the edit buttons are enabled. You can also type any changes directly into the edit box.

4. Click **OK** to save the changes and close the Formula Editor.

Parenthetical expressions in formulas

When you have three or more data items listed in the edit box of the Formula Editor, you might find it necessary to set some of the items off in parentheses. By doing so, Report Builder differentiates which calculation or function to perform first and last by evaluating the inner formula before the outer formula, unless there is more than one set of parentheses.

Adding a parenthetical expression to a group of formulas

1. Define a formula with three or more data items, mathematical operators, or functions in the **Formula Editor** dialog box and select the part of the formula you want in parentheses.

   With the mouse button held down, drag over the selected items in the formula text box.

2. Click **(...)**.

   The selected portion of the formula becomes enclosed in parentheses.

3. Make any additional changes and click **OK**.

Assigning formulas

When you assign formulas to a report object, you are telling Report Builder where to put the results of the formula.

Assigning a formula to a report field

1. Select or create a field in which the results of the formula are to be displayed.
2. Right click on a formula in the object tree in the left pane, then select **New** to open the Formula Editor.

3. Create a formula for the field and return to the report template.

   Be sure the field in step 1 is still highlighted.

4. Select the formula in the object tree in the left pane and drag it to the field in your report.

   Report Builder applies the formula you select to the highlighted field. The field contents show the formula or the format of the formula. When you print the report, the results of the selected formula are printed in the selected field.

Note: *You can condition the printing of lines based on the value of a formula. If you use a formula that prevents the printing of page header lines on page one of a report, but page header lines do print on some of the subsequent pages, there may be a problem with the appearance of data printed in the detail blocks. Report Builder determines how much space is available for the detail blocks based on the layout of the first page of a report. If subsequent pages need more space for header printing than page one does, some detail data could be lost "behind" the header data.*

Functions

With functions, you can retrieve a value for a data item, string, number, date, or time. Every function you use has a unique name that identifies the operation it performs. Each function contains from zero to several parameters. Parameters are denoted with data type in the function. The parameters can be strings, numbers, dates, the value of a data item, or the result of other functions. Parameters define what kind of information the function requires. Report Builder provides the following types of functions:

- **Aggregate** functions let you summarize data for entire columns by calculating a single value from an entire column of data. Aggregate functions can be applied to input items only. To create aggregate statistics on formulas, use Totals.
- **Non-Aggregate** functions return a value for each row in a column instead of calculating a single value from a column group or a break group.
- **String** functions manipulate string data types. The output of a string function can be a string, date, or a number. Some functions yield a TRUE or FALSE. TRUE is expressed as the number one (1) and FALSE is expressed as zero (0).
- **Date/Time** functions return information about date and/or time values or they can calculate a date/time result. A date/time parameter can either be a date input item or function.
- **Math** functions take numeric values as parameters. The parameters can be number input items, literals, or functions.
- **Special** functions provide special capabilities such as selecting a value based on a correlation, assigning page numbers to a report, and sorting with an international character set.

Description of functions

The Formula Editor provides a large collection of functions to aid you in creating complex formulas. A brief description of each report function is provided in this section. The functions are grouped into two categories, *aggregate* and *non-aggregate*. Aggregate functions accept only input items as input parameters. Non-aggregate functions accept input items, numbers, totals, variables, cross tabs, literals or the results of other functions as input parameters.

Aggregate functions

Average	Returns the average of a single column within a break group.
Count	Returns a count of the number of input rows read for a single break group.
Maximum	Returns the maximum value of a column. Applies to items within a single break group.
Minimum	Returns the minimum of a group of column values. Applies to items within a single break group.

ReportAverage	Calculates and returns the average of a single column for the entire report.
ReportCount	Returns a count of the number of input rows read for the entire report.
ReportMaximum	Returns the maximum value of column for the entire report.
ReportMinimum	Returns the minimum value in a group of column values for the entire report.
ReportSum	Returns the sum of the values in single column for the entire report.
Sum	Returns the sum of the values in a column for break groups.

Non-aggregate functions

CurrentDate	Returns system-generated current date. The date will be formatted in the locale language specified under Regional Settings, if .the "Enable Intl Date Display" checkbox has been checked from the Format Report menu item, General tab.
CurrentTime	Returns the system-generated current time.
DateAddDay	Adds or subtracts the specified number of days from the indicated start date.
DateConstruct	Returns a date/time value using the input parameters that you provide.
DateDay	Returns a number representation of the day of the month (1 to 31) from the input date/time value.
DateHour	Returns a numeric representation of the hour (0 to 23) from the input date/time value.
DateIFF	Returns a specific date based on the value provided by the *nInput* parameter.
DateMinute	Returns a numeric representation of the minute (0 to 59) from the input date/time value.
DateMonth	Returns a numeric representation of the month (1 to 12) from the input date/time value.
DateMonthBegin	Returns a date/time value with the first day of the month represented by the input date.
DateMonthEnd	Returns a date/time value with the last day of the month represented by the input date.
DateSecond	Returns a numeric representation of the seconds (0 to 59) from the input date/time value.
DateToStr	Converts a date/time parameter to a value with a string data type, and returns a string literal.
DateToStrPicture	Formats the date with the picture format you specified, and returns this formatted string.
DateToStrPictureIntl	Formats the date with the picture format you specified, and returns this formatted string. The output date is converted to locale language as specified in Regional Settings.
DateYear	Returns a numeric representation of the Year from the input date/time value.
NumberAbsolute	Returns the absolute value of a numeric input.
NumberCountryFmt	Returns a string representation of the input number, in the default international format set by Windows.
NumberIFF	Returns a number, in the default international format set by Windows.
NumberMod	Returns the numeric modulo of the function. That is, it returns the remainder of a division operation.

NumberRound	Returns the input number rounded to the specified precision.
NumberToCurrency	Converts the input number to the default international currency format set in Windows.
NumberToStr	Converts the input number to a string format, with the specified number of decimal places.
NumberToStrPicture	Returns a string value of a number formatted in the specified picture format.
NumberTruncate	Truncates the input number to the specified number of decimal places.
PageNumber	Returns the current page number of the report.
Power	Returns the input number raised to the specified number.
ReportDevice	Returns the name of the printer device to which your report is currently connected.
ReportDriver	Returns the name of the printer driver to which your report is currently connected.
ReportFileName	Returns the filename of your current report.
ReportPort	Returns the name of the physical port to which your printer is currently connected.
StrCase	Searches a comma delimited string, and returns the substring specified by the case element.
StrCompare	Compares the contents of String1 to the contents of String2.
StrlFF	Returns a specific string based on the value provided by the value parameter.
StrLeft	Extracts and returns the specified number of characters from the left side of the input string.
StrLength	Returns the length of the string.
StrLower	Returns the input string with all characters in lower case.
StrLTrim	Removes the leading white space from the input string, and returns the new value.
StrMid	Returns a substring of string, of the length specified by you, and begins extraction at start.
StrPad	Maintains the string length at the specified size by either truncating the string, or adding blanks to its length.
StrProper	Starts each word in the input string with a capital letter, followed by lower case letters.
StrRepeat	Returns a value where the input string is repeated the specified number of times
StrReplace	Returns a string where a specific section of the input string has been replaced with the replacement string.
StrRight	Extracts and returns the specified number of characters from the right side of the input string.
StrRTrim	Returns the input string with all trailing white space removed.
StrScan	Searches for a specified character or characters and returns its location (offset) in the input string.
StrSpaces	Returns a string with the specified number of blanks.
StrTabColSuppress	Returns a string with repeating column values suppressed.
StrTabRowSuppress	Returns a string with repeating row values suppressed.
StrTabSeparate	Returns a tab separated string, with a tab replacing each space between words.

StrToDate	Converts a string to date/time format.
StrToNumber	Converts a string to number format.
StrTranslate	Converts a string to number format.
StrTrim	Returns a string with all extra white space removed (trimmed).
StrUpper	Capitalizes all the letters in the input string.
TotalPages	Returns an integer representing the highest page number in the entire report. Note that if you use the Reset Pages feature in the Format Report dialog, General tab, then this number represents the highest page number for the current break group only. Note that input items and variables can not be used in report header or footer.
WeekDay	Returns the week day of the date as a number.
XTabGetColCount	Returns the number of columns in a tab delimited matrix.
XTabGetColHeadings	Returns a tab separated string of column names for the cross tab matrix.
XTabGetRowCount	Returns the number of rows in a matrix.
XTabGetRowHeadings	Returns a tab separated string of row names for the cross tab matrix.

Report Programming with ActiveX

This chapter provides a reference for Report Builder's ActiveX interface, helping you program reports using Gupta Team Developer. It discusses the following topics:

- Report Builder and development tools
- Design options
- Creating the report window object
- Activating the report window object
- Automation Object Hierarchy
- Using Report Builder ActiveX from the SQLWindows Controls Palette

The *Report Builder ActiveX interface tutorial* on page *7-53* shows you how to build a report that incorporates features of the ActiveX interface.

Report Builder and development tools

You can use Report Builder in conjunction with a number of application development tools, such as Gupta SQLWindows and Visual Basic. The tutorial in chapter 7 assumes you are using SQLWindows.

Using Report Builder with SQLWindows

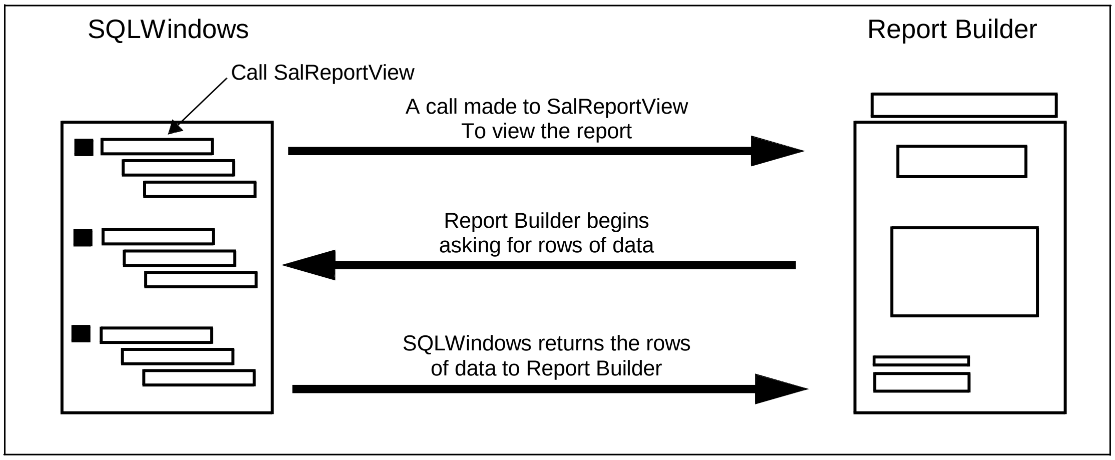
SQLWindows calls report templates through the use of SAL (Scalable Application Language) function calls. With this interface, SQLWindows can easily print, display, or otherwise interact with the templates you create.

When you are ready to create a report, first design a template in Report Builder, then use various function calls to produce different results. For instance, you can use SalReportPrint to print a report, or SalReportView to view a report on screen.

How does it work?

Report Builder can request and then receive data from SQLWindows applications, perform calculations on the input data, format the data, and then generate a report for printing or viewing.

For example, suppose a SQLWindows application contains data for a mileage log. In this situation, you can create a report template that defines how you want the data to appear. You control the font type and size, any sizing conventions, and whether or not to add pictures (bitmaps) with the report. When SQLWindows makes a call to SalReportView, for example, SQLWindows displays the report using the information in the report template.



Because the report template and the SQLWindows application are independent of each other, you do not need to create one before the other. The SQLWindows application uses a SalReport function to specify when in the application to start generating a report.

After you design the report template, export it as a .QRP file. When SQLWindows calls the report engine, it is requesting a report based on the template you designed.

Design options

The report window object in SQLWindows exposes methods in an ActiveX automation server. You have a great deal of flexibility in how you use these methods in reporting activities. You can control exactly what a user can or cannot do with a report. Some approaches you can take in designing report applications are suggested below.

- In the simplest case, you can use the report window's Define Query dialog at designtime, and run the report at runtime, hiding the report window's toolbar.

  SQLWindows stores both the report template and the query in the outline. The template corresponds to a Report Builder 1.1 *.QRP file. The template and query together correspond to a Report Builder 1.5 *.CQT file.

- To give the user more flexibility, you can create an initial report at designtime and display the toolbar at runtime and then, for example, let the user change the content of the report through the Define Query dialog, change the formatting of the report, or add computed values.
- Instead of exposing the Define Query dialog at designtime, you can display a custom dialog at runtime where you gather information from the user that you use, for example, to build a WHERE clause in a SELECT statement.
- If the data source is not a SQL database, you can expose the toolbar and let the user design the report at runtime. The application would take the report, export it to an *.QRP file, and then call SalReport* functions to populate the report with the data.

Creating the report window object

To follow this example, you must have installed Gupta Team Developer and must be familiar with use of the outline.

To use the Report Builder ActiveX automation server, add its include library:

1. Select the Libraries item in the outline.
2. In the Add Next Level list in Coding Assistant, select "Report Builder".
   SQLWindows adds a File Include statement to the outline with the name of the
   Report Builder *.APL file.

To create a top-level instance of the report window, create an instance of cReportBuilderWindow as you would create an instance of any other top-level window class. For example, you can select cReportBuilderWindow from the New submenu or from the Coding Assistant.

To create a child instance of cReportBuilderWindow, click its button in the ActiveX toolbar and draw it on a form window or dialog as you would any other child object class.

Activating the report window object

To activate the report window object, double click it. Once is it activated, you see the Report Builder toolbar.

Automation Object Hierarchy

Report Builder ActiveX Automation Objects offer an extensive ActiveX interface to Report Builder which allows any ActiveX Automation container with programming support to create and run queries and reports. The Report Builder Document automation object is an ActiveX class. Each Report Builder ActiveX Automation Object, with the exception of the ReportBuilderDocument automation object, is represented by a functional class. Each functional class has member functions, which are called methods. The automation interface is structured in such a way that virtually every component of a report—fields, lines, blocks, groups, inputs and query definitions—is represented by an automation object.

Below is a list of Report Builder's automation objects, with indentation indicating ownership.

```
ReportBuilderApplication
ReportBuilderDocuments
ReportBuilderDocument
  ReportBuilderInput
  ReportBuilderVariable
  ReportBuilderTotal
  ReportBuilderXtab
  ReportBuilderExpression
  ReportBuilderGroup
    ReportBuilderBlock
      ReportBuilderLine
        ReportBuilderField
      ReportBuilderPicture
  ReportBuilderQueryTable
  ReportBuilderQueryColumn
  ReportBuilderQueryJoinkey
  ReportBuilderQueryConditions
  ReportBuilderQueryHaving
  ReportBuilderQueryOrderby
```

ReportBuilderApplication automation object

The ReportBuilderApplication automation object can be created from COM. It represents the Report Builder application. When a ReportBuilderApplication automation object is created, Report Builder is launched with no open reports.

Methods

Name	Purpose
ActiveDocument	Returns the ReportBuilder.Document object for the active document.
Documents	Returns the ReportBuilder.Documents object.
Hide	Hides the Report Builder main window.
Quit	Shuts down Report Builder.
Show	Displays the Report Builder main window.

ReportBuilderDocuments automation object

The ReportBuilderDocuments automation object is derived from the ReportBuilderApplication automation object. Using this object, you can create new documents, open existing documents, and locate an already open document.

Methods

Name	Purpose
Add	Adds and returns a new empty ReportBuilder.Document.
Application	Returns a ReportBuilder.Application object.
Count	Returns the count of documents.
Item	Returns the ReportBuilder.Document by index or name.
Open	Opens a report file and returns the ReportBuilder.Document object.

ReportBuilderDocument automation object

The ReportBuilderDocument automation object represents the main Report Builder automation interface. In Report Builder automation, the report document is the top- level embedded object which is placed in a form to create a report. The ReportBuidlerDocument object contains all the top level calls for both the query and report side of the report document.

ReportBuilderDocument event interface

The ReportBuilderDocument object has an event interface. This interface creates events for the report generation notifies.These events are fired whenever report pages are generated (when the report is viewed or printed).

The ReportBuilderDocument event interface can fire the events shown in the table below.

Event	Fired when
GenerationNotify	Each block is generated for a page when a report is previewed or printed
FetchFirst	First report input data fetch when a report is previewed or printed
FetchNext	Each fetch of report input data after the first fetch
FetchInputData	Each report input for each row fetch

Note: *The fetch events are fired only if the user has called the document's SetFetchOverride member.*

Methods

Name	Purpose
AddColumnFormula	Adds a formula to a column in the report
AddCondition	Adds a query condition object to the report
AddGroupby	Adds a group by clause to the report
AddHaving	Adds a query having an object to the report
AddJoinkey	Adds a query join key object to the report
AddOrderby	Adds a query order by object to the report
AddTable	Adds a query table object to the report
AppendReportInput	Adds an input item to the end of the list of input items in the report
AreLongsInQuery	Indicates that there are long varchar columns in the report query.
CloseConnection	Closes the database connection
CompileQuery	Forces a compile of the query
CreateReportBreakGroup	Creates a new break group object

CreateReportBreakGroupID	Creates a new break group ID: a unique identifier for the break group
CreateReportExp	Creates a new expression object to be used in the report
CreateReportGroup	Creates a new group object
CreateReportSkeleton	Creates a “skeleton,” which is a default report window with report, page, and detail groups
CreateReportTotal	Creates a new Total object
CreateReportVariable	Creates a new Variable object
CreateXTab	Creates a new cross tab (XTab) object
DefineQuery	Displays the Report Builder Define Query dialog
ExecuteQuery	Executes a query
ExportReportTemplate	Exports an existing Report Builder template
GetAccessName	Gets the database access name
GetAvailableColumns	Gets a comma separated list of table names and a count of the number of tables available in the database to which the report is connected
GetAvailableTables	Gets a comma separated list of columns and a count of the number of columns available in the database to which the report is connected
GetCanPrint	Determines if there is a printer defined for the report to print to
GetColumn	Gets a query column object from a query
GetColumnCount	Gets the number of columns in the query
GetColumns	Gets the number of columns in the report
GetColumnsGutter	Gets the width of the space between columns
GetColumnWidth	Gets the width of a column
GetCondition	Gets a query condition object
GetConditionsCount	Gets the number of conditions in a query
GetCurrentPage	Gets the current page number
GetDatabase	Gets the name of the database to which the report is connected
GetDefaultAdjust	Gets the current default text adjust value
GetDefaultFont	Gets the default font and the font attributes of the report
GetDescription	Gets the report file description
GetFastDisplay	Gets the Fast Display property setting
GetFileName	Gets the file name used to save the report
GetGrid	Returns the Report Builder grid setting
GetGridUnits	Gets the unit of measure of the grid marks
GetGroupby	Gets a Group By column from the report
GetGroupbyCount	Gets a count of the number of Group By columns in the report
GetHaving	Gets a Having object from the report
GetHavingCount	Gets the total number of queries having objects in a report
GetInputs	Gets a comma separated list of inputs items and a count of the number of input items in a report

GetInputFromName	Gets an input item using its name as an identifier
GetJoinkey	Gets a join key from a query
GetJoinkeyCount	Gets the total number of join keys in a report
GetLoginName	Gets the login name of the user connected to the database
GetOrderby	Gets an order by object from a query
GetOrderbyCount	Gets the total number of orderbys in a query
GetOrientation	Gets the page orientation constant
GetPageMargins	Gets the page margins for a report
GetPageSize	Gets the width and height of a page
GetPassword	Gets the database login password of the report user
GetPrinterDevice	Gets the printer device associated with the report
GetPrinterDriver	Gets the printer driver associated with the report
GetPrinterPort	Gets the printer port currently associated with the report
GetReportExpByIndex	Gets an Expression automation object using the Expression index as an identifier
GetReportExpCount	Gets the number of Expression objects in a report
GetReportExpFromName	Gets a Expression object using its name as an identifier
GetReportExpFromText	Gets an expression object using its text as an identifier
GetReportGroup	Gets a Group object
GetReportTotalByName	Gets a Total automation object using its name as an identifier
GetSQL	Gets the SQL statement associated with a query
GetTable	Gets a query table object
GetTableCount	Gets the number of QueryTable automation objects in the report
GetTotals	Gets a comma-separated list of input totals and a count of the number of total in the report
GetUseDefaultPrinter	Gets the setting of the Use Default Printer option
GetVariables	Gets a comma-separated list of input variables and a count of the number of input variables in the report
GetVariableFromName	Gets a Variable object using its name as a identifier
GetXTabs	Gets a comma-separated list of input cross tab and a count of the number of input cross tab (XTabs) in the report
GetXTabFromName	Gets a crosstab (XTab) object using its name as an identifier
GotoFirstPage	Displays the first page of the report
GotoLastPage	Displays the last page of the report
GotoNextPage	Displays the next page of the report
GotoPage	Displays the specified page of the report
GotoPreviousPage	Displays the previous page of the report
HasReport	Determines if a top-level window contains an embedded report
HasReportGroup	Indicates that a report contains a group.

ImportReportTemplate	Imports an existing Report Builder template
InDesignMode	Puts the report in design mode
InsertReportInput	Inserts a new Input object after an existing one
IsActualSize	Determines whether the report displays all objects in the size at which they print
IsConnected	Determines if the report is connected to a database
IsNormalQuery	Determines if the query is normal (as opposed to summary)
IsQueryExecuted	Determines if the query has been executed
IsReportModified	Determines if the report has been modified
MatchInputsToQuery	Matches input items
OpenConnection	Opens a connection from the report to a database
OpenConnectionAs	Opens a connection from the report to the database using the specified login name and password
OpenReportFile	Opens the specified report file
Print	Prints the report
RegenerateSQL	Regenerates the SQL for a report query when the query has been modified.
ResetPreview	Resets the display of the report preview
ResynchQuery	Resynchronizes the query
SavePagesAs	Saves the report's pages to an alternative file type
SaveReportFile	Saves a report file
SetAccessName	Sets the database access name for the user
SetActualSize	Displays the objects in the report at their actual size (the size at which they print)
SetColumns	Sets the number of columns in a report
SetColumnsGutter	Sets the width of space between columns
SetDatabase	Sets the database to which the report is connected
SetDefaultAdjust	Sets the default text justification of the fields
SetDefaultFont	Sets the report’s default font
SetDescription	Sets the report file description
SetDesignMode	Sets the report to design mode
SetFastDisplay	Processes the report faster when it is previewed
SetGrid	Turns grid rounding on or off
SetGridUnits	Sets the number of 1/16 inch grid units
SetLoginName	Sets the Login Name for the report user connected to the database
SetOrientation	Sets the printer page orientation
SetPageMargins	Sets the report's page left, top, right and bottom margins
SetPageSize	Sets the report page width and height
SetPassword	Sets the database Password of the report user to connect to the database
SetPrintAbortLine1	Sets the replacement text of the first centered-text field of the Cancel Print dialog

SetPrintAbortTitle	Sets the replacement text for the Cancel Print dialog box title
SetPrinter	Sets the printer to which the report prints
SetQueryNormal	Sets the query to normal (as opposed to summary)
SetReportAbortLine2	Sets the replacement text of the second centered-text field of the Cancel Print dialog
SetReportModified	Indicates that the report has been modified
SetUseDefaultPrinter	Sets the report to automatically print on the default printer

ReportBuilderInput automation object

The ReportBuilderInput automation object is used to define a report's input items. In Report Builder, input items are the same as a data field in a record, or a column item in a database table. All the input items that you define together make up an input row. Report Builder processes one input row at a time. The input row is updated after every input fetch. The input items must be entered in the same order they appear in your input row. If they are not, your report results may not appear as you expected. Use the ReportBuilderInput automation object to define the name and the data type of each input item that is received by the report.

Methods

ReportBuilderInput methods.

Name	Purpose
Destroy	Destroys a input item
GetDataType	Gets the data type of a input item
GetID	Gets the unique identifier of a input item
GetIndex	Gets the zero-based index of a input item
GetName	Gets the name of a input item
GetNext	Gets the next input item from the input row
GetPrevious	Gets the previous input item from the input row
SetDataType	Sets the data type of the input item
SetIndex	Sets the zero-based index of the input item to reorder it in the list of input items
SetName	Sets the name of the input item

ReportBuilderVariable automation object

The ReportBuilderVariable automation object is used to get and set input variable properties. In Report Builder, input variables are similar to input items. Like input items, the name and the data type of each input variable needs to be defined. An input variable can assume any value of a specified data type. Unlike input items, the order of definition is not important and input variables do not need to be updated with each input fetch.

Methods

ReportBuilderVariable methods.

Name	Purpose
Destroy	Destroys a variable

GetDataType	Gets the data type of a variable
GetID	Gets the unique identifier of a variable
GetIndex	Gets the zero-based index of a variable
GetName	Gets the name of a variable
GetValue	Gets the value of a variable
SetDataType	Sets the data type of a variable
SetName	Sets the name of a variable
SetValue	Sets the value of a variable

ReportBuilderTotal automation object

The ReportBuilderTotal automation object is used to get and set input total properties. In Report Builder, input totals, also known as two-pass totals, let you calculate and display aggregate statistics about your input items and formulas. Input items or formulas are evaluated to return an aggregate value. This aggregate value is an input to the report, and can be assigned to any Report Builder field. All formulas are evaluated and statistics accumulated immediately after each input row is fetched.

Methods

Name	Purpose
Destroy	Destroys a total
GetID	Gets the unique identifier of a total
GetExp	Gets a total expression
GetName	Gets the name of a total
GetPreProcess	Gets the report's pre-process setting
GetReset	Gets the reset setting associated with a report total
GetType	Gets the type of report total
SetExpID	Sets the unique identifier for a report total expression
SetExpText	Sets the text of a report total expression
SetPreProcess	Turns on the report total's pre-process setting
SetReset	Sets the reset setting associated with a report total
SetType	Sets the type of a report total

ReportBuilderXTab automation object

The ReportBuilderXTab automation object is used to gather cross tabular statistics on a report's input rows. A report can contain numbers of cross tab and cross tabs (XTabs) can contain numbers of row and column categories. All category items are evaluated and statistics accumulated immediately after each input rows is fetched. The resulting two-dimensional matrix is based on the data provided and the categories selected. The greater the number of row and column categories you select, the larger and more complex your crosstab (XTab) matrix is.

Each crosstab (XTab) object must be given a unique name. The crosstab (XTab) matrix is an input to the report and crosstab (XTab) objects can be assigned to any field in a report. The crosstab results (that is, the contents of the matrix) will vary depending on where the crosstab (XTab) is placed in the report.

Methods

These are the ReportBuilderXTab methods.

Name	Purpose
Destroy	Destroys a crosstab
GetCellExp	Gets an expression from a crosstab cell
GetCellPicture	Gets the picture format for a crosstab cell
GetColumnCount	Gets the number of columns in a crosstab cell
GetColumnExp	Gets an expression object from a crosstab column
GetColumnHeader	Gets the header from a crosstab column
GetName	Gets the name of a crosstab
GetReset	Gets the reset setting associated with a crosstab
GetRowCount	Gets the number of rows in a crosstab
GetRowExp	Gets an expression object from a crosstab row
GetRowHeader	Gets the header from a crosstab row
GetStat	Gets a crosstab statistic type
GetStatHeadDefault	Gets the default crosstab statistic header
GetStatHeader	Gets a crosstab statistic header
GetStatOrder	Returns the crosstab (XTab) statistics order.
GetSummaries	Gets the summary statistics for a crosstab object
GetUseDefaultStatHead	Returns the statistic property which can be set so that Report Builder uses a default statistic header for a crosstab statistic.
SetCellPicture	Sets the picture name in a crosstab cell.
SetColumnExpID	Sets the expression ID for a crosstab column.
SetColumnExpText	Sets the expression text for a crosstab column.
SetColumnHeader	Sets the header for a crosstab column.
SetReset	Sets the reset setting associated with a crosstab
SetRowExpID	Sets the expression ID for a crosstab row.
SetRowExpText	Sets the expression text for a crosstab row.
SetRowHeader	Sets the header for a crosstab row.
SetStat	Sets a crosstab statistic.
SetStatHeader	Sets the statistic header for a crosstab.
SetStatOrder	Sets the order of crosstab statistics.
SetSummaries	Sets the summary statistics for a crosstab (XTab) object.

ReportBuilderExpression automation object

The ReportBuilderExpression automation object is used to handle expressions in a report. In Report Builder, expressions are items or a combination of items and operators that yield a single value. An expression can be the result of a function, a variable, a constant or two or more expressions connected with an operator.

Methods

`ReportBuilderExpression` methods.

Name	Purpose
GetDataType	Gets the data type of a expression
GetID	Gets the unique identifier of a expression
GetIndex	Gets the zero-based index of a expression
GetName	Gets the name of a expression
GetText	Gets the text of a expression
IsSimple	Indicates that a expression is literal
IsSimpleInput	Indicates that the input item associated with a expression is literal

ReportBuilderGroup automation object

The ReportBuilderGroup automation object is used to create, get and set a report's group properties. In Report Builder, a group is a paired set of header and footer blocks. This includes all the lines, fields, pictures, and boxes belonging to these groups. Report Builder generates a block group for every break group in a report, as well as for the Page, Report, and Detail blocks of a report.

Methods

ReportBuilderGroup methods.

Name	Purpose
CreateBlock	Creates a new group
Destroy	Destroys a group
GetBlock	Gets a group
GetID	Gets the unique identifier of a group
GetInput	Gets a input
GetKeep	Gets the keep type for a group
GetType	Gets type of group
HasBlock	Determines whether a group object contains a block
SetKeep	Sets the keep type for a group

ReportBuilderBlock automation object

The ReportBuilerBlock automation object is used to define and manipulate report blocks. In Report Builder, a block is a group of related lines and objects in the report. A report is comprised of several types of blocks, such as header blocks, footer blocks, and detail blocks. Multiple lines of Report Builder objects can be placed in each block. The lines and objects contained in a block are referred to as a block group. The ReportBuilderBlock automation object allows for the formatting of blocks with features such as Keep on Page, Keep in Column, Break on Column or Page, and Minimum Block Height.

Methods

ReportBuilderBlock methods.

Name	Purpose
AppendLine	Adds a line to the end of a block
CreatePicture	Creates a picture
GetFirstPicture	Gets the first picture in a block
GetFormula	Gets a formula in the form of a expression object from a block
GetGroup	Gets a group
GetID	Gets the unique identifier of a block
GetKeep	Gets the keep type for a block
GetLine	Gets a line object and its zero-based index from a block
GetLineCount	Gets the number of lines in a block
GetMinHeight	Gets the minimum height of a block
GetType	Gets the type of block
HasFormula	Determines whether a block has a formula
HasPicture	Determines whether a block has a picture
InsertLine	Inserts a line into a block
SetFormula	Sets a formula in a block
SetFormulaText	Sets the text in a formula contained by a block
SetKeep	Sets the keep type for a block
SetMinHeight	Sets the minimum height of a block

ReportBuilderLine automation object

The ReportBuilderLine automation object is used to create, get and set a report's line attributes. Line properties and display characteristics which may be manipulated using this object include:

- Suppress Line Spacing, which adds a blank line to the bottom of a block group.
- Suppress Blank Line, which is available for all blocks in a report except lines in the Page Header and Page Footer blocks.
- Conditional Line or Conditional Display, which suppresses line printing when the results of a selected formula evaluate to a zero, a null string, or a null date.
- Alternate Background, which may be used to create barred reports.
- Background and Border Color for the line.
- Page Break Before or Column Break Before, which adds a page break or column break before a line is printed.
- Borders, which places a border around a line.
- Minimum height, which is used to specify a minimum line height. Report Builder calculates the minimum height of a line based on the largest font used in that line; however, you can specify a minimum line height. When the contents of a field on in this line are larger than the defined minimum line height, Report Builder increases the height of the line to accommodate it.

Methods

`ReportBuilderLine` methods.

Name	Purpose
CreateField	Adds a field to the report
Destroy	Destroys a line
GetAscent	Gets the maximum ascent of all field fonts on the line
GetBackgroundAlternate	Gets the alternate background property of a line
GetBackgroundColor	Gets the background color of a line
GetBlankSuppress	Gets the blank line suppress property for a line
GetBlankSuppressConcat	Gets the concatenate suppressed blank line space property of a line
GetBlock	Gets a block from a line
GetBorderColor	Gets the border color of a line
GetBorders	Gets the border measurements of a line
GetEject	Gets the eject property of a line
GetField	Gets a field object from a line
GetFieldCount	Gets the number of fields in a line
GetFormula	Gets a formula in the form of a expression object from a line
GetHeight	Gets the height of a line
GetID	Gets the unique identifier of a line
GetIndex	Gets the zero-based index of a line
GetMinHeight	Gets the minimum height of a line
GetTop	Gets the designtime vertical offset from the top of the block
SetBackgroundAlternate	Sets the alternate background property of a line
SetBackgroundColor	Sets the background color of a line
SetBlankSuppress	Sets the suppress blank line space property of a line
SetBlankSuppressConcat	Sets the concatenate suppressed blank line space property
SetBorderColor	Sets the border color of a line
SetBorders	Sets the borders around a line
SetEject	Sets the line eject property
SetFormulaID	Sets the unique identifier of formula in a line or field
SetFormulaText	Sets the text in a formula contained by a line
SetMinHeight	Sets the minimum height of a line

ReportBuilderField automation object

The `ReportBuilderField` automation object is used to create, get and set a report's field attributes. Report fields are contained in report lines and they can hold literals, input items, input variables, input totals, input cross tabs, or formulas. Field properties and displays characteristics which may be manipulated using this object include:

- Position
- Width
- Format
- Justification
- Conditional Display

Methods

`ReportBuilderField` methods.

Name	Purpose
Destroy	Destroys a field
GetAdjust	Gets the text adjust setting
GetBackgroundColor	Gets the background color of a field
GetBorderColor	Gets the border color of a field
GetBorders	Gets the borders around a field
GetDropDown	Gets the number of drop down continuation lines in a report
GetExp	Gets a field expression
GetFont	Gets the font of a field
GetFormula	Gets a formula in the form of a expression object from a field
GetID	Gets the unique identifier of a field
GetIndex	Gets the zero-based index of a field
GetLeft	Gets the position of the field from the left margin
GetLine	Gets a line object
GetName	Gets the name of a field
GetPicture	Gets the format string used to format number and date/ time values associated with a picture
GetSuppressGroupBreak	Gets the suppress repeating values reset on a break group
GetSuppressPageBreak	Gets the suppress repeating values reset on a page break
GetSuppressRepeating	Gets the suppress repeating values reset on a field
GetTab	Gets a crosstab settings
GetTabsCount	Gets the number of cross tabs in a report
GetTextColor	Gets the text color of a field object
GetWidth	Gets the width of a field
LinkFields	Links another field to a field
SetAdjust	Sets the text adjust property for a field
SetBackgroundColor	Sets the background color of a field

SetBorderColor	Sets the border color of a field
SetBorders	Sets the borders around a field
SetDropDown	Sets the number of drop down continuation lines associated with a field
SetDropDownDynamic	Sets dynamic drop down for a field
SetExpID	Sets the unique identifier for a field
SetExpText	Sets the text of a field
SetFont	Sets the font for the text in a field
SetFormulaID	Sets the unique identifier of formula in a line or field
SetFormulaText	Sets the text in a formula contained by a line
SetLeft	Sets the position from the left page margin for a field
SetPicture	Sets the string used to format number and date/time values in a field
SetSuppressGroupBreak	Sets the suppress repeating values reset on a break group
SetSuppressPageBreak	Sets the suppress repeating values reset on a page break
SetSuppressRepeating	Sets the suppress repeating values property
SetTab	Sets the crosstab properties of a field
SetTextColor	Sets the text color of a field
SetWidth	Sets the width of a field
SetWidthDynamic	Sets the field width to dynamic
SetXTabTabs	Sets the tabs for a crosstab formula in a field

ReportBuilderPicture automation object

The `ReportBuilderPicture` automation object is used to get and set report picture properties. In Report Builder, pictures can be static graphic images or objects. If the report picture is not a static graphic image, then you may assign input items or input variables to the picture object.

Picture attributes which may be set using this object include:

- Picture Contents
- Location and Size
- Picture Fit
- Scale
- Border and Corners
- Background and Border Color

Methods

`ReportBuilderPicture` methods.

Name	Purpose
ClearPictureInputOrVariable	Removes the input item or input variable associated with a picture
Destroy	Destroys a picture
GetBlock	Gets a picture
GetBorder	Gets the type of border of a picture

GetID	Gets the unique identifier of a picture
GetNextPicture	Gets the next picture
GetPictureFile	Gets the file name of a picture
GetPictureInput	Gets the input item associated with a picture
GetPictureInputVariableType	Gets the data type of a picture when the picture is an input or variable
GetPictureVariable	Gets the input variable associated with a picture
GetRect	Gets the bounding rectangle measurements for a picture
GetScale	Gets the type of scaling and the X and Y coordinates associated with the display of a picture
HasNextPicture	Determines whether a report contains more than one picture
SetBorder	Sets the border type of a picture
SetPictureFile	Sets the name value of a file associated with a picture
SetPictureInputOrVariable	Sets the picture object to the input or variable picture
SetRect	Sets the bounding rectangle measurements for a picture
SetScale	Sets the type of scaling and the X and Y coordinates associated with the display of a picture

ReportBuilderQueryTable automation object

The `ReportBuilderQueryTable` automation object is used to get information related to the tables in a report query.

Methods

Name	Purpose
AddColumn	Adds a column to the query
GetAvailableColumns	Gets a comma separated list of table names and a count of the number of tables in the query
GetCreator	Gets the creator (owner) of a table
GetName	Gets the name of a query
GetQualifiedName	Gets the qualified reference name of a query
GetQualifyFlag	Gets the qualify flag of a query

ReportBuilderQueryColumn automation object

The `ReportBuilderQueryColumn` automation object is used to get and set information related to the columns in a report query.

Methods

`ReportBuilderQueryColumn` methods.

Name	Purpose
GetDataType	Gets the data type of a column

GetFormula	Gets a formula associated with a column
GetName	Gets the name of a column
GetQualifiedName	Gets the qualified reference name of a column
GetSQLExpression	Gets the text of the SQL which defines an expression
GetTable	Gets a table
GetTableName	Gets the name of a column’s table
IsDerived	Determines whether the column is derived
IsUnique	Determines whether the column is a unique key

ReportBuilderQueryJoinkey automation object

The `ReportBuilderQueryJoinkey` automation object is used to get and set information related to the joinkeys in a report query.

Methods

Name	Purpose
GetColumn1	Gets the first column in a query
GetColumn2	Gets the second column in a query
GetOperator	Gets a query operator
GetOuter1	Gets the left outer join of a query
GetOuter2	Gets the right outer join of a query
GetTable1	Gets the first table in a query
GetTable2	Gets the second table in a query
IsOr	Determines whether a joinkey is an Or conjunction operator

ReportBuilderQueryConditions automation object

The `ReportBuilderQueryConditions` automation object is used to get information related to the conditions in a report query.

Methods

`ReportBuilderQueryConditions` methods.

Name	Purpose
GetColumn1	Gets the first column in a condition
GetColumn2	Gets the second column in a condition
GetDataType	Gets the data type of a condition
GetMode1	Gets the query condition mode of a condition
GetMode2	Gets the second query condition mode of a condition
GetOpConstant	Gets the op constant of a condition
GetOperand1	Gets the first operand of a condition

GetOperand2	Gets the second operand of a condition
GetOperator	Gets a condition operator
GetOr	Gets the result of an Or conjunction operator in a condition
GetTable1	Gets the first table in a condition
GetTable2	Gets the second table in a condition

ReportBuilderQueryHaving automation object

The `ReportBuilderQueryHaving` automation object is used to get information related to the Having clause in a report query.

Methods

`ReportBuilderQueryHaving` methods.

Name	Purpose
GetColumn1	Gets the first column in a having clause
GetColumn2	Gets the second column in a having clause
GetDataType	Gets the data type of a having clause
GetMode1	Gets the query condition mode of a having clause
GetMode2	Gets the second query condition mode of a having clause
GetOpConstant	Gets the OpConstant of a having clause
GetOperand1	Gets the first operand of a having clause
GetOperand2	Gets the second operand of a having clause
GetOperator	Gets a having clause operator
GetOr	Gets the result of an Or conjunction operator in a having clause
GetTable1	Gets the first table in a having clause
GetTable2	Gets the second table in a having clause

ReportBuilderQueryOrderby automation object

The `ReportBuilderQueryOrderby` automation object is used to get information related to the Order By in a report query.

Methods

Name	Purpose
GetColumn	Gets the order by column of the report query
IsAscending	Determines whether the sort of a query order by is in ascending order

Using ReportBuilder ActiveX from the SQLWindows Controls Palette

The SQLWindows Controls Palette contains a button labeled "Report". If you select this button, then drag over an area of a layout window, SQLWindows inserts an instance of the Report Builder ActiveX interface. You are then able to do actual design work on the report, either by importing an existing report template or by creating an entirely new template, including database queries. You can also preview the report at design time.

Most of the design tools available in the Report Builder workspace described in chapters 3 and 4 are also available to you while working in the Report Builder ActiveX control inside SQLWindows. But they may be less intuitive and convenient to use in SQLWindows. In addition, much of the runtime support provided by the Report Builder workspace, where reports are run in standalone top-level windows, is missing when a report is run from inside an ActiveX control. You can provide this extra runtime support, but you must do so by adding SAL code that intercepts report events, controls movement from one page of the report to another, and modifies the report template. You would use techniques similar to those demonstrated in the tutorial in chapter 7.

In summary, it is fast and easy to put a Report Builder report inside your SQLWindows application using the ActiveX control, but significant work is required to bring its functionality up to the same level as a report that runs in the Report Builder workspace.

Report Builder Tutorials

This chapter contains the following tutorials that help you learn how to use the various Report Builder features:

- Form letter report tutorial
- Multi-column report tutorial
- Break group report tutorial
- Two pass totals report tutorial
- Basic cross tabular report tutorial
- Advanced cross tabular report tutorial
- Report Builder ActiveX interface tutorial

Form letter report tutorial

Many companies need to create form letters. For example, a company may need to send a letter to customers to inform them of an upcoming sale.

You can use Report Builder to create form letters that contain the basic information you want to repeat in each letter. Then, you can personalize the letter by including unique information like the customer name and address by using data from a database.

The Form Letter Report tutorial guides you through the procedures for building your own form letter.

In this tutorial, you create a form letter for an imaginary company named Island T-Shirts. The form letter is addressed to the various contacts at companies that have ordered T-shirts from Island T-shirts. The information needed for this form letter tutorial is contained in the ISLAND database.

A copy of the completed form letter report (formltr.cqt) is available in the Gupta, Samples directory.

Creating and formatting a new report

Complete the following steps to create a new report:

1. Launch Report Builder.

   When Report Builder completes loading, a new report opens.

2. Select **Report**, **Define Query**.

   The Define Query dialog box displays.

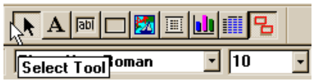
3. Double-click **SQLBase**, and then double-click the **ISLAND** database.

   The Connect to dialog box displays.

4. Enter `sysadm` in the User and Password fields. Click **OK**.
5. Double-click the **COMPANY** and **CONTACT** database tables. Click **OK**.

   Report Builder generates a default report using the data from the selected tables.

6. Select **Report**, **Report Design** to switch to design mode.
7. Click the Select tool, and then delete all of the lines from the Page Header, Detail Block, and the Page Footer.



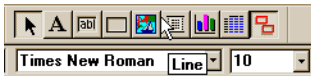
8. Select **Report**, **Format**, **Report**.

   On the Page Size tab, set the following:

   - Paper Style - Letter
   - Orientation - Portrait

   Click **OK**.

9. Using the Line tool, insert 25 lines in the Detail Block of your report.



   In this tutorial, we use only the Detail Block of the report template.

10. Using the Select tool, right-click the Detail block caption and select **Properties** from the pop-up menu.

    In the Keep field, select **On Page**. This keeps the contents of each form letter together on one page. Click **OK**.

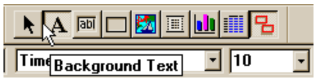
11. Save the report.

You have now created a new report and completed some of the basic report formatting. Next, you format the form letter template.

Formatting the form letter

Complete the following steps to format the form letter:

1. Using the Background text tool, enter `Island T-Shirts` on the first line of the Detail Block.



2. Right-click the text, and select **Properties** from the pop-up menu.
3. On the Text tab, set the following:

   - Width: **Maximum**
   - Justify: **Left**

4. On the Font tab, set the following:

   - Font: **Arial**
   - Weight: **Bold**
   - Size: **18**

   Click **OK**.

5. Enter the following on the next two lines of the Detail block:

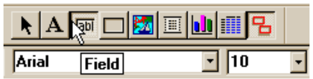
   - 303 State Street
   - Santa Barbara, CA 93510

   Right-click the two text blocks and set the following:

   - Width: **Maximum**
   - Justify: **Left**
   - Font: **Arial**
   - Weight: **Regular**
   - Size: **10**

   Click **OK**.

6. Skip one line after the address and then, using the Field tool, add a field on the left margin of the report.



7. Using the Select tool, right-click the field and select **Properties** from the pop-up menu.
8. Click **Edit Field Formula**.

   The Formula Editor dialog box displays. Double-click the **CurrentDate** function and then click **OK**.
9. On the Field tab, enter **MMMM d, yyyy** in the Format field.

   This returns a date like March 4, 1992.
10. Click **OK**.
11. Open the Input Items folder in the left window, and then drag and drop the following input items. Place the input items on separate lines, starting on the second line beneath the date (These fields display the customer address.):

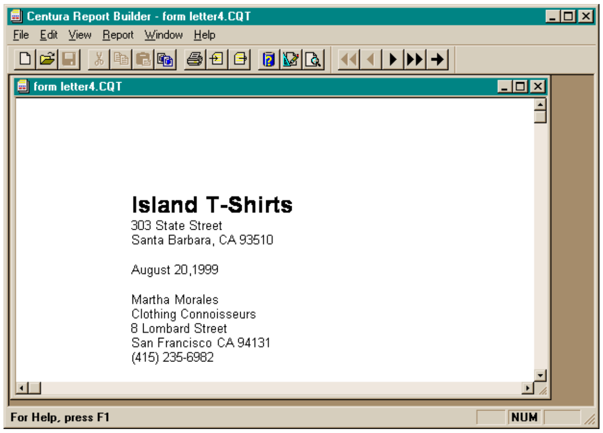
    - **CONT_FIRST_NAME CONT_LAST_NAME** (Place these fields next to each other on the same line.)
    - **COMPANY_NAME**
    - **ADDRESS**
    - **CITY STATE ZIP** (Place these fields next to each other on the same line.)
    - **CONT_PHONE**

    Using the **Report**, **Format**, **Link Fields** command, link the CONT_FIRST_NAME and CONT_LAST_NAME input items, and link the CITY, STATE, and ZIP input items.
12. Using the **Report**, **Align**, **Left Sides** command, align the input items with the left margin.
13. Select all of the company contact input items and then select **Report**, **Format**, **Fields**. Set the following:

    - Width: **Dynamic**
    - Justify: **Left**
    - Font: **Arial**
    - Weight: **Regular**
    - Size: **10**

    Click **OK**.

14. Select **Report**, **Report Preview** to see how your form letter report appears at this stage.


Centura Report Builder - form letter4.CQT
File Edit View Report Window Help
form letter4.CQT
For Help, press F1
NUM

Island T-Shirts
303 State Street
Santa Barbara, CA 93510

August 20,1999

Martha Morales
Clothing Connoisseurs
8 Lombard Street
San Francisco CA 94131
(415) 235-6982

15. Select **Report**, **Report Design** to return to your report template.

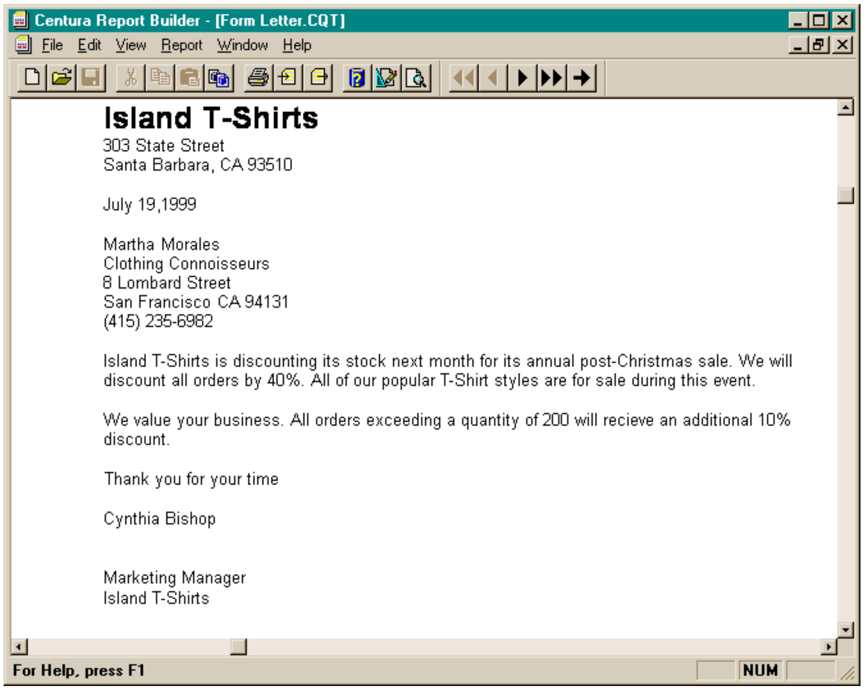
16. Enter the following as background text. Enter each as a separate text block on a separate line. Skip lines between paragraphs:

```
Island T-Shirts is discounting its stock next month for its annual post-
Christmas sale. We will discount all orders by 40%. All of our popular T-
Shirt styles are for sale during this event.

We value your business. All orders exceeding a quantity of 200 will receive
an additional 10% discount.

Thank you for your time

Cynthia Bishop


Marketing Manager

Island T-Shirts
```

17. Select all of the fields you have just created and then select **Report**, **Format**, **Background Text**. Set the following:

    - Width: **Dynamic**
    - Justify: **Left**
    - Font: **Arial**
    - Size: **10**

18. Select **Report**, **Report Preview**.


Centura Report Builder - [Form Letter.CQT]
File Edit View Report Window Help
For Help, press F1
NUM

Island T-Shirts
303 State Street
Santa Barbara, CA 93510

July 19,1999

Martha Morales
Clothing Connoisseurs
8 Lombard Street
San Francisco CA 94131
(415) 235-6982

Island T-Shirts is discounting its stock next month for its annual post-Christmas sale. We will discount all orders by 40%. All of our popular T-Shirt styles are for sale during this event.

We value your business. All orders exceeding a quantity of 200 will recieve an additional 10% discount.

Thank you for your time

Cynthia Bishop

Marketing Manager
Island T-Shirts

Congratulations! You have completed a form letter report.

A copy of the completed form letter report (formltr.cqt) is available in the Gupta, Samples directory.

Multi-column report tutorial

Using Report Builder, it is easy to design and print labels. You can create your own address labels, diskette labels, video labels, file labels, and so on. You can set the size, contents, and can even include graphics.

To create a labels template, you need to build a multi-column report. This tutorial guides you through the process for building a multi-column report for mailing labels. The labels template uses the Avery standard 3 column address labels.

Like all report templates, you must provide the data to populate your label template. This data can come from any of a variety of databases. For this tutorial, you use the data in the ISLAND database.

A copy of the completed multi-column report (multi.cqt) is available in the Gupta, Samples directory.

Creating and formatting a new report

Complete the following steps to build a mailing labels report:

1. Launch Report Builder.

   Report Builder opens with an empty report window.

2. Select **Report**, **Define Query**.

   The Define Query dialog box opens.

3. Double-click **SQLBase** on the Source tab.

   The SQLBase Server launches and the ISLAND database displays on the Source tab.

4. Double-click the **ISLAND** database.

   The Connect to dialog box opens.

5. Enter `sysadm` in the User and Password fields. Click **OK**.

   The ISLAND database tables display.

6. Double-click the **COMPANY** database table.

   The table displays in the right-hand window.

7. Click **OK**.

   Report Builder creates a new default report. It opens in Preview mode.

8. Save the report.

You have now launched Report Builder and created a default report. In the next section, you are going to format the mailing label report.

Formatting the multi-column report

Complete the following steps to format the multi-column report:

1. If you are not in design mode, select **Report**, **Report Design**.
2. Select **Report**, **Format**, **Report**.

   The Properties dialog box is displayed.

3. On the Page Size tab, set the following:

   - Paper Style: **Letter**.
   - Orientation: **Portrait**.

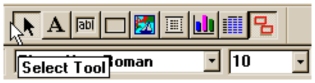
4. On the Page Layout tab, set the following:

   - Top: **1**
   - Bottom: **0.25**
   - Left: **0.5**
   - Right: **0.5**

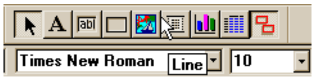
- Number of columns: **3**
- Spacing Between Columns: **0.25**

This sets up your report template as a multi-column report with three columns. Click **OK**.

5. If it is not already displayed, select **View**, **Toolbars**, **Tools Toolbar**.
6. Click the Select tool. Delete all of the lines from the Page Header, Detail Block, and Page Footer.



7. Using the Line tool, insert 6 new lines in the Detail Block of your report template.



8. Using the Select tool, right-click the Detail block caption, and choose **Properties** from the pop-up menu.

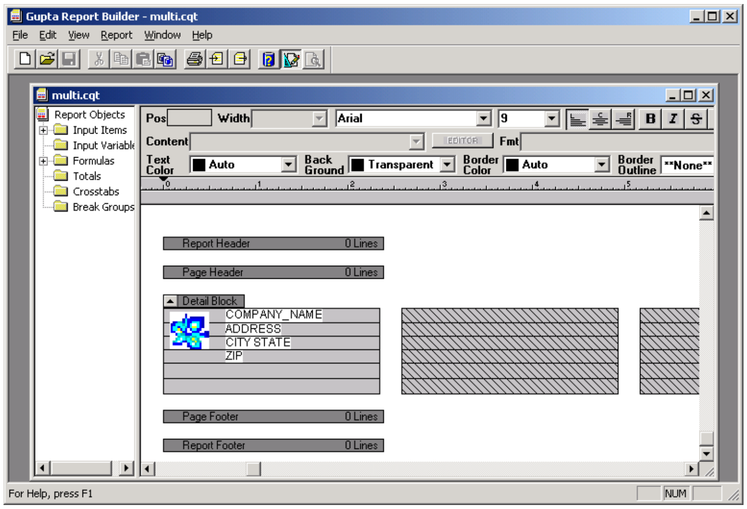
   The Properties dialog box is displayed. Set the following:

   - Force Minimum Height: **1**
   - Keep: **In Column**

   Click **OK**.

   This keeps the contents of each mailing label together in one block. Report Builder starts a label at the top of the next column when there is not enough space in the current column for the entire label.

9. Using the Picture tool, draw a small picture object and align it to the left side of the Detail Block.



10. Right-click the picture object and select **Properties**.

    The Properties dialog box opens.

    You can use this dialog box to assign a graphic, OLE object, input item, or input variable (with an object data type) to this picture object. We are going to assign a static graphic item.

11. On the Picture tab, select **Static** and click **Paste From**.

    The Paste From dialog box opens.

12. Select the bitmap or other graphic you want to use in your label. For this tutorial, you can use the graphic titled hris.bmp located in the Gupta, Samples directory. Click **Open**.

You return to the Properties dialog box.

13. On the Appearance tab, you can specify the position and size of the picture object.
    You can also add a border to the picture object from this tab. If you are using the hris.bmp graphic, set the border to **None**.

14. On the Scale tab you can adjust the size of the graphic within the Picture object.
    Select one of the following:

    - **Scale**: Manually set the size of the graphic.
    - **Size to Fit**: Size the graphic to the dimensions of the picture object.
    - **Size for Best Fit**: Size the graphic to roughly that of the picture object, but retain the graphic's original proportions. If you are using the hris2.bmp graphic, select this radio button.

15. Click **OK** to return to the report template.

    Report Builder displays the graphic inside the picture object.

16. Drag and drop the following input items to the Detail Block.

    - COMPANY_NAME
    - ADDRESS
    - CITY
    - STATE
    - ZIP

17. Place the CITY and STATE fields next to each other on the same line.

18. Select both the CITY and STATE fields (Select multiple fields by holding down **Shift** and clicking each item.).

19. Right-click one of the fields and select **Format**, **Link Fields**.

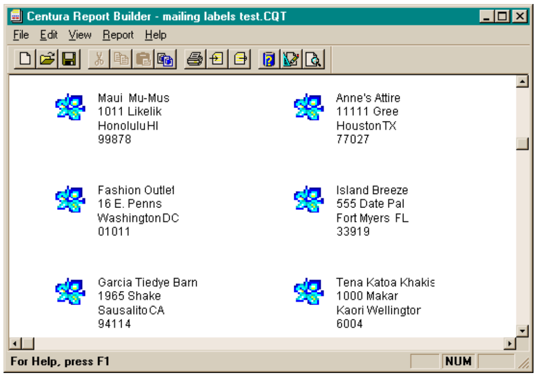
20. Select all the fields except the STATE field, right click on one of the selected fields, and select **Align**, **Left Sides** from the pop-up menu.

21. Select all of the fields and then select **Report**, **Format**, **Fields**. Set the following:

    - On the Field tab, set Width to **Dynamic Width**.
    - On the Font tab, set Font to **Arial Regular** and Size to **9**.

    Click **OK**.

22. Select **Report**, **Report Preview** to view the mailing labels. Select **Report**, **Report Design** to return to your report template.



Maui Mu-Mus
1011 Likelik
HonoluluHI
99878

Anne's Attire
11111 Gree
HoustonTX
77027

Fashion Outlet
16 E. Penns
WashingtonDC
01011

Island Breeze
555 Date Pal
Fort Myers FL
33919

Garcia Tiedye Barn
1965 Shake
SausalitoCA
94114

Tena Katoa Khakis
1000 Makar
Kaori Wellingtor
6004

23. You can continue to format these labels by using bolding, italics, different fonts, and so on.

Congratulations! You have successfully completed the multi-column report tutorial and have created a mailing labels report template.

A copy of the completed multi-column report (multi.cqt) is available in the Gupta, Samples directory.

Break group report tutorial

You can use Report Builder to produce reports that subdivide information into logical units called break groups. You can perform summary calculations (averages, totals, counts, maximums, and minimums) on the data in each of the break groups, and display these summaries in your report. Typically, you would want to see these summary values whenever a break group changes.

For example, you may receive numerous invoices from various companies. You could use a break group report to list all of the invoices from each company, along with the detail of each invoice.

A copy of the completed break group report (breakg.cqt) is available in the Gupta, Samples directory.

In this tutorial, you create a break group report using the ISLAND database. You begin this procedure by defining a query and creating a default report.

Defining a query and creating a default report

Complete the following steps to define a query and create a default report:

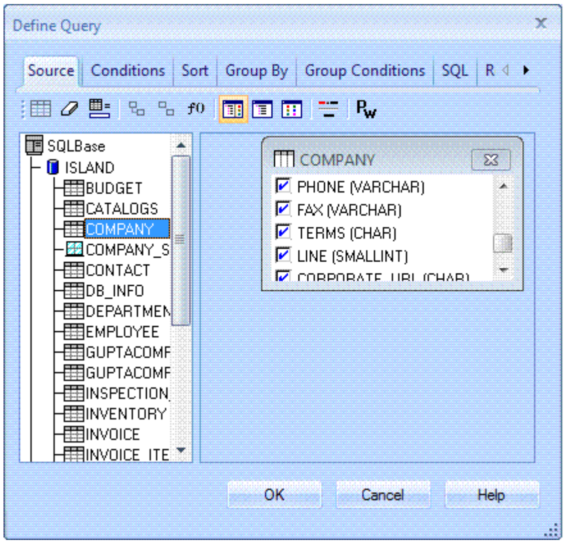
1. Launch Report Builder.

   Report Builder starts and a new report window is opened.

2. Select **Report**, **Define Query**.

   The Define Query dialog box opens.

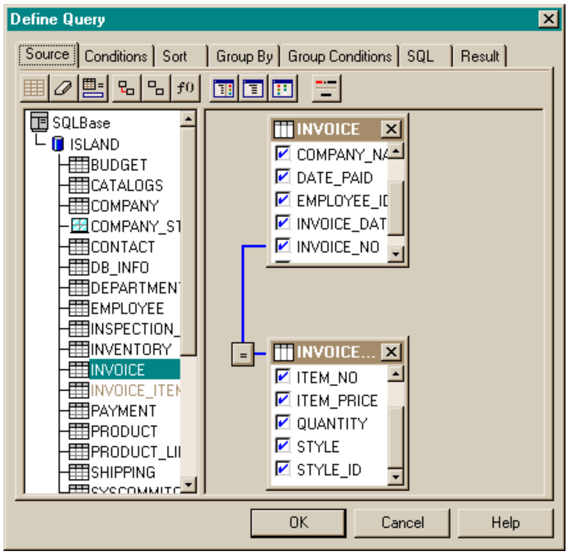
3. Double-click **SQLBase**.



4. Double-click the **ISLAND** database.

5. In the Connect to dialog box, enter `sysadm` in both the User and Password fields. Click **OK**.

6. Double-click the INVOICE table and the **INVOICE_ITEM** table. When you select more than one table, Report Builder displays the link between the tables.



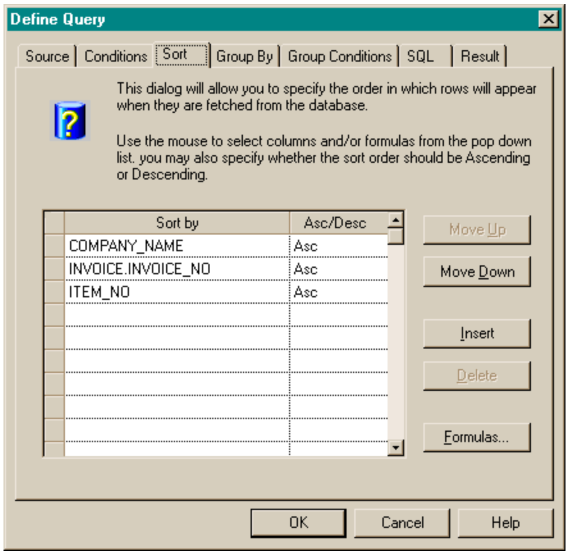
7. Select the Sort tab.

8. Click the top Sort By field. A pop-up list of available columns appears. Select COMPANY_NAME.

9. Click the top Asc/Desc field. Select **Asc** from the pop-up list.(Asc for ascending order, Desc for descending order)

10. Click the next Sort By field, and select **INVOICE.INVOICE_NO**. Asc appears in the Asc/Desc field.

11. Click the next Sort By field, select **ITEM_NO**. Asc appears in the Asc/Desc field.



This dialog will allow you to specify the order in which rows will appear when they are fetched from the database.

Use the mouse to select columns and/or formulas from the pop down list. you may also specify whether the sort order should be Ascending or Descending.

Sort by	Asc/Desc
COMPANY_NAME	Asc
INVOICE.INVOICE_NO	Asc
ITEM_NO	Asc

12. You have now successfully defined the query for your report. Click **OK**.

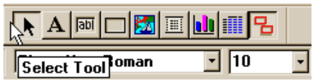
    A default report is generated using the query you defined. You can now modify the report to improve its layout and readability.

Improving the report layout and readability

Complete the following steps to improve the layout and readability of your report:

1. Select **Report**, **Report Design**.

2. Select the **Select** tool.

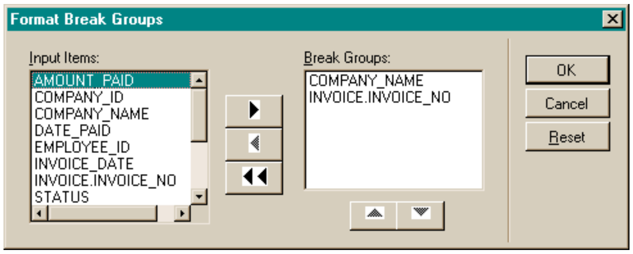


3. Select and delete all of the lines under the Page Header, Detail Block, and Page Footer captions.
4. Select **Report**, **Format**, **Report**.
5. Select the **Page Size** tab. Change the **Paper Style** popup menu to **Letter**. Click **OK**.
6. Save the report.

Selecting the break groups

Complete the following steps to select the break groups:

1. Select **Report**, **Format**, **Break Groups** to open the Format Break Group dialog box.
2. Select the break groups you want to use by double-clicking the items in the Input Items list. For this report, select the break group items **COMPANY_NAME** and **INVOICE.INVOICE_NO**, in that order.



Input Items:
AMOUNT_PAID
COMPANY_ID
COMPANY_NAME
DATE_PAID
EMPLOYEE_ID
INVOICE_DATE
INVOICE.INVOICE_NO
STATUS

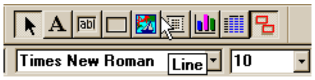
Break Groups:
COMPANY_NAME
INVOICE.INVOICE_NO

3. Click **OK**.

Adding lines

Complete the following steps to add lines to the report:

1. Select the Line tool.



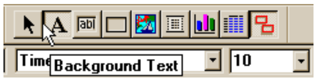
2. Add the following number of lines to the indicated block groups:

- 3 lines to the header COMPANY_NAME block group.
- 5 lines to the header INVOICE.INVOICE_NO block group.
- 1 line to the Detail block group.
- 2 lines to the footer INVOICE.INVOICE_NO block group.
- 2 lines to the footer COMPANY_NAME block group.

Adding and formatting fields

Complete the following steps to add and format fields to the report:

1. Select the Background Text tool.



2. Click in the left-most corner of the first line of the COMPANY_NAME header block group. A new background text object is added.

3. Enter **Company Name:** in this field.

4. Using the Select tool, right-click on the **Company Name:** text and select the **Properties** menu item. Select the Font tab. In the **Font** popup menu, select **Bold**. Click **OK**.

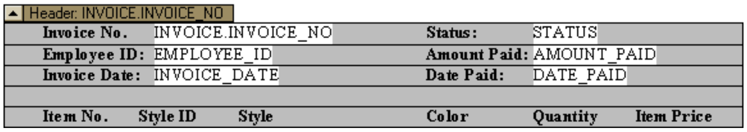
5. In the left pane, open the Input Items folder. The tree expands to display the list of available input items. Drag the **COMPANY_NAME** input item to the right pane and drop it to the right of the Company Name text block.

6. Insert the background text **Company ID:** and the input item COMPANY_ID on the second line of the header COMPANY_NAME block group.

7. Under the header INVOICE.INVOICE_NO block group, add the following background text and input items:

Invoice Number:	INVOICE.INVOICE _NO
Employee ID:	EMPLOYEE_ID
Invoice Date:	INVOICE_DATE
Status:	STATUS
Amount Paid:	AMOUNT_PAID
Date Paid:	DATE_PAID

Arrange the background text and input items in the manner shown below.



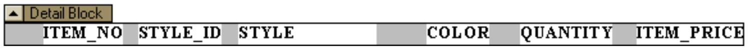
```
▲ Header: INVOICE.INVOICE_NO
    Invoice No.    INVOICE.INVOICE_NO            Status:      STATUS
    Employee ID:   EMPLOYEE_ID                   Amount Paid: AMOUNT_PAID
    Invoice Date:  INVOICE_DATE                  Date Paid:   DATE_PAID

    Item No.    Style ID    Style                Color        Quantity     Item Price
```

8. In the INVOICE.INVOICE_NO block group, leave the second to last line blank, and enter the following background text objects on the last line:

- Item Number
- Style ID
- Style
- Color
- Quantity
- Item Price

9. On the first line of the Detail Block group, drag and drop the following input items:

- ITEM_NO
- STYLE_ID
- STYLE
- COLOR
- QUANTITY
- ITEM_PRICE



```
▲ Detail Block
    ITEM_NO  STYLE_ID  STYLE                COLOR    QUANTITY   ITEM_PRICE
```

10. Left align the **Item Number** background text object with the ITEM_NO input item by shift clicking both and selecting the **Report, Align, Left Sides** menu item. Left align the remaining background text objects and input items.

11. Select all of the background text objects. (You can select multiple background text items by pressing **Shift** and clicking each item.)

12. Right-click one of the background text objects, and select Properties from the pop- up menu.

Set the following:

- Font: **Arial**
- Weight: **Bold**
- Size: **10**

13. Save the report.

Formatting the input items

Complete the following steps to format the input items:

1. The input items in this report share the same font format.

   Set the following:

   - Font: **Arial**
   - Weight: **Regular**
   - Size: **10**

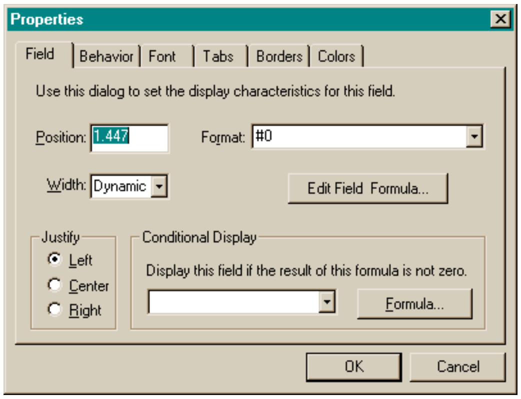
   To change the font format: right-click the input item, select **Properties** from the pop-up window, and select the **Font** tab on the Properties dialog box.

   Note: *You can save time by* ***Shift****-clicking all of the input items, right-clicking one of the selected input items, and selecting Properties from the pop-up menu. Changing the font settings from the Properties dialog box in this manner changes the font settings for all of the selected input items.*

2. Select each of the following input items:

   - COMPANY_ID
   - INVOICE.INVOICE_NO
   - ITEM_NO
   - STYLE_ID
   - QUANTITY

   Open the Properties dialog box. On the Field tab, set the Format popup menu to **#0**.



Use this dialog to set the display characteristics for this field.

Position: 1.447

Format: #0

Width: Dynamic

Justify: ● Left ○ Center ○ Right

Conditional Display

Display this field if the result of this formula is not zero.

3. On the Field tab of the Properties dialog box, set the Format popup menu to M/d/yy for each of the following input items:

   - INVOICE_DATE
   - DATE_PAID

4. Right Click on the AMOUNT_PAID input item and select the **Properties** menu item. In the Format popup menu, select $#,##0.00;($#,##0.00). Click **OK**.

5. Right Click on the ITEM_PRICE input item and select the **Properties** menu item.
   In the Format popup menu, select $#,##0.00;($#,##0.00). Select the Justify Right radio button. Click **OK**.

Coloring lines

Complete the following steps to change the color of the lines in the COMPANY_NAME block:

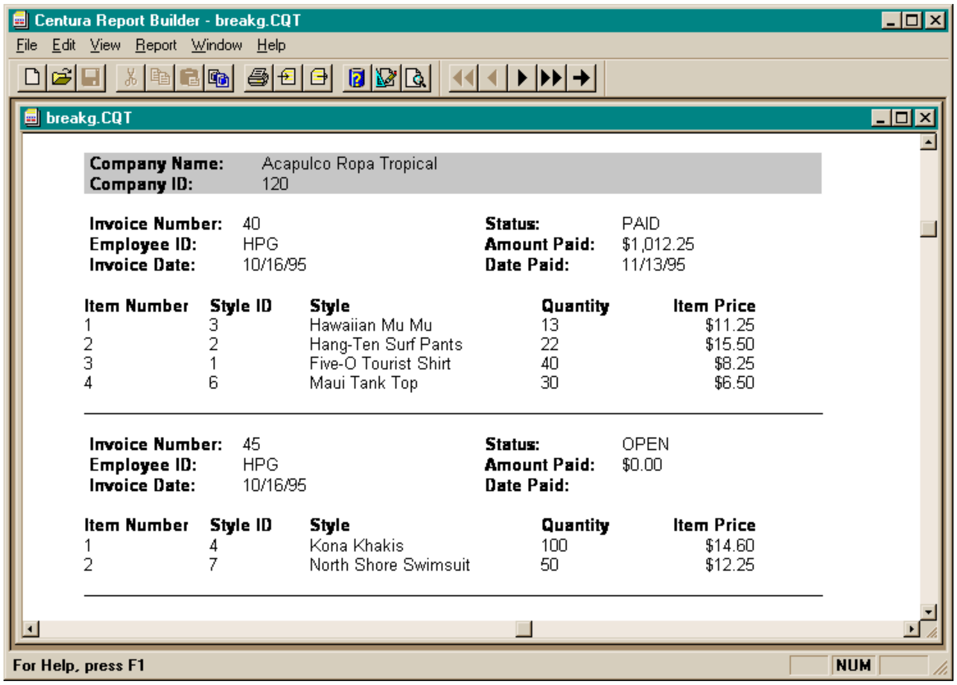
1. Right-click on the Company Name line in the header COMPANY_NAME block and select the **Properties** menu item.
2. Select the Color tab and change the Background Color to Lt. Gray.
3. Click **OK**.
4. Repeat steps 1-3 now on the Company ID line in the header COMPANY NAME block group.

Adding a bottom border

Complete the following steps to add a border to the bottom of the footer INVOICE.INVOICE_NO block group:

1. Right-click on the topmost line in the footer INVOICE.INVOICE_NO block group and select the **Properties** menu item.
2. Select the Borders tab and select Single from the Bottom popup menu.
3. Click **OK**.

   To see the finished report, select Report, Report Preview.



Company Name: Acapulco Ropa Tropical
Company ID: 120

Invoice Number:	40	**Status:**	PAID
Employee ID:	HPG	**Amount Paid:**	$1,012.25
Invoice Date:	10/16/95	**Date Paid:**	11/13/95

Item Number	Style ID	Style	Quantity	Item Price
1	3	Hawaiian Mu Mu	13	$11.25
2	2	Hang-Ten Surf Pants	22	$15.50
3	1	Five-O Tourist Shirt	40	$8.25
4	6	Maui Tank Top	30	$6.50

Invoice Number:	45	**Status:**	OPEN
Employee ID:	HPG	**Amount Paid:**	$0.00
Invoice Date:	10/16/95	**Date Paid:**	

Item Number	Style ID	Style	Quantity	Item Price
1	4	Kona Khakis	100	$14.60
2	7	North Shore Swimsuit	50	$12.25

Congratulations! You have successfully built a query, embedded it in a break group report, and formatted the report.

A copy of the completed break group report (breakg.cqt) is available in the Gupta, Samples directory.

Two pass totals report tutorial

With Report Builder you can quickly generate summary totals for specific break groups. This type of output is called two-pass totals because, in the first pass Report Builder calculates the totals, and in the second pass it places the calculations in appropriate fields, formats the report, processes other calculations, and creates the report.

For example, your company may receive numerous invoices from various companies. You want a report that shows all the invoices received from each company. Using a two-pass totals report, you can list the amount paid for all the invoices of each company before listing the amount paid for each individual invoice.

In the two-pass totals report tutorial, you create a report that displays an amount paid total for the entire report as well as a total for a company break group, so that the company amount paid total displays before the details of each break group.

Report Builder automatically adds header and footer break group block captions to your report once you define your break groups.

A copy of the completed two-pass totals report (twopass.cqt) is available in the Gupta, Samples directory.

About the two pass total report tutorial

When you complete this tutorial, Report Builder displays the following: the total amount paid for all invoices in the report header, the total amount paid by each company in the company name header block, and some data on each invoice in the invoice header block.

Generating a default report

The first step needed to create a two pass totals report is to generate a default report. For this tutorial, you use the INVOICE table from the Island database.

Complete the following steps to generate a default report:

1. Launch Report Builder.

   Report Builder starts and a new report window is opened.

2. Select **Report**, **Define Query**.

   The Define Query dialog box opens.

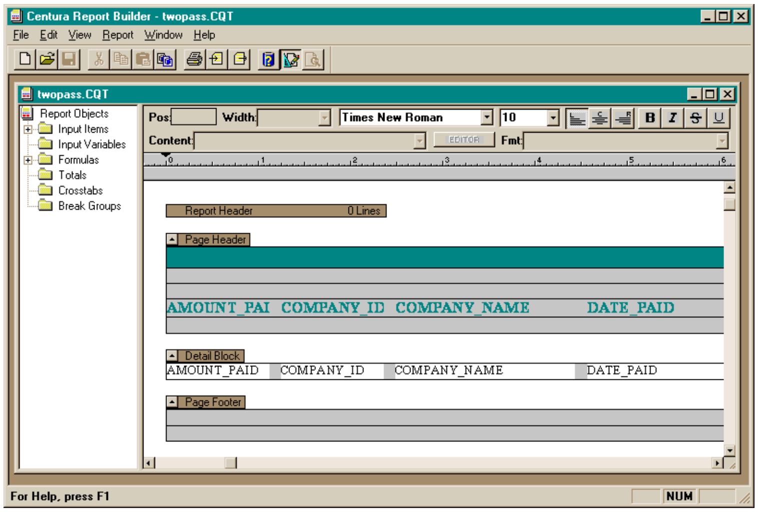
3. Double-click **SQLBase** in the left-hand window.
4. Double-click the **ISLAND** database.

   The Connect to dialog box opens.

5. Enter **sysadm** in the User and Password fields. Click **OK**.
6. Double-click **INVOICE** in the tables list. Click **OK**.

   A default report generates displaying the INVOICE item data.

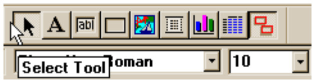
7. Save the report.



Setting up the report and selecting break groups

Complete the following steps to set up the report and select break groups:

1. Select **View**, **Toolbars**, **Tools Toolbar**. The Tools toolbar displays.
2. Click the Select tool.



3. Select and delete all of the lines under the Page Header, Detail Block, and Page Footer captions.
4. Select **Report**, **Format**, **Report**.

   The Properties dialog box displays.
5. On the Page Size tab, set the Paper Style to **Letter**. Click **OK**.
6. Select **Report**, **Format**, **Break Groups**.

   The Format Break Groups dialog box displays.
7. Double-click the **COMPANY_NAME** and **INVOICE_NO** input items.

   Make sure that the COMPANY_NAME input item is listed first in the Break Groups window. Click **OK**.

You have now setup your report and selected break groups. Next, create the input totals.

Creating input totals

In this section, you create two new input totals: Report_Total_Paid and Company_Total_Paid. These input totals generate the total amount paid figures used in the report header block and the company header block.

Complete the following steps to create the input totals:

1. Select **Report**, **Format**, **Input**, **Totals**.

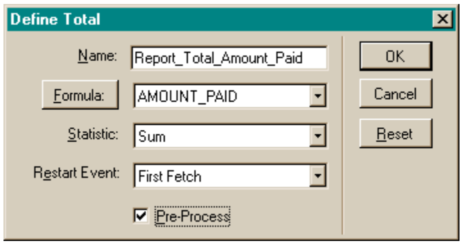
   The Format Totals dialog box displays.
2. Click **New**.

   The Define Total dialog box displays. Set the Define Total values as follows:

   - In the Name field, type Report_Total_Paid.

     Note: *Input total names cannot contain spaces.*

- In the Formula field, select **AMOUNT_PAID** from the pull-down menu.
- In the Statistic field, select **Sum**.
- In the Restart Event field, select **First Fetch**.
- Check **Pre-Process**.



Define Total

Name: Report_Total_Amount_Paid

Formula: AMOUNT_PAID

Statistic: Sum

Restart Event: First Fetch

☑ Pre-Process

3. Click **OK**.

   The Format Totals dialog box displays.

4. Click **New**.

   The Define Total dialog box displays. Set the Define Total values as follows:

   - In the Name field, enter Company_Total_Paid.

Note: *Input total names cannot contain spaces.*

   - In the Formula field, select **AMOUNT_PAID** from the pull-down menu.
   - In the Statistic field, select **Sum**.
   - In the Restart Event field, select **COMPANY_NAME**.
   - Check **Pre-Process**.

5. Click **OK**.

   The Format Totals dialog box displays.

6. Click **Close**.
7. Save the report.

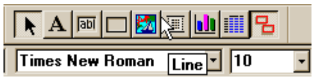
You have now created the report input totals. Next, format the report header.

Formatting the report header

The report header includes a title, a subtitle, and the total amount paid for all of the invoices.

Complete the following steps to format the report header:

1. Select the **Line** tool from the Tools toolbar.



2. Insert six lines under the Report Header caption.

   The Report Header group currently has no lines. To add lines to a blank group, click the Report Header group line.

3. Select **Report**, **New**, **Background Text**.
4. Insert a Background Text Object on the second line under the Report Header caption, type Two Pass Total Report, and press **Enter**.

5. Right-click on the Two Pass Total Report text and select **Properties** from the pop- up menu.

   The Properties dialog box displays. Set the following:

- On the Text tab, set Width to **Maximum** and Justify to **Center**.
- On the Font tab, set the font to **Arial**, the font weight to **Bold**, and size **18**.

6. Click **OK**.
7. Click on the third line using the Background Text tool, type `Total Amount Paid by Company`, and press **Enter**.
8. Right-click on the Total Amount Paid by Company text and select **Properties** from the pop-up menu.

   The Properties dialog box displays. Set the following:

   - On the Text tab, set Width to **Maximum** and Justify to **Center**.
   - On the Font tab, set the font to **Arial**, the font weight to **Bold**, and size **16**.
9. Click **OK**.
10. Click on the fifth line, type `Report Total Amount Paid:` and press **Enter**.
11. Right-click on the Report Total Amount Paid text and select **Properties** from the pop-up menu.

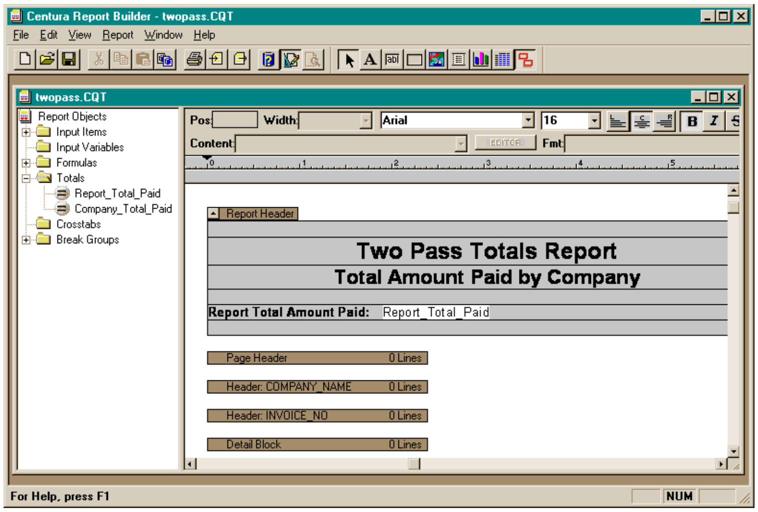
    The Properties dialog box displays. Set the following:

    - On the Text tab, set Justify to **Left**.
    - On the Font tab, set the font to **Arial**, **Regular**, and size **10**.
12. Click **OK**.
13. Align the text with the left margin.
14. Open the Totals folder in the left-hand window.

    It displays the input totals you created in the Creating input totals section: Report_Total_Paid and Company_Total_Paid.
15. Drag and drop the **Report_Total_Paid** input total next to the Report Total Amount Paid text.
16. Right-click on the **Report_Total_Paid** input item and select **Properties** from the pop-up menu.

    The Properties dialog box displays. Set the following:

    - On the Field tab, set Justify to **Left**, and set the Format field to **$#,##0.00;($#,##0.00)**.
    - On the Font tab, set the font to **Arial**, **Regular**, and size **10**.
17. Click **OK**.
18. Save the report.



Two Pass Totals Report

Total Amount Paid by Company

Report Total Amount Paid: Report_Total_Paid

You have now formatted the report header and inserted the first input total. Next, format the page header.

Formatting the page header

The page header appears at the top of each page starting with the second page. Complete the following steps to format the page header:

1. Select the **Line** tool from the Tools toolbar.
2. Add two lines to the Page Header.
3. Select **Report**, **New**, **Background Text**.
4. Click on the first line of the page header, type `Total Amount Paid by Company`, and press **Enter**.
5. Right-click on the Total Amount Paid by Company text and select **Properties** from the pop-up menu.

   The Properties dialog box displays. Set the following:

   - On the Text tab, set Width to **Maximum** and Justify to **Center**.
   - On the Font tab, set the font to **Arial**, the font weight to **Bold**, and size **16**.
6. Click **OK**.
7. Save the report.

   You have now formatted the page header. Next, format the COMPANY_NAME header.

Formatting the COMPANY_NAME header

The heading of the COMPANY_NAME break group consists of two background text fields, an input item, and an input total. The background text fields remain constant throughout your report, but the data for the input item and input total changes as the companies change.

Complete the following steps to format the COMPANY_NAME header:

1. Select **Line** tool from the Tools toolbar.
2. Add four lines to the COMPANY_NAME header.
3. Click the select tool, right-click the first line, and select **Properties** from the pop- up menu.

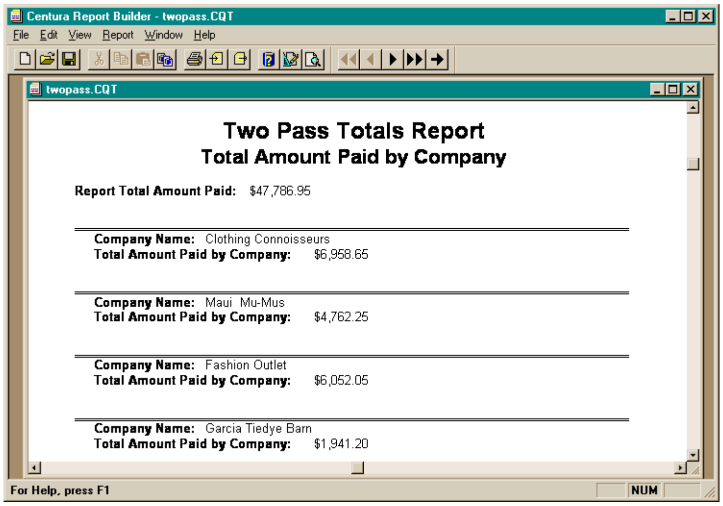
   The Properties dialog box is displayed.
4. On the Borders tab, select **Double** from the Bottom pop-up menu. Click **OK**.
5. Select **Report**, **New**, **Background Text**.
6. Click on the second line of the COMPANY_NAME header, type `Company Name:` and press **Enter**.
7. Click on the third line of the COMPANY_NAME header, type `Total Amount Paid by Company:` and press **Enter**.
8. Select both of the COMPANY_NAME header text blocks. (To select multiple text blocks, hold down the **Shift** key when left-clicking.)
9. Right-click on the selected text and select **Properties** from the pop-up menu.

   The Properties dialog box displays. Set the following:

   - On the Text tab, click the **Left** radio button in the Justify box.
   - On the Font tab, set the font to **Arial**, **Regular**, and size **10**.
10. Click **OK**.
11. Indent the selected text approximately 0.25" (0.5 cm) from the left margin.
12. Right-click on the selected text and select **Align**, **Left Sides** from the pop-up menu.
13. Open the Input Items folder in the left-hand window.

14. Drag the **COMPANY_NAME** input item from the Input Items folder to the right- hand window and drop it next to the Company Name text.
15. Drag the **Company_Total_Paid** input total from the Totals folder and drop it next to the Total Amount Paid by Company text.
16. Select both the input item and the input total, right-click on them, and select **Properties** from the pop-up menu.

    The Properties dialog box displays. Set the following on the Font tab: Font **Arial Regular**, Size **10**.
17. Select just the Company_Total_Paid input total and set the following property: on the field tab set the Format field to **$#,##0.00;($#,##0.00)**.
18. Click **OK**.
19. Save the report.
20. Select **Report**, **Report Preview** to see a preview of the two-pass total report.


Centura Report Builder - twopass.CQT
File Edit View Report Window Help
twopass.CQT

Two Pass Totals Report
Total Amount Paid by Company

Report Total Amount Paid: $47,786.95

Company Name: Clothing Connoisseurs
Total Amount Paid by Company: $6,958.65

Company Name: Maui Mu-Mus
Total Amount Paid by Company: $4,762.25

Company Name: Fashion Outlet
Total Amount Paid by Company: $6,052.05

Company Name: Garcia Tiedye Barn
Total Amount Paid by Company: $1,941.20

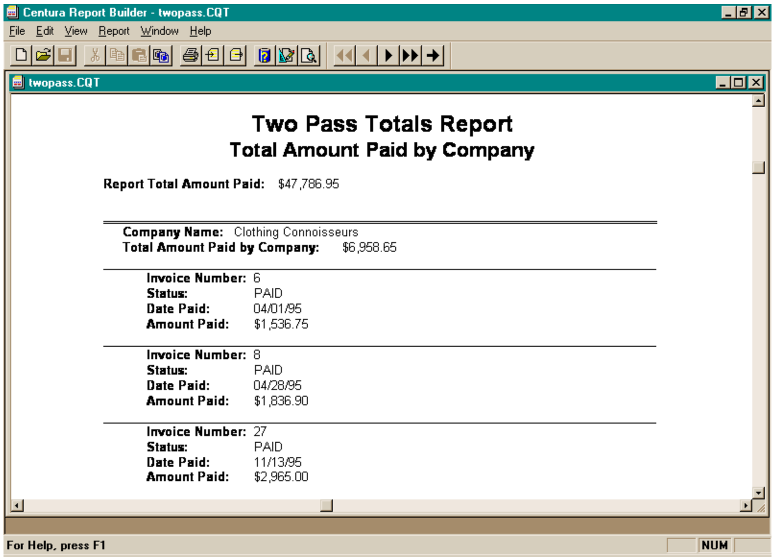
You have inserted the second input total and formatted the COMPANY_NAME header. Next, format the INVOICE_NO header.

Formatting the INVOICE_NO header

The INVOICE_NO header includes background text and a couple of invoice input items. Complete the following steps to format the INVOICE_NO header:

1. Using the Line tool, add five lines to the INVOICE_NO header.
2. Using the Select tool, right-click the first line and select **Properties**.
3. On the Borders tab, select **Single** from the Top pop-up menu. Click **OK**.
4. Using the Background Text tool, add the following text to the first four lines.
    - Invoice Number:
    - Status:
    - Date Paid:
    - Amount Paid:
5. Format all of the background text using the following settings:
    - Justify: **Left**
    - Font: **Arial**
    - Weight: **Bold**
    - Size: **10**
6. Indent the four text blocks approximately 0.5" (1 cm) from the left margin.

7. Select all four text blocks, right-click on the selected text, and select **Align**, **Left Sides** from the pop-up menu.
8. Drag and drop the following input items next to their respective captions:
    - INVOICE_NO
    - STATUS
    - DATE_PAID
    - AMOUNT_PAID
9. Format all of the input items using the following settings:
    - Justify: **Left**
    - Font: **Arial**
    - Weight: **Regular**
    - Size: **10**
10. Select all four input items, right-click on the selected items, and select **Align**, **Left Sides** from the pop-up menu.
11. Deselect the input items, right-click the INVOICE_NO input item, and select **Properties** from the pop-up menu.
12. On the Field tab, set the Format field to **#0**, and click **OK**.
13. Right-click the **DATE_PAID** field, and select **Properties** from the pop-up menu.
14. On the Field tab, enter **MM/dd/yy** in the Format field, and click **OK**.
15. Right-click the **AMOUNT_PAID** input item and select **Properties**.
16. On the Field tab, set the Format field to **$#,##0.00;($#,##0.00)**, and click **OK**.
17. Save the report.
18. Select **Report**, **Report Preview** to see a preview of the completed two-pass total report.


Centura Report Builder - twopass.CQT
File Edit View Report Window Help
twopass.CQT
For Help, press F1
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Two Pass Totals Report
Total Amount Paid by Company

Report Total Amount Paid: $47,786.95

Company Name: Clothing Connoisseurs
Total Amount Paid by Company: $6,958.65

Invoice Number: 6
Status: PAID
Date Paid: 04/01/95
Amount Paid: $1,536.75

Invoice Number: 8
Status: PAID
Date Paid: 04/28/95
Amount Paid: $1,836.90

Invoice Number: 27
Status: PAID
Date Paid: 11/13/95
Amount Paid: $2,965.00

Congratulations! You have created a two pass total report.

A copy of the completed two-pass totals report (twopass.cqt) is available in the Gupta, Samples directory.

Basic cross tabular report tutorial

Crosstabs is a special feature that allows you to gather and display cross tabular statistics on your report data. Crosstabs generates a two dimensional matrix of numeric data. The value of the matrix is based on the categories you select and the data you provide. The size of this matrix depends on the number of unique occurrences of the column and row categories you select for your crosstabs definition.

You can have up to eight row and eight column categories in your crosstab. Remember, the greater the number of row and column categories, the larger and more complex your crosstab matrix is. (If you have a very large and complex crosstab, the matrix might not fit in the defined page size.) Your report can contain any number of crosstabs.

You must identify each crosstab with a unique name.

A copy of the completed basic cross tabular report (bascross.cqt) is available in the Gupta, Samples directory.

In this tutorial, we are going to build a basic cross tabular report. You will use the ISLAND database, in particular the data provided in the INVOICE and INVOICE_ITEM tables. You begin this process by creating a new report.

Creating a new report

Complete the following steps to create a new report:

1. Launch Report Builder.

   Report Builder starts and a new report window is opened.

2. Select **Report**, **Define Query**.

   The Define Query dialog box opens.

3. Double-click **SQLBase** on the source tab.

   The ISLAND database displays.

4. Double-click the **ISLAND** database.

   The Connect to dialog box opens.

5. Enter **sysadm** in the User and Password fields. Click **OK**.

6. Double-click the INVOICE and INVOICE_ITEM database tables.

   The INVOICE and INVOICE_ITEM database tables appear in the right-hand window.

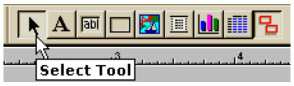
7. Click **OK**.

   A default report generates.

8. If the report is not in design mode, select **Report**, **Report Design**.

9. Select **View**, **Toolbars**, **Tools Toolbar**. The Tools toolbar displays.

10. Click the Select tool.



11. Select and delete all of the lines under the Page Header, Detail Block, and Page Footer captions.

12. Select **Report**, **Format**, **Report**.

    The Properties dialog box displays.

13. On the Page Layout tab, set the Left and Right margin fields to 0.5 inches.

14. On the Page Size tab, set the Paper Style to **Legal**, and select the **Landscape** radio button in the Orientation box. Click **OK**.

15. Save the report.

You have now created a new report and completed some of the basic report formatting. Next you create the crosstab.

Creating the crosstab

Complete the following steps to create the crosstab:

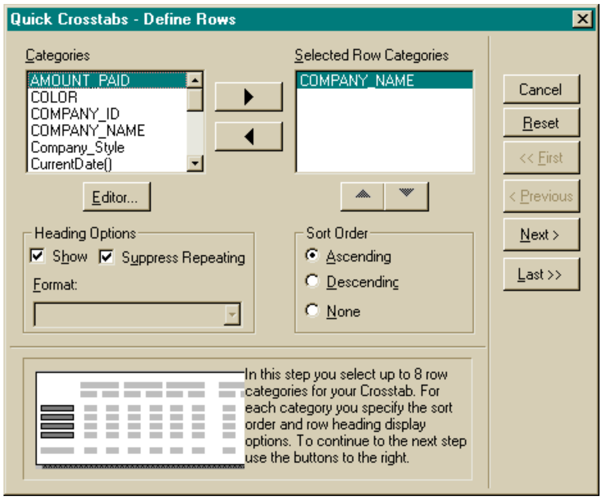
1. Select **Report**, **Format**, **Input**, **Crosstabs**.

   The Format Crosstabs dialog box displays.

2. Click **Create New Crosstab**.

   The Quick Crosstabs - Define Rows dialog box displays.

   - Double-click COMPANY_NAME in the Categories window. The item appears in the Selected Row Categories window.
   - In the Heading Options box, insure that the **Show** and **Suppress Repeating** checkboxes are checked.
   - In the Sort Order box, insure that the **Ascending** radio button is selected.



Quick Crosstabs - Define Rows

Categories: AMOUNT_PAID, COLOR, COMPANY_ID, COMPANY_NAME, Company_Style, CurrentDate()

Selected Row Categories: COMPANY_NAME

Heading Options: ☑ Show ☑ Suppress Repeating

Format:

Sort Order: ● Ascending ○ Descending ○ None

In this step you select up to 8 row categories for your Crosstab. For each category you specify the sort order and row heading display options. To continue to the next step use the buttons to the right.

3. Click **Next**.

   The Quick Crosstabs - Define Columns dialog box displays.

   - Double-click STYLE in the categories window. The item appears in the Selected Column Categories window.
   - In the Heading Options box, insure that the **Show** and **Suppress Repeating** checkboxes are checked.
   - In the Sort Order box, insure that the **Ascending** radio button is selected.

4. Click **Next**.

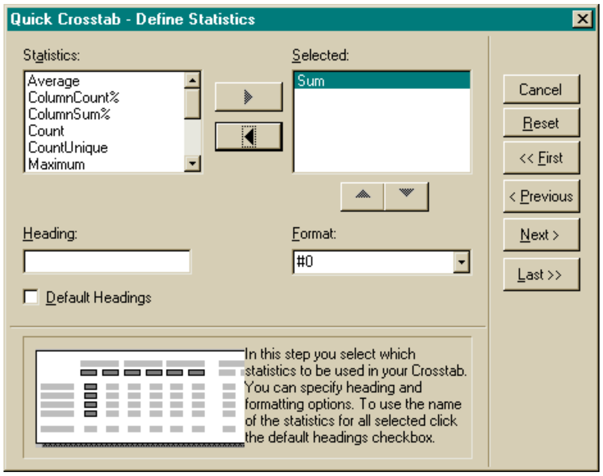
   The Quick Crosstabs - Select Cell Value dialog box displays.

   Double-click **QUANTITY** in the Values box. The item appears in the Cell Value field.

5. Click **Next**.

   The Quick Crosstabs - Define Statistics dialog box displays.

   - Insure that the value in the Selected box is Sum.
   - Deselect the Default Headings checkbox.
   - Delete any text from the Heading field.
   - Set the Format field value to **#0**.



Quick Crosstab - Define Statistics

Statistics: Average, ColumnCount%, ColumnSum%, Count, CountUnique, Maximum

Selected: Sum

Heading:

Format: #0

□ Default Headings

In this step you select which statistics to be used in your Crosstab. You can specify heading and formatting options. To use the name of the statistics for all selected click the default headings checkbox.

6. Click **Next**.

   The Quick Crosstabs - Define Summary Statistics dialog box displays.

7. In the Summary Statistics box, check the **Columns**, **Rows**, and **Matrix** checkboxes.

8. Click **Next**.

   The Quick Crosstabs - Final dialog box displays.

9. Enter `Company_Style` in the Crosstab Name field.

10. Set the Restart Event field to **First Fetch**.

11. Click **OK**.

    The Format Crosstabs dialog box displays.

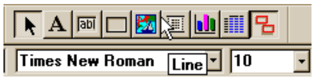
12. Click **Close**.

13. Save the report.

Inserting the crosstab and formatting the report

Complete the following steps to insert the crosstab and format the report:

1. Select the Line tool.



Times New Roman | Line | 10

2. Add 6 lines to the Report header.

3. Add 3 lines to the Report footer.

4. Select **Report**, **New**, **Background Text**.

5. Insert a Background Text Object on the second line under the Report Header caption, type `Cross Tabular Report`, and press **Enter**.

6. Right-click on the Cross Tabular Report text and select **Properties** from the pop- up menu.

   The Properties dialog box displays. Set the following:

   - On the Text tab, click the **Center** radio button in the Justify box.
   - On the Font tab, set the font to **MS Sans Serif**, the font weight to **Bold**, and size **24**.

7. Click **OK**.

8. Expand the text object so that all of the text is visible.

9. Insert a Background Text Object on the third line under the Report Header caption, type `Quantities of Shirt Styles Ordered`, and press **Enter**.
10. Right-click on the Quantities of Shirt Styles Ordered text and select **Properties** from the pop-up menu.

    The Properties dialog box displays. Set the following:

    - On the Text tab, click the **Center** radio button in the Justify box.
    - On the Font tab, set the font to **MS Sans Serif**, the font weight to **Bold**, and size **18**.
11. Click **OK**.
12. Roughly center the two text blocks in the Report Header.
13. Select **Report**, **New**, **Field**.
14. Add a new field to the fifth line of the Report Header.
15. Using the Select tool, right-click the new field and select **Properties** from the pop-up menu.

    The Properties dialog box displays.
16. On the Field tab, click **Edit Field Formula**.

    The Formula Editor dialog box displays.
17. Double-click **CurrentDate** in the **Functions** scroll list, and then click **OK**.

    The Properties dialog box displays.
18. On the Field tab in the **Format** field, enter **MMMM dd, yyyy**.
19. On the Font tab, set the font to **Times New Roman**, **Regular**, Size **10**.
20. Click **OK**.
21. Open the Crosstabs folder in the left-hand window.
22. Drag and drop the **Company_Style** cross tab to the second line of the Report Footer.
23. Right-click the **Company_Style** crosstab and select **Properties** from the pop-up menu.

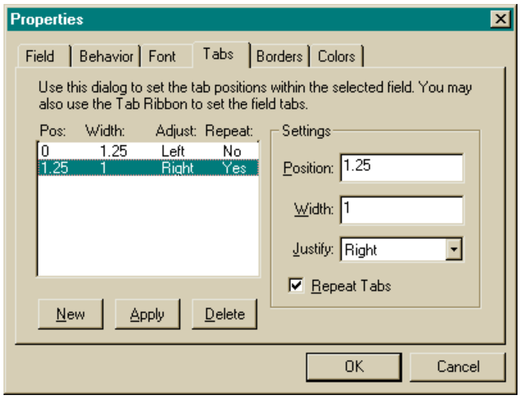
    The Properties dialog box displays.

    The size of your crosstab matrix depends on the amount of input data, the number of column and row categories, and the number of statistics you select.

    Since you cannot know how large this matrix will be, Report Builder automatically sets the crosstab field width (on the Field tab) to Dynamic, and sets Line Wrapping (on the Behavior tab) to Dynamic, with Overlay Existing Lines deselected. With these settings, Report Builder automatically calculates the appropriate width for your crosstab field, and adds as many new lines as needed to show your entire crosstab. All subsequent report lines are pushed down the page.

    If you do not set these options, Report Builder displays only the FIRST line of your crosstab matrix.

    - Set the Font to **Times New Roman**, **Regular**, Size **7**.
    - On the **Tabs** tab, select the second tab listed in the window.
    - Enter **1** in the Width field.



Use this dialog to set the tab positions within the selected field. You may also use the Tab Ribbon to set the field tabs.

Pos:	Width:	Adjust:	Repeat:
0	1.25	Left	No
1.25	1	Right	Yes

Settings

Position: 1.25

Width: 1

Justify: Right

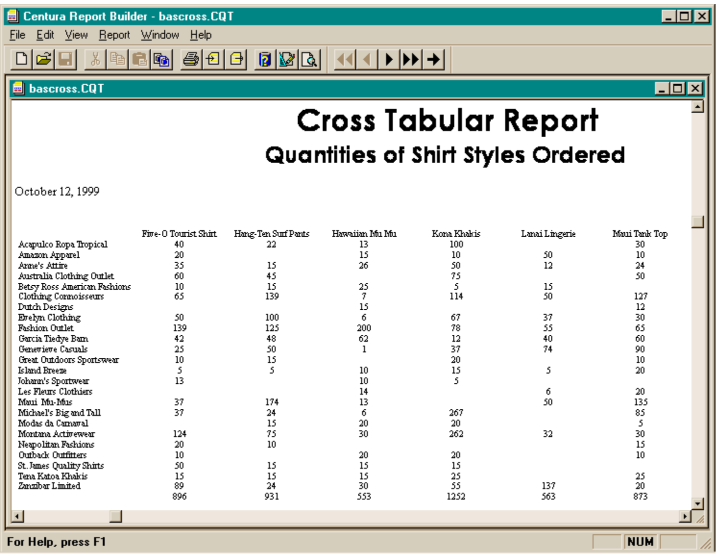
☑ Repeat Tabs

Report Builder repeats this tab setting as many times as is needed for your crosstab.

If you enter multiple tab settings in this dialog box, and check Repeat Tabs, then Report Builder repeats the group of tabs as many times as it needs. You would do this if you have multiple statistics in your crosstab, and want to format a different tab width for each statistic type.

- Click **Apply**, and then click **OK**.

24. Save the report.
25. Select Report, Report Preview to see a preview of the completed Cross Tabular Report.



Cross Tabular Report

Quantities of Shirt Styles Ordered

October 12, 1999

	Five-O Tourist Shirt	Hang-Ten Surf Pants	Hawaiian Mu Mu	Kona Khakis	Lanai Lingerie	Maui Tank Top
Acapulco Ropa Tropical	40	22	13	100		30
Amazon Apparel	20		15	10	50	10
Anne's Attire	35	15	26	50	12	24
Australia Clothing Outlet	60	45		75		50
Betsy Ross American Fashions	10	15	25	5	15	
Clothing Connoisseurs	65	139	7	114	50	127
Dutch Designs			15			12
Evelyn Clothing	50	100	6	67	37	30
Fashion Outlet	139	125	200	78	55	65
Garcia Tiedye Barn	42	48	62	12	40	60
Genevieve Casuals	25	50	1	37	74	90
Great Outdoors Sportswear	10	15		20		10
Island Breeze	5	5	10	15	5	20
Johann's Sportwear	13		10	5		
Les Fleurs Clothiers			14		6	20
Maui Mu-Mus	37	174	13		50	135
Michael's Big and Tall	37	24	6	267		85
Modas da Carnaval		15	20	20		5
Montana Activewear	124	75	30	262	32	30
Neapolitan Fashions	20	10				15
Outback Outfitters	10		20	20		10
St. James Quality Shirts	50	15	15	15		
Tena Katoa Khakis	15	15	15	25		25
Zanzibar Limited	89	24	30	55	137	20
	896	931	553	1252	563	873

Congratulations! You have successfully created a Cross Tabular Report. In the next tutorial, you will learn to use the advanced formatting features of Cross Tabular Reports.

A copy of the completed basic cross tabular report (bascross.cqt) is available in the Gupta, Samples directory.

Advanced cross tabular report tutorial

In this tutorial, we are going to build a cross tabular report that incorporates many of the advanced features of Report Builder. The report includes a crosstab and custom formatted column and statistic headers. The crosstab and crosstab headers use a number of formulas that demonstrate some of the ways you can interpret data from a database. The report uses data from the ISLAND database.

A copy of the completed advanced cross tabular report (advcross.cqt) is available in the Gupta, Samples directory.

You begin building the advanced cross tabular report by creating a new report.

Creating a new report

Complete the following steps to create a new report:

1. Launch Report Builder.

   Report Builder starts and a new report window is opened.

2. Select **Report**, **Define Query**.

   The Define Query dialog box opens.

3. Double-click **SQLBase** on the source tab.

   The ISLAND database displays.

4. Double-click the **ISLAND** database.

   The Connect to dialog box opens.

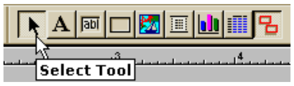
5. Enter `sysadm` in the User and Password fields. Click **OK**.
6. Double-click the INVOICE and INVOICE_ITEM database tables.

   The INVOICE and INVOICE_ITEM database tables appear in the right-hand window.

7. Click **OK**.

   A default report generates.

8. If the report is not in design mode, select **Report**, **Report Design**.
9. If the Tools toolbar is not displayed, select **View**, **Toolbars**, **Tools Toolbar**.
10. Click the Select tool.



11. Select and delete all of the lines under the Page Header, Detail Block, and Page Footer captions.
12. Save the report.

You have created a new report. In the next section, you select the report breakgroups.

Selecting breakgroups

Complete the following steps to select break groups for the advanced crosstabs report:

1. Select **Report**, **Format**, **Break Groups**.

   The Format Break Groups dialog box opens.

2. Double-click **COMPANY_NAME** and **INVOICE.INCOICE_NO** in the Input Items list.

   Make sure the COMPANY_NAME input item is listed first in the Break Groups list.

3. Click **OK**.

You have now selected the report breakgroups. In the next section, you format the advanced cross tabular report template.

Formatting the report template

Complete the following steps to format the advanced cross tabular report template:

1. Select **Report**, **Format**, **Report**.

   The Properties dialog box opens.

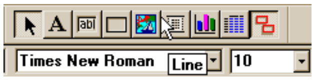
2. On the Page Layout tab, set the Left and Right margin fields to 0.25 inches.

3. On the Page Size tab, set the Paper Style to **Legal**. In the Orientation box, select the **Landscape** radio button. Click **OK**.

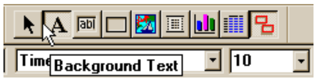
   When working with large crosstabs, using a larger paper size and the landscape orientation can allow you to print the report on a single page.

4. Using the line tool, add lines to the following block captions.

   - Report Header - add 4 lines
   - Report Footer - add 5 lines

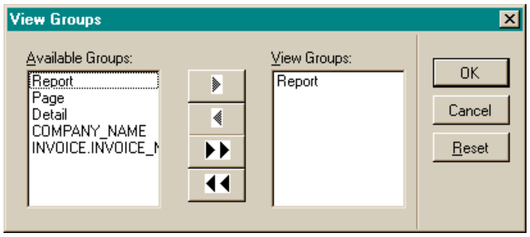


5. Using the Background Text tool, enter the following text in the top two lines of the Report Header block. Set the indicated attributes to the specified background text.



   - `Invoice Totals by Company and Quarter` – Width **Maximum**, Justify **Center**, Font **Arial**, **Bold**, Size **14**
   - `Advanced Cross Tabular Report` - Width **Maximum**, Justify **Center**, Font **Arial**, **Bold**, Size **12**

6. Select **View**, **Groups**. Hide the **Page**, **Detail**, **COMPANY_NAME**, and **INVOICE.INVOICE_NO** groups by double-clicking each group in the View Groups list. Click **OK**.



   Your report template now shows just the Report Header and Report Footer blocks. Hiding the unused block groups helps to reduce the clutter on your window.

7. Save the report.

   Select **Report**, Preview to see how your report looks in Preview mode. Select **Report**, **Design** to return to Design mode.

You have now formatted your report template. In the next section, you create the formulas and totals used in the crosstab.

Creating the formulas and totals for your crosstab

You need to create the following formulas and input totals for your crosstab:

- Invoice_Quarter formula
- Item_Total formula
- Company_Total input total

Creating the Invoice_Quarter formula

The Invoice_Quarter formula translates the date an invoice was received into the quarter an invoice was received. You use this formula in the crosstab as a column category.

Complete the following steps to create the Invoice_Quarter formula:

1. Right-click on the Formulas folder in the left-hand window and select **New**.

   The Formula Editor dialog box opens.

2. Double-click **DateQuarter** in the Functions list.

   DateQuarter(DateTime) appears in the top window with DateTime selected.

3. Double-click **INVOICE_DATE** in the Data Items list.
4. Enter `Invoice_Quarter` in the Formula Name field.
5. Click **OK**.

Creating the Item_Total formula

The Item_Total formula returns the total cost of the total quantity of items ordered on a particular invoice. You use this formula in the Company_Total input total.

Complete the following steps to create the Item_total formula:

1. Right-click on the Formulas folder in the left-hand window and select **New**.

   The Formula Editor dialog box opens.

2. Double-click ITEM_PRICE in the Data Items list.
3. Click the multiplication operator in the Operators box.
4. Double-click QUANTITY in the Data Items list.
5. Enter `Item_Total` in the Formula Name field.
6. Click **OK**.

Creating the Company_Total input total

The Company_Total input total returns the total cost of all the items ordered by a particular company during a particular time period. You configure the crosstab you create in this tutorial to display the company totals by quarter. You use the Company_Total input total as the cell value in the crosstab.

Complete the following steps to create the Company_Total input total:

1. Select **Report**, **Format**, **Input**, **Totals**.

   The Format Totals dialog box opens.

2. Click **New**.

   The Define Total dialog box opens.

3. Enter `Company_Total` in the Name field.
4. Select **Item_Total()** from the Formula list.
5. Select **Sum** from the Statistic list.
6. Select **INVOICE.INVOICE_NO** from the Restart Event list.
7. Check the Pre-Process checkbox.
8. Click **OK**.
9. Click **Close** on the Format Totals dialog box.

You have now created all of the formulas and input totals needed for the crosstab. In the next section, you incorporate these formulas in the advanced crosstab.

Defining the InvoicebyQuarter crosstab

The InvoicebyQuarter crosstab displays a list of all the companies stored in the ISLAND database with invoices. The invoices are totaled for each company by quarter. The crosstab includes statistics for the maximum, minimum, and sum of the invoices for each company for each quarter. The data in the ISLAND database spans one year.

Complete the following steps to define the InvoicebyQuarter crosstab:

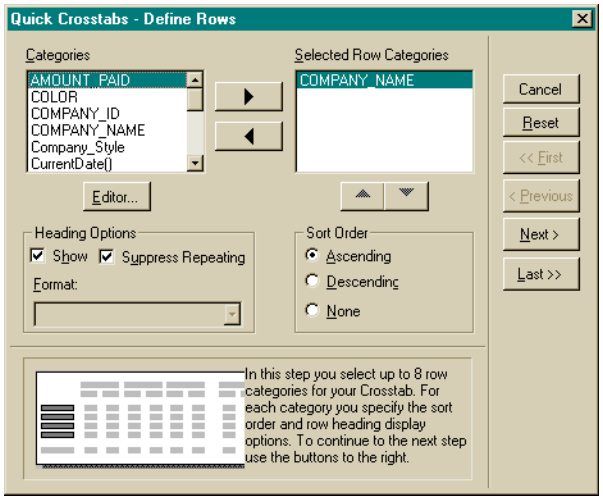
1. Select **Report**, **Format**, **Input**, **Crosstabs**.

   The Format Crosstabs dialog box opens.

2. Click **Create New Crosstab**.

   The Quick Crosstabs - Define Rows dialog box opens.

   - Double-click COMPANY_NAME in the Categories window. The item appears in the Selected Row Categories list.
   - In the Heading Options box, insure that the **Show** and **Suppress Repeating** checkboxes are ***checked***.
   - In the Sort Order box, insure that the **Ascending** radio button is selected.



Quick Crosstabs - Define Rows

Categories

AMOUNT_PAID
COLOR
COMPANY_ID
COMPANY_NAME
Company_Style
CurrentDate()

Selected Row Categories

COMPANY_NAME

Heading Options

☑ Show ☑ Suppress Repeating

Format:

Sort Order

● Ascending
○ Descending
○ None

In this step you select up to 8 row categories for your Crosstab. For each category you specify the sort order and row heading display options. To continue to the next step use the buttons to the right.

3. Click **Next**.

   The Quick Crosstabs - Define Columns dialog box opens.

   - Double-click **Invoice_Quarter()** in the Categories list. The item appears in the Selected Column Categories list.
   - In the Heading Options box, insure that the **Show** and **Suppress Repeating** checkboxes are ***unchecked***.
   - In the Sort Order box, insure that the **Ascending** radio button is selected.

4. Click **Next**.

   The Quick Crosstabs - Select Cell Value dialog box opens.

   Double-click **Company_Total** in the Values list. The item appears in the Cell Value field.

5. Click **Next**.

   The Quick Crosstabs - Define Statistics dialog box opens.

6. Select the following values from the Statistics list:

   - **Maximum**
   - **Minimum**
   - **Sum**

   Insure that the values appear in that order in the Selected list.

7. In the Selected list, select each of the values and complete the following:
   - Deselect the Default Headings checkbox.
   - Delete any text from the Heading field.
8. Click **Next**.

   The Quick Crosstabs - Define Summary Statistics dialog box opens.
9. In the Summary Statistics box, check the **Columns**, **Rows**, and **Matrix** checkboxes.
10. Click **Next**.

    The Quick Crosstabs - Final dialog box opens.
11. Enter `InvoicebyQuarter` in the Crosstab Name field.
12. Set the Restart Event field to **First Fetch**.
13. Click **OK**.

    The Format Crosstabs dialog box displays.
14. Click **Close**.
15. Save the report.

Creating the column header

You create the column header in two steps:

- You create a formula named QuarterHeader that pulls the column heading information from the InvoicebyQuarter crosstab.
- You then create a formula named ColumnHeader that displays the column header but prevents the header from repeating.

Creating the QuarterHeader formula

You use the QuarterHeader formula as a part of the ColumnHeader formula. The QuarterHeader formula extracts the column headings from the InvoicebyQuarter crosstab and completes some of the formatting.

Complete the following steps to create the QuarterHeader formula:

1. Right-click the Formulas folder in the left-hand window and select **New**.

   The Formula Editor dialog box opens.
2. Double-click **XTabGetColHeadings** in the Functions list.

   XTabGetColHeadings(String, Number, String) appears in the top window.
3. Substitute **InvoicebyQuarter** from the Data Items list for the first String in the parenthesis.
4. Enter `1` for the Number.
5. Enter '`Quarter #0`' for the second String.

   The final formula should appear as follows: XTabGetColHeadings(InvoicebyQuarter, 1, 'Quarter #0')
6. Enter `QuarterHeader` in the **Formula Name** field.
7. Click **OK**.

Creating the ColumnHeader formula

The ColumnHeader formula takes the header information generated by the QuarterHeader formula, displays each unique header once, and then prevents the header from repeating under the remaining statistic headings.

Complete the following steps to create the ColumnHeader formula:

1. Right-click the Formulas folder in the left-hand window and select **New**.

   The Formula Editor dialog box opens.

2. Double-click **StrTabColSuppress** in the Functions list.

   StrTabColSuppress(String) appears in the top window.

3. Substitute QuarterHeader from the Formulas list for String.

   The final formula should appear as follows: StrTabColSuppress(QuarterHeader())

4. Enter `ColumnHeader` in the **Formula Name** field.
5. Click **OK**.

You have now created the formulas needed to generate the column header. Next you create the formula that generates the crosstab statistic headers.

Creating the statistic header

You generate the statistic headers for your advanced crosstabs report using a formula named StatisticHeader.

Complete the following steps to create the StatisticHeader formula:

1. Right-click the Formulas folder in the left-hand window and select **New**.

   The Formula Editor dialog box opens.

2. Double-click **StrTabSeparate** in the Functions list.

   StrTabSeparate(String) appears in the top window.

3. Substitute **StrRepeat** from the Functions list for String.

   StrRepeat(String, Number) appears in the place of String.

4. Enter `'Maximum Minimum Sum '` in place of String.
5. Substitute **XTabGetColCount** from the Functions list for Number.

   XTabGetColCount(String) appears in place of Number.

6. Substitute InvoicebyQuarter from the Data Items list for String.
7. Enter `+1` after the first close parenthesis after InvoicebyQuarter.

   The final Statistic Header formula should appear as follows: StrTabSeparate(StrRepeat('Maximum Minimum Sum ', XTabGetColCount(InvoicebyQuarter)+1))

8. Enter `StatisticHeader` in the Formula Name field.
9. Click **OK**.

Incorporating the Crosstab and Headers

Complete the following steps to incorporate the crosstab and crosstab headers in the advanced crosstabs report:

1. Drag and drop the **InvoicebyQuarter** crosstab from the Crosstabs folder to the second to last line of the Report Footer. Place the crosstab at the left margin of the footer.
2. Right-click the **InvoicebyQuarter** crosstab and select **Properties** from the pop- up menu.

   On the Font tab, set the following:

   - Font: **Arial**
   - Weight: **Regular**
   - Size: **6**

Click **OK**.

3. Drag and drop the **StatisticHeader** from the Formulas folder to the first line of the Report footer.
4. Right-click the **StatisticHeader** and select **Properties** from the pop-up menu.

   On the Font tab, set the following:

   - Font: **Arial**
   - Weight: **Bold**
   - Size: **9**

   Click **OK**.
5. Drag and drop the **ColumnHeader** from the Formulas folder to the second line of the Report footer.

6. Right-click the **ColumnHeader** and select **Properties** from the pop-up menu.

   On the Font tab, set the following:

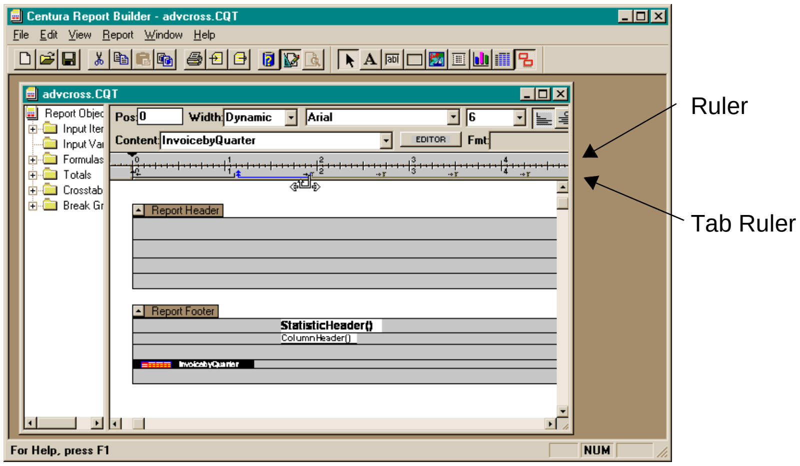
   - Font: **Arial**
   - Weight: **Bold**
   - Size: **7**

   On the Borders tab, set the following:

   - Bottom: **Single**

   Click **OK**.
7. Select both the StatisticHeader and the ColumnHeader.
8. Select **Report**, **Align**, **Left Sides**.
9. Select the InvoicebyQuarter crosstab, and adjust the tabs using the GUI tab ruler.

   - Adjust the first tab so that it is about 1.1” wide.
   - Adjust the second tab so that it is about 0.8” wide. It should also be a repeating tab



Pos: 0 Width: Dynamic Arial 6

Content: InvoicebyQuarter Fmt:

10. Select both the StatisticHeader and the ColumnHeader, and then move them 1.6” from the left hand margin. Use the ruler at the top of the report to help make the adjustment.

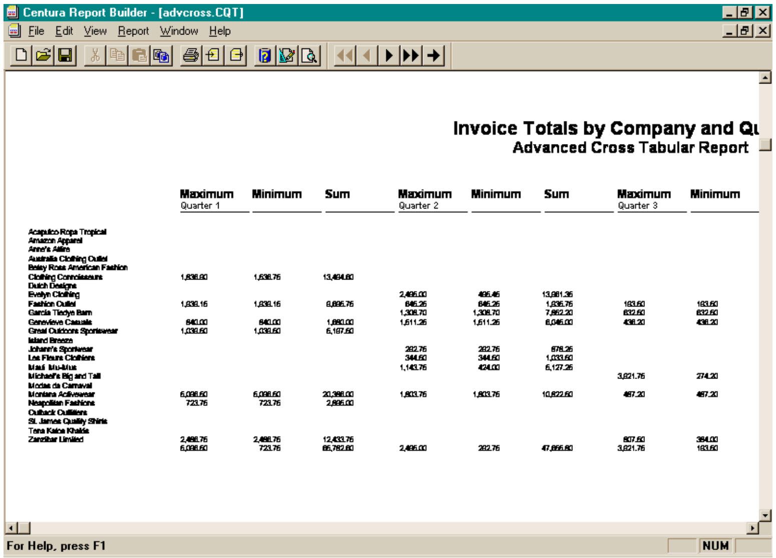
11. Select both the StatisticHeader and the ColumnHeader, and then add a single tab using the GUI tab ruler.

    To use the tab ruler to create a tab:

    - Click and hold in the tab ruler at the location where you want to start the tab.
    - Drag the cursor to just below the tab ruler.
      Report Builder creates a new tab.
12. Adjust the tab so that it is about 0.8” wide.

13. Check the formatting of the headers and crosstab in preview mode. You might need to adjust the tabs to properly align the headers and crosstab columns.

__Note:__ Adjusting the tabs as little as 1/16" can make the difference between the headers being closely aligned with the data in the crosstab columns, and the headers and crosstab data being misaligned by a wide margin.


Centura Report Builder - [advcross.CQT]
File Edit View Report Window Help
For Help, press F1
NUM

Invoice Totals by Company and Qu
Advanced Cross Tabular Report

	Maximum Quarter 1	Minimum	Sum	Maximum Quarter 2	Minimum	Sum	Maximum Quarter 3	Minimum
Acapulco Ropa Tropical								
Amazon Apparel								
Anne's Attire								
Australia Clothing Outlet								
Betsy Ross American Fashion								
Clothing Connoisseurs	1,836.80	1,638.75	13,494.60					
Dutch Designs								
Evelyn Clothing				2,495.00	495.45	13,981.35		
Fashion Outlet	1,839.15	1,839.15	6,695.75	645.25	645.25	1,835.75	193.60	193.60
Garcia Tiedye Barn				1,308.70	1,308.70	7,852.20	632.60	632.60
Genevieve Casuals	640.00	640.00	1,680.00	1,611.25	1,611.25	6,045.00	436.20	436.20
Great Outdoors Sportswear	1,039.60	1,039.60	6,197.60					
Island Breeze								
Johann's Sportwear				292.75	292.75	678.25		
Les Fleurs Clothiers				344.60	344.60	1,033.60		
Maui Mu-Mus				1,143.75	424.00	6,127.25		
Michael's Big and Tall							3,821.75	274.20
Modas da Carnaval								
Montana Activewear	6,098.60	6,098.60	20,398.00	1,803.75	1,803.75	10,822.60	487.20	487.20
Neapolitan Fashions	723.75	723.75	2,895.00					
Outback Outfitters								
St. James Quality Shirts								
Tena Kaloa Khakis								
Zanzibar Limited	2,498.75	2,498.75	12,433.75				807.60	394.00
	6,098.60	723.75	65,782.60	2,495.00	292.75	47,855.80	3,821.75	193.60

Congratulations! You have just created a crosstab, formatted crosstab headers, and incorporated both the crosstab and headers in the advanced crosstab report.

A copy of the completed advanced cross tabular report (advcross.cqt) is available in the Gupta, Samples directory.

Report Builder ActiveX interface tutorial

You can use Report Builder in conjunction with a number of development environments, including Microsoft Visual Basic and Gupta SQLWindows.

This chapter shows you how to create a report containing break groups and totals using the Report Builder ActiveX automation interface to SQLWindows. In this tutorial you:

- Create the report
- Create the matching report query
- Format the report
- Run the report

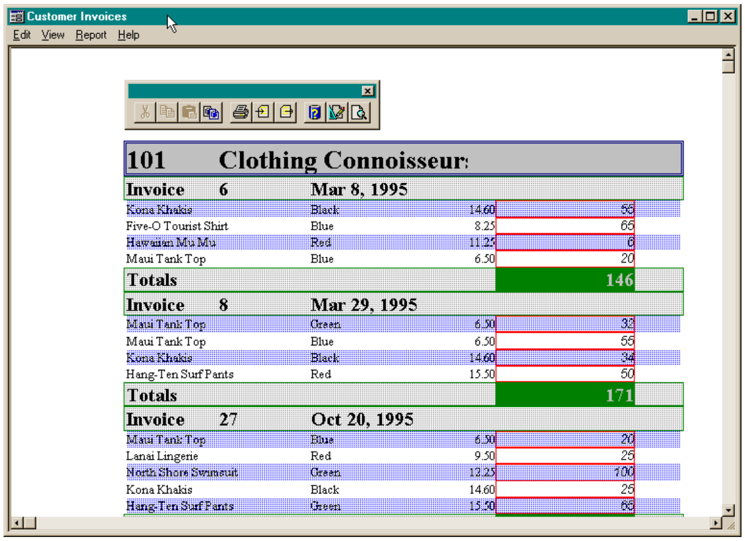
To follow this tutorial and build this report, you must have installed Gupta Team Developer and be familiar with the outline. The sample application referred to is provided in the Gupta Samples directory of that product.

What you will build

Let's take a look at the finished application that you are about to build.

1. Open SQLWindows. Select **Open** from the **File** menu.
2. In the open dialog, find **ReportBreakGroupTutorial.app** in the Samples directory. Double-click it.
3. In SQLWindows, select **Go** from the **Debug** menu.

The Customer Invoice Report opens.



101	Clothing Connoisseur:		
Invoice 6	Mar 8, 1995		
Kona Khakis	Black	14.60	55
Five-O Tourist Shirt	Blue	8.25	65
Hawaiian Mu Mu	Red	11.25	6
Maui Tank Top	Blue	6.50	20
Totals			146
Invoice 8	Mar 29, 1995		
Maui Tank Top	Green	6.50	32
Maui Tank Top	Blue	6.50	55
Kona Khakis	Black	14.60	34
Hang-Ten Surf Pants	Red	15.50	50
Totals			171
Invoice 27	Oct 20, 1995		
Maui Tank Top	Blue	6.50	20
Lanai Lingerie	Red	9.50	25
North Shore Swimsuit	Green	13.25	100
Kona Khakis	Black	14.60	25
Hang-Ten Surf Pants	Green	15.50	65

The report displays the invoice totals by item, by invoice, and by company. The report includes a fully functional toolbar you can use to manipulate the report.

Now let's begin building this report.

Starting a new application in SQLWindows

Opening a standard application template

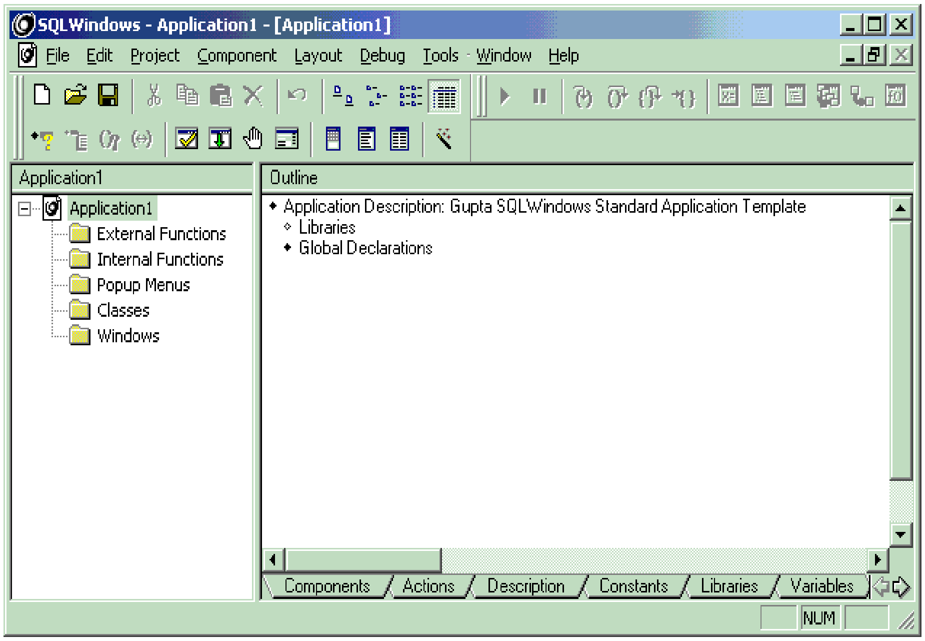
1. In SQLWindows, select **New** from the **File** menu.

   The Templates dialog box is displayed.

2. Select the standard starter application, newapp.app. Click **OK**.

3. When the **Application1** outline appears, click the **Outline** tab in the lower right portion of the window (the Tab view).

Your desktop should appear as follows:


SQLWindows - Application1 - [Application1]
File Edit Project Component Layout Debug Tools Window Help
Application1
Outline
Components Actions Description Constants Libraries Variables
NUM

- Application1
  - External Functions
  - Internal Functions
  - Popup Menus
  - Classes
  - Windows

- Application Description: Gupta SQLWindows Standard Application Template
  - Libraries
  - Global Declarations

Adding a library and a form window to your report

1. Select the **Coding Assistant** from the **Tools** menu.

   The Coding Assistant appears as a floating menu.

2. Select **Libraries** in the Outline.

   When making selections from the Outline, make sure to click on the diamonds in front of the topic. A black diamond indicates an existing subset, white diamonds have no subset.

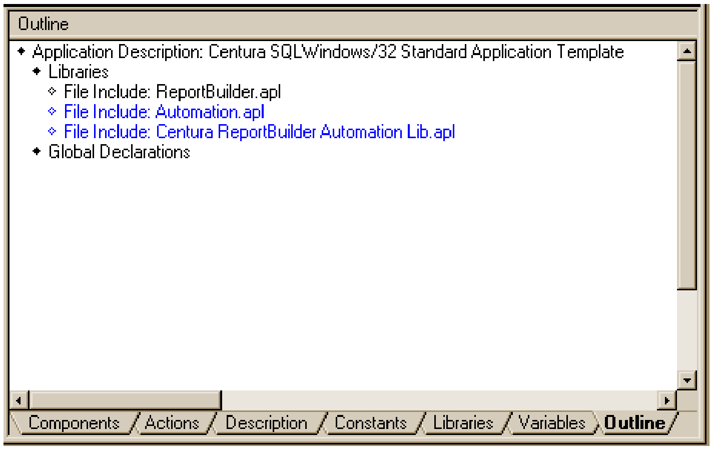
3. Double-click File Include..., in the lower part of the Coding Assistant.

4. Select **ReportBuilder.apl** from the Open dialog that appears.

   Note: *ReportBuilder.apl is usually found in the \Gupta directory.*

5. Click on the diamond of **File Include: ReportBuilder.apl** in the outline.

   Now you can view the two files automatically included in the application. Notice that the files appear in blue on your screen. A blue file indicates that the file is read-only, and derived from something else.



Outline

◆ Application Description: Centura SQLWindows/32 Standard Application Template
  ◆ Libraries
    ◇ File Include: ReportBuilder.apl
    ◇ File Include: Automation.apl
    ◇ File Include: Centura ReportBuilder Automation Lib.apl
  ◆ Global Declarations

Adding cReportBuilderWindow to the application

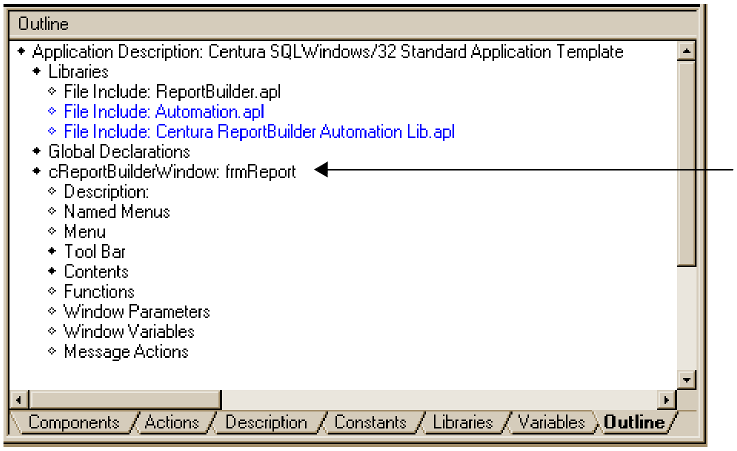
Put an instance of the Form Window Class - **cReportBuilderWindow** - in your application.

1. Click **Libraries** in the Outline.

2. Double-click **cReportBuilderWindow** in the Add Same Level section of the Coding Assistant.

3. Name cReportBuilderWindow: **frmReport**

   Your outline hierarchy should look like the one shown below.



Outline

◆ Application Description: Centura SQLWindows/32 Standard Application Template
  ◆ Libraries
    ◇ File Include: ReportBuilder.apl
    ◇ File Include: Automation.apl
    ◇ File Include: Centura ReportBuilder Automation Lib.apl
  ◆ Global Declarations
  ◆ cReportBuilderWindow: frmReport
    ◇ Description:
    ◇ Named Menus
    ◇ Menu
    ◆ Tool Bar
    ◆ Contents
    ◇ Functions
    ◇ Window Parameters
    ◇ Window Variables
    ◇ Message Actions

Type here

Creating a report query

Creating the function RunReport

1. Click **Functions** in the Outline.
2. Double-click **Function** in the Coding Assistant.
3. In the Outline, at the blinking cursor, type: `RunReport`

This function creates a report query and a report document to match the query.

Adding local variables

1. Click **Local variables** in the Outline.
2. Double-click **ReportBuilder_IReportBuilder** in the Coding Assistant.
3. In the Outline, at the blinking cursor, type: `objReport`.
4. Add another Local variable; click **Local variables** in the Outline.
5. Double-click **Boolean** in the Coding Assistant.
6. In the Outline, at the blinking cursor, type: `bOK`.

You have just created the main report builder application interface. Keep in mind that ReportBuilder_IReport Builder: objReport will be the top-level Report Builder document at the top level of the screen.

Initializing the report object from the ActiveX control

1. Click **Actions** in the Outline.
2. In the Coding Assistant, double-click **If**, then double-click **frmReport.GetReportObject.**
3. In the Outline, in the parenthesis, replace the term `Object` with `objReport`**.**
4. Press **Enter**.

Creating a skeleton report

1. In the Coding Assistant, double-click **Call** in the lower part of the Coding Assistant.
2. Select **UDV Functions** from the list box at the top of the Coding Assistant.
3. Double-click **objReport.CreateReportSkeleton** in the Coding Assistant.
4. In the Outline, replace the term `Boolean` with `bOK`.
5. Press **Enter**.

Setting the report to design mode

1. Double-click **Call** in the Coding Assistant.
   Double-click **objReport.SetDesignMode.**
2. In the Outline, replace the term `Boolean`, in parenthesis, with `TRUE`.
3. Press **Enter**.

Matching report inputs to the query columns

The first statement calls the second statement that we will be defining. The first statement **CreateQuery** - creates the report query. The second statement calls the Report Builder Document method **MatchInputsToQuery,** which is used to match the report inputs to the query columns which will get created when the **CreateQuery** function is called.

1. Click **Call objReport.SetDesignMode(TRUE)** in the Outline, then double-click **If** in the Coding Assistant.
2. In the Outline, at the end of **If**, type: `CreateQuery( objReport )`

3. Click **If CreateQuery(objReport)** in the Outline, then double-click on **Call** in the lower part of the Coding Assistant.

4. Double-click **objReport.MatchInputsToQuery** in the Coding Assistant.

5. Press **Enter**.

6. Double-click **Call** in the Coding Assistant.

7. At the end of **Call** type: `CreateReport( objReport )`

8. Press **Enter**.

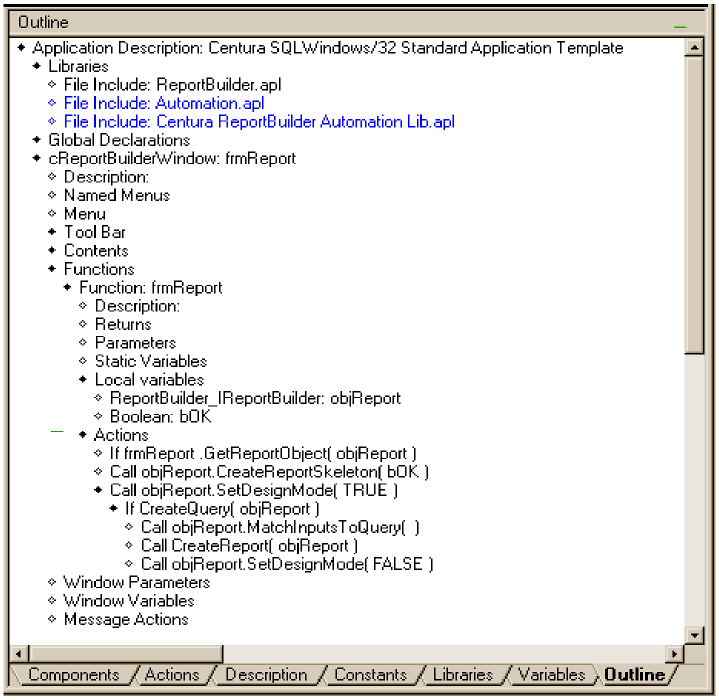
9. Double-click **Call** in the Coding Assistant.

10. Double-click **objReport.SetDesignMode**

11. Replace the term Boolean with **FALSE** in the Outline.

12. Press **Enter**.

    Your Outline should look like this.



```
◆ Application Description: Centura SQLWindows/32 Standard Application Template
  ◆ Libraries
    ◇ File Include: ReportBuilder.apl
    ◇ File Include: Automation.apl
    ◇ File Include: Centura ReportBuilder Automation Lib.apl
  ◆ Global Declarations
  ◆ cReportBuilderWindow: frmReport
    ◇ Description:
    ◇ Named Menus
    ◇ Menu
    ◆ Tool Bar
    ◆ Contents
    ◆ Functions
      ◆ Function: frmReport
        ◇ Description:
        ◇ Returns
        ◇ Parameters
        ◇ Static Variables
        ◆ Local variables
          ◇ ReportBuilder_IReportBuilder: objReport
          ◇ Boolean: bOK
        ◆ Actions
          ◇ If frmReport .GetReportObject( objReport )
          ◇ Call objReport.CreateReportSkeleton( bOK )
          ◆ Call objReport.SetDesignMode( TRUE )
            ◆ If CreateQuery( objReport )
              ◇ Call objReport.MatchInputsToQuery(  )
              ◇ Call CreateReport( objReport )
              ◇ Call objReport.SetDesignMode( FALSE )
    ◇ Window Parameters
    ◇ Window Variables
    ◇ Message Actions
```

Setting up the report query

Add a second function, **CreateQuery** to the form. This function creates a report query, adds query columns, links the query tables, and sorts the query columns.

1. In the outline, click **Functions**.

2. In the coding assistant, double-click **Function**.

3. At the blinking cursor, type: `CreateQuery`

4. Press **Enter**.

Giving the function a Boolean return

1. In the outline, click **Returns**.

2. In the Coding Assistant, double-click **Boolean**. Press **Enter**.

Defining a parameter

1. In the outline, click **Parameters**.
2. In the Coding Assistant, double-click **ReportBuilder_IReportBuilder: objReport**.

Adding local variables

1. Click **Local Variables**.
2. In the Coding Assistant, double-click **Boolean**, then type: `bOK.` Press **Enter**.

***Note:** Always press Enter after finishing a line in the outline. This positions you cursor where it needs to be for the next entry.*

3. In the Coding Assistant, double-click **ReportBuilder_QueryTable**, then type: `objTable1.` Press **Enter**.
4. In the Coding Assistant, double-click **ReportBuilder_QueryTable**, then type: `objTable2.` Press **Enter**.
5. In the Coding Assistant, double-click **ReportBuilder_QueryColumn**, then type: `objCol1.` Press **Enter**.
6. In the Coding Assistant, double-click **ReportBuilder_QueryColumn**, then type: `objCol2.` Press **Enter**.
7. In the Coding Assistant, double-click **ReportBuilder_QueryJoinkey**, then type: `cJoinkey.` Press **Enter**.
8. In the Coding Assistant, double-click **ReportBuilder_QueryOrderby**, then type: `cOrderby.` Press **Enter**.

Setting the database to ISLAND

1. Click **Actions**.
2. In the Coding Assistant, double-click **Call**, the type: `objReport.SetDatabase( 'ISLAND' )`
3. Press **Enter**.

Opening the database connection

Enter the following If statement at the same level as the previous Call statement. This will open a connection to the database.

```
If objReport.OpenConnection( bOK )
```

1. Click **Actions**.
2. In the coding Assistant, double-click **If**, then type: `objReport.OpenConnection( bOK )`
3. Press **Enter**.

Calling column information into the report

You need to make a lot of calls to bring information into specific columns in the report. All of these calls need to go one level in from the If statement above. Use this procedure to add each call:

1. In the coding Assistant, double-click **Call** in the lower part of the Coding Assistant.
2. Type the name of the function (e.g., `objReport.AddTable`).
3. In the parenthesis after the function, replace the parameter names with the text shown below.
4. Press **Enter**.

Here are the calls and descriptions of what they do.

The first two calls add the two query tables - INVOICE and INVOICE_ITEM:

```
Call objReport.AddTable('INVOICE', 'SYSADM', objTable1 )
Call objReport.AddTable('INVOICE_ITEM', 'SYSADM', objTable2 )
```

Two calls add the COMPANY_ID column from the INVOICE table and add the column as an Order By:

```
Call objTable1.AddColumn('COMPANY_ID', objCol1)
Call objReport.AddOrderby(objCol1, TRUE, cOrderby)
```

Two calls add the INVOICE_NO column from the INVOICE table and add the column as an Order By:

```
Call objTable1.AddColumn('INVOICE_NO', objCol1) Call objReport.AddOrderby(objCol1,
TRUE, cOrderby)
```

Two calls add the Joinkey object which links the two tables on the INVOICE_NO column:

```
Call objTable2.AddColumn('INVOICE_NO', objCol2)
Call objReport.AddJoinkey( objTable1, objTable2, objCol1, objCol2, '=', FALSE,
FALSE, FALSE, cJoinkey)
```

Six calls add the rest of the columns for the report query:

```
Call objTable1.AddColumn('COMPANY_NAME', objCol1)
Call objTable1.AddColumn('INVOICE_DATE', objCol1)
Call objTable2.AddColumn('QUANTITY', objCol2)
Call objTable2.AddColumn('ITEM_PRICE', objCol2) Call objTable2.AddColumn('STYLE',
objCol2)
Call objTable2.AddColumn('COLOR', objCol2)
```

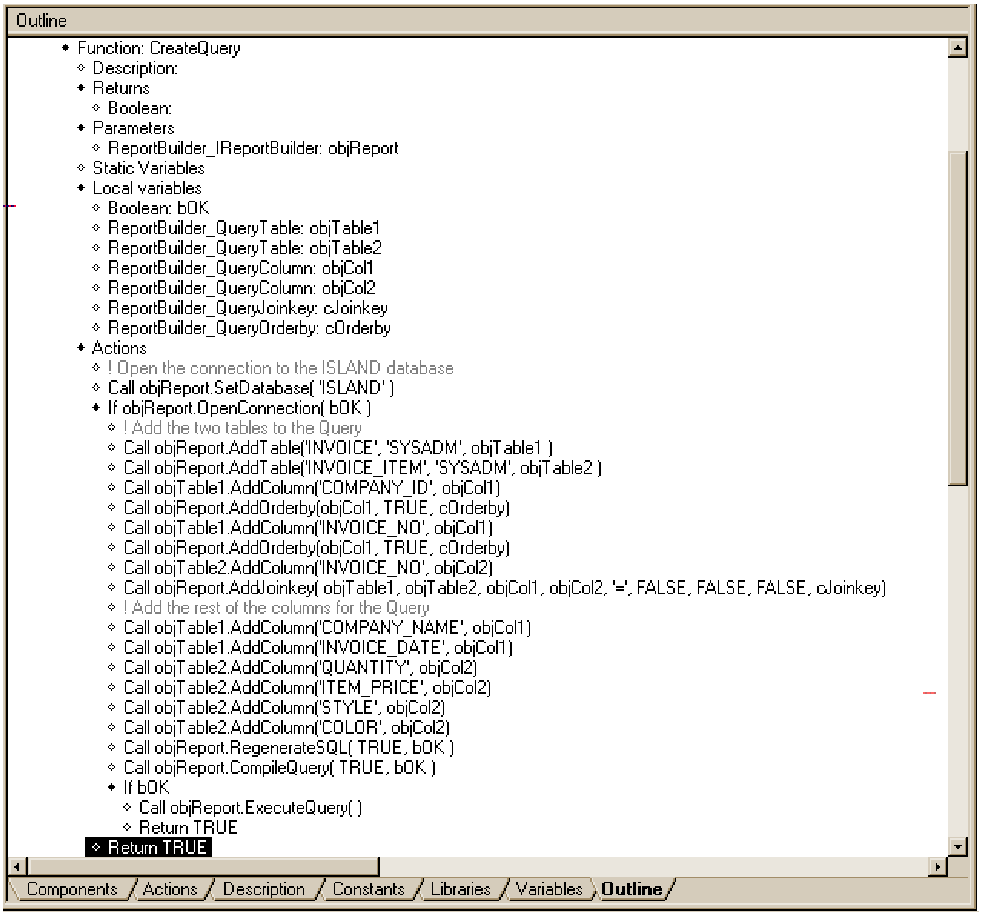
The last two calls execute the report query:

```
Call objReport.RegenerateSQL( TRUE, bOK ) Call objReport.CompileQuery( TRUE, bOK )
```

Finish the query.

1. In the Coding Assistant, double-click **If**, then type: `bOK`.
2. Press **Enter**.
3. In the lower part of the Coding Assistant, double-click **Call**, then type: `objReport.ExecuteQuery( )`
4. Press **Enter**.
5. In the Coding Assistant, double-click **Return** and type: `TRUE`
6. Click **If bOK**
7. In the Coding Assistant, double-click **Return** and type: `TRUE`

Let’s look at the outline for this function. Yours should look like this:



```
◆ Function: CreateQuery
  ◇ Description:
  ◆ Returns
    ◇ Boolean:
  ◆ Parameters
    ◇ ReportBuilder_IReportBuilder: objReport
  ◇ Static Variables
  ◆ Local variables
    ◇ Boolean: bOK
    ◇ ReportBuilder_QueryTable: objTable1
    ◇ ReportBuilder_QueryTable: objTable2
    ◇ ReportBuilder_QueryColumn: objCol1
    ◇ ReportBuilder_QueryColumn: objCol2
    ◇ ReportBuilder_QueryJoinkey: cJoinkey
    ◇ ReportBuilder_QueryOrderby: cOrderby
  ◆ Actions
    ◇ ! Open the connection to the ISLAND database
    ◇ Call objReport.SetDatabase( 'ISLAND' )
    ◆ If objReport.OpenConnection( bOK )
      ◇ ! Add the two tables to the Query
      ◇ Call objReport.AddTable('INVOICE', 'SYSADM', objTable1 )
      ◇ Call objReport.AddTable('INVOICE_ITEM', 'SYSADM', objTable2 )
      ◇ Call objTable1.AddColumn('COMPANY_ID', objCol1)
      ◇ Call objReport.AddOrderby(objCol1, TRUE, cOrderby)
      ◇ Call objTable1.AddColumn('INVOICE_NO', objCol1)
      ◇ Call objReport.AddOrderby(objCol1, TRUE, cOrderby)
      ◇ Call objTable2.AddColumn('INVOICE_NO', objCol2)
      ◇ Call objReport.AddJoinkey( objTable1, objTable2, objCol1, objCol2, '=', FALSE, FALSE, FALSE, cJoinkey)
      ◇ ! Add the rest of the columns for the Query
      ◇ Call objTable1.AddColumn('COMPANY_NAME', objCol1)
      ◇ Call objTable1.AddColumn('INVOICE_DATE', objCol1)
      ◇ Call objTable2.AddColumn('QUANTITY', objCol2)
      ◇ Call objTable2.AddColumn('ITEM_PRICE', objCol2)
      ◇ Call objTable2.AddColumn('STYLE', objCol2)
      ◇ Call objTable2.AddColumn('COLOR', objCol2)
      ◇ Call objReport.RegenerateSQL( TRUE, bOK )
      ◇ Call objReport.CompileQuery( TRUE, bOK )
      ◆ If bOK
        ◇ Call objReport.ExecuteQuery( )
        ◇ Return TRUE
    ◇ Return TRUE
```

Formatting the report

You need one more function to create this report. This function creates a break group report with totals on Quantity.

1. In the outline, click **Functions**.
2. In the coding assistant, double-click **Function**.
3. At the blinking cursor, type: `CreateReport`
4. Press **Enter**.

Defining a parameter

1. Click **Parameters**.
2. In the Coding Assistant, double-click **ReportBuilder_IReportBuilder**, and type: **objReport**.

Adding local variables

Use this procedure to add the variables below:

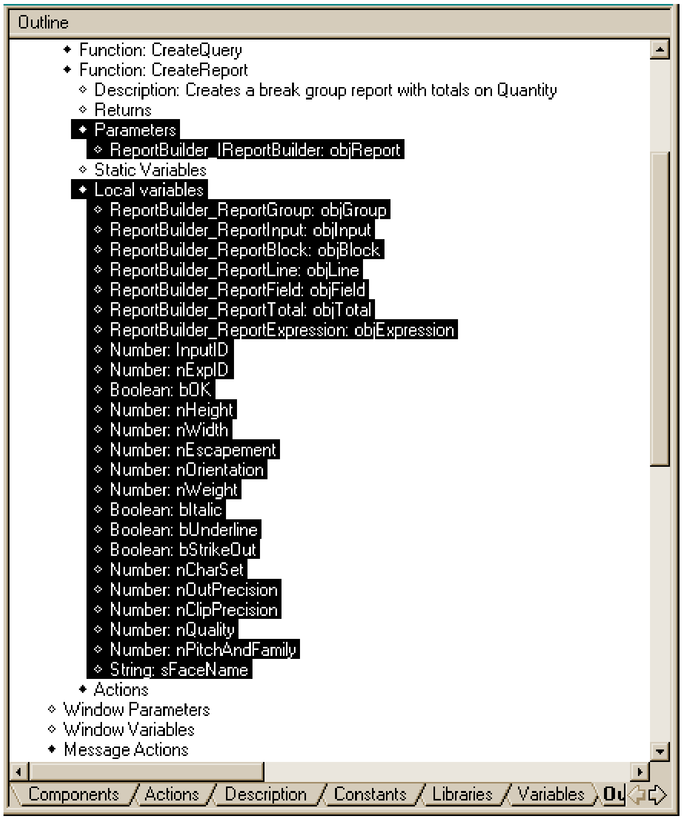
1. Click **Local Variables**.
2. In the Coding Assistant, double-click the variable (e.g., ReportBuilder_ReportGroup.
3. In the outline, after the variable, type the name (e.g., objGroup). These are the variables to add:

```
ReportBuilder_ReportGroup: objGroup ReportBuilder_ReportInput: objInput
ReportBuilder_ReportBlock: objBlock ReportBuilder_ReportLine: objLine
ReportBuilder_ReportField: objField ReportBuilder_ReportTotal: objTotal
ReportBuilder_ReportExpression: objExpression Number: InputID
Number: nExpID
```

```
Boolean: bOK Number: nHeight Number: nWidth Number: nEscapement Number:
nOrientation Number: nWeight Boolean: bItalic Boolean: bUnderline Boolean:
bStrikeOut Number: nCharSet
```

```
Number: nOutPrecision Number: nClipPrecision Number: nQuality
Number: nPitchAndFamily
String: sFaceName
```

So far, the outline for this function looks like this:



Outline

```
    Function: CreateQuery
    Function: CreateReport
      Description: Creates a break group report with totals on Quantity
      Returns
      Parameters
        ReportBuilder_IReportBuilder: objReport
      Static Variables
      Local variables
        ReportBuilder_ReportGroup: objGroup
        ReportBuilder_ReportInput: objInput
        ReportBuilder_ReportBlock: objBlock
        ReportBuilder_ReportLine: objLine
        ReportBuilder_ReportField: objField
        ReportBuilder_ReportTotal: objTotal
        ReportBuilder_ReportExpression: objExpression
        Number: InputID
        Number: nExpID
        Boolean: bOK
        Number: nHeight
        Number: nWidth
        Number: nEscapement
        Number: nOrientation
        Number: nWeight
        Boolean: bItalic
        Boolean: bUnderline
        Boolean: bStrikeOut
        Number: nCharSet
        Number: nOutPrecision
        Number: nClipPrecision
        Number: nQuality
        Number: nPitchAndFamily
        String: sFaceName
      Actions
  Window Parameters
  Window Variables
  Message Actions
```

Setting the font and orientation

A number of calls are needed to format the report. First call **GetDefaultFont**, to get the report's default font. This will be used to easily modify the default font as needed. Then set the report's orientation to landscape

1. Click **Actions.**

   Note: *Remember, after you double-click Call in the Coding Assistant, you must type the rest of the function directly into the code. Since this is a lot of typing, you can also copy the calls from the outline in ReportBreakGroupTutorial.app and paste them into your outline.*

2. Add two calls:

```
Call objReport.GetDefaultFont( nHeight, nWidth, nEscapement, nOrientation, nWeight,
     bItalic, bUnderline, bStrikeOut, nCharSet, nOutPrecision, nClipPrecision,
     nQuality, nPitchAndFamily, sFaceName, bOK )
Call objReport.SetOrientation( Orientation_Landscape, bOK )
```

Creating a break group

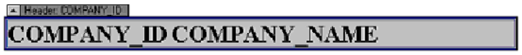
You need to add another four calls to create a break group for COMPANY_ID and set the default font to bold and twice the size.

Add these calls under **Actions** for **CreateReport**.

```
Call objReport.GetInputFromName( 'COMPANY_ID', objInput )
Call objInput.GetID( InputID )
Call objReport.CreateReportBreakGroupID( ReportGroupType_Break01,InputID, objGroup)
Call objReport.SetDefaultFont( nHeight * 2, nWidth,nEscapement, nOrientation,
     nWeight * 2, bItalic, bUnderline, bStrikeOut, nCharSet, nOutPrecision,
     nClipPrecision, nQuality, nPitchAndFamily, sFaceName, bOK)
```

Creating the group header block

Ten calls will create the group header block, append a line and add the COMPANY_ID and COMPANY_NAME fields. It looks like this:

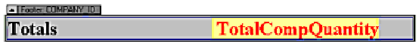


Add these calls under **Actions** for **CreateReport**.

```
Call objGroup.CreateBlock( BlockType_Header, objBlock )
Call objBlock.AppendLine( objLine )
Call objLine.SetBorders(2,2,2,2,bOK)
Call objLine.SetBackgroundColor( COLOR_Gray, FALSE, bOK )
Call objLine.SetBorderColor( COLOR_DarkBlue, bOK )
Call objLine.CreateField( objField )
Call objField.SetExpText( 'COMPANY_ID', bOK )
Call objField.SetPicture( '#0', bOK )
Call objLine.CreateField( objField )
Call objField.SetExpText( 'COMPANY_NAME', bOK )
```

Creating the group footer block

The following calls all define the details of the footer block, append a line, create a report total on QUALITY and add a field for the total. It looks like this:



Add these calls under **Actions** for **CreateReport**.

```
Call objGroup.Create Block( BlockType_Footer, objBlock )
Call objBlock.AppendLine( objLine )
Call objLine.SetBorders(2,2,2,2,bOK)
Call objLine.SetBackgroundColor( COLOR_Gray, FALSE, bOK )
Call objLine.SetBorderColor( COLOR_DarkBlue, bOK )
Call objReport.CreateReportTotal( 'TotalCompQuantity', objTotal )
Call objTotal.SetExpText( 'QUANTITY', bOK )
Call objTotal.SetType( TotalType_Sum, bOK )
Call objTotal.SetReset( TotalReset_Break01, bOK )
Call objLine.CreateField( objField )
Call objField.SetExpText( '\'Totals\'', bOK )
Call objLine.CreateField( objField )
Call objField.SetExpText( 'TotalCompQuantity', bOK )
Call objField.SetLeft( 4000, bOK )
Call objField.SetWidth( 1500, bOK )
Call objField.SetAdjust( Adjust_Right, bOK )
Call objField.SetPicture( '#0', bOK )
Call objField.SetBackgroundColor( COLOR_DarkBlue, FALSE, bOK )
Call objField.SetTextColor( COLOR_Cyan, bOK )
```

Creating a break group

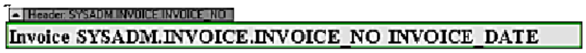
Two more calls create a break group for INVOICE_NO and set the default font to bold and 1 1/2 the size.

Add these calls under **Actions** for **CreateReport**.

```
Call objReport.CreateReportBreakGroup(
     ReportGroupType_Break02,'SYSADM.INVOICE.INVOICE_NO', objGroup)
Call objReport.SetDefaultFont( nHeight * 1.5, nWidth,nEscapement, nOrientation,
     nWeight * 2, bItalic, bUnderline, bStrikeOut, nCharSet, nOutPrecision,
     nClipPrecision, nQuality, nPitchAndFamily, sFaceName, bOK )
```

Creating the group header block

The following calls create the group header block, append a line and add a literal text, INVOICE_NO and INVOICE_DATE fields:

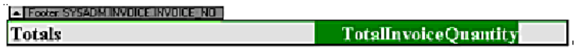

Header: SYSADM.INVOICE.INVOICE_NO
Invoice SYSADM.INVOICE.INVOICE_NO INVOICE_DATE

Add these calls under **Actions** for **CreateReport**.

```
Call objGroup.CreateBlock( BlockType_Header, objBlock )
Call objBlock.AppendLine( objLine )
Call objLine.SetBorders(1,1,1,1,bOK)
Call objLine.SetBackgroundColor( COLOR_LightGray, FALSE, bOK )
Call objLine.SetBorderColor( COLOR_DarkGreen, bOK )
Call objLine.CreateField( objField )
Call objField.SetExpText( '\'Invoice\'', bOK )
Call objLine.CreateField( objField )
Call objField.SetExpText( 'SYSADM.INVOICE.INVOICE_NO', bOK )
Call objField.SetPicture( '#0', bOK )
Call objField.SetLeft( 1000, bOK )
Call objLine.CreateField( objField )
Call objField.SetExpText( 'INVOICE_DATE', bOK )
Call objField.SetPicture( 'MMM d, yyyy', bOK )
Call objField.SetLeft( 2000, bOK )
```

Creating the group footer block

The following calls create the group footer block, append a line, create a report total on QUANTITY and add a field for the total. It looks like this:



Add these calls under **Actions** for **CreateReport**.

```
Call objGroup.CreateBlock( BlockType_Footer, objBlock )
Call objBlock.AppendLine( objLine )
Call objLine.SetBorders(1,1,1,1,bOK)
Call objLine.SetBackgroundColor( COLOR_LightGray, FALSE, bOK )
Call objLine.SetBorderColor( COLOR_DarkGreen, bOK )
Call objReport.CreateReportTotal( 'TotalInvoiceQuantity', objTotal )
Call objTotal.SetExpText( 'QUANTITY', bOK )
Call objTotal.SetType( TotalType_Sum, bOK )
Call objTotal.SetReset( TotalReset_Break02, bOK )
Call objLine.CreateField( objField )
Call objField.SetExpText( '\'Totals\'', bOK )
Call objLine.CreateField( objField )
Call objField.SetExpText( 'TotalInvoiceQuantity', bOK )
Call objField.SetLeft( 4000, bOK )
Call objField.SetWidth( 1500, bOK )
Call objField.SetAdjust( Adjust_Right, bOK )
Call objField.SetPicture( '#0', bOK )
Call objField.SetBackgroundColor( COLOR_DarkGreen, FALSE, bOK )
Call objField.SetTextColor( COLOR_LightGreen, bOK )
```

Setting the default font

This call sets the default font back to what it was to start with for working with the detail block:

Add this call under **Actions** for **CreateReport**.

```
Call objReport.SetDefaultFont( nHeight, nWidth, nEscapement, nOrientation,
   nWeight, bItalic, bUnderline, bStrikeOut, nCharSet, nOutPrecision,
   nClipPrecision, nQuality, nPitchAndFamily, sFaceName, bOK)
```

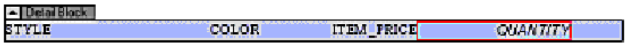
Getting a line

These calls get the one pre-existing line in the detail group/block. Add these calls under **Actions** for **CreateReport**.

```
Call objReport.GetReportGroup( ReportGroupType_Detail, objGroup )
Call objGroup.GetBlock( BlockType_Detail, objBlock )
Call objBlock.GetLine( 0, objLine )
Call objLine.SetBackgroundColor( COLOR_LightPeriwinkle, FALSE, bOK )
Call objLine.SetBackgroundAlternate( TRUE, bOK )
```

Adding fields

These calls add the STYLE, COLOR, ITEM_PRICE and QUANTITY fields to the detail line. It looks like this:



Add these calls under **Actions** for **CreateReport**.

```
Call objLine.CreateField( objField )
Call objField.SetExpText( 'STYLE', bOK )
Call objLine.CreateField( objField )
Call objField.SetExpText( 'COLOR', bOK )
Call objField.SetLeft( 2000, bOK )
Call objLine.CreateField( objField )
Call objField.SetExpText( 'ITEM_PRICE', bOK )
Call objField.SetLeft( 3000, bOK )
Call objField.SetWidth( 1000, bOK )
Call objField.SetAdjust( Adjust_Right, bOK )
Call objField.SetPicture( '#0.00', bOK )
Call objLine.CreateField( objField )
Call objField.SetExpText( 'QUANTITY', bOK )
Call objField.SetLeft( 4000, bOK )
Call objField.SetWidth( 1500, bOK )
Call objField.SetAdjust( Adjust_Right, bOK )
Call objField.SetPicture( '#0', bOK )
Call objField.SetBorders( 1,1,1,1,0, bOK )
Call objField.SetBorderColor( COLOR_Red, bOK )
```

Getting the font

This final call gets and modifies the font for the QUANTITY field. Add this call under **Actions** for **CreateReport**.

```
Call objField.GetFont( nHeight, nWidth, nEscapement, nOrientation, nWeight, bItalic,
   bUnderline, bStrikeOut, nCharSet, nOutPrecision, nClipPrecision, nQuality,
   nPitchAndFamily,sFaceName, bOK )
```

Sending a message to run the report

Under **Message Actions** for the form (frmReport), place the following:

1. Click **Message Actions**.
2. In the lower part of the Coding Assistant, double-click **On**.
3. In the Coding Assistant, double-click **SAM_CreateComplete**.
4. Click **On SAM_CreateComplete.**

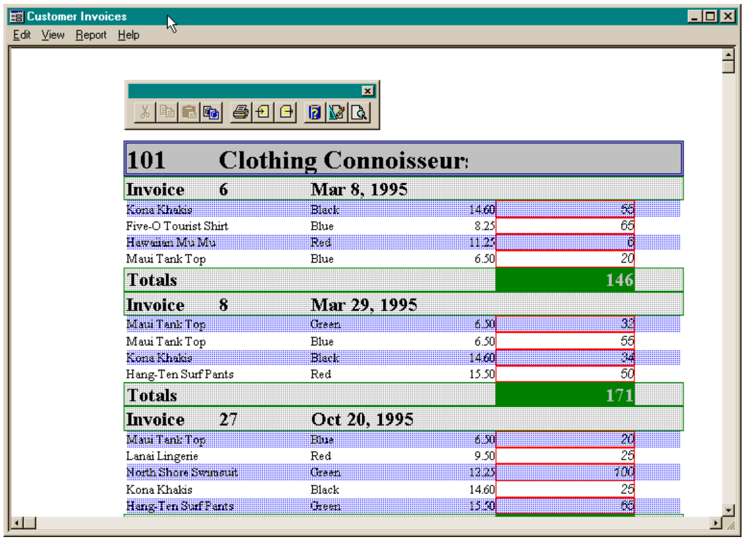
5. In the lower part of the Coding Assistant, double-click **Call**, then type: **RunReport( )**.

   You are code complete!

Running the report

You can now save your report and run it.

1. Select **Go** from the **Debug** menu.
2. When SQLWindows asks you if you want to save the application, click **Yes**.
3. In the Save As dialog, save the application with any name you choose, such as **CustomerInformation.app**. The report displays.



101	**Clothing Connoisseur:**		
Invoice 6	**Mar 8, 1995**		
Kona Khakis	Black	14.60	55
Five-O Tourist Shirt	Blue	8.25	65
Hawaiian Mu Mu	Red	11.25	6
Maui Tank Top	Blue	6.50	20
Totals			**146**
Invoice 8	**Mar 29, 1995**		
Maui Tank Top	Green	6.50	32
Maui Tank Top	Blue	6.50	55
Kona Khakis	Black	14.60	34
Hang-Ten Surf Pants	Red	15.50	50
Totals			**171**
Invoice 27	**Oct 20, 1995**		
Maui Tank Top	Blue	6.50	20
Lanai Lingerie	Red	9.50	25
North Shore Swimsuit	Green	13.25	100
Kona Khakis	Black	14.60	25
Hang-Ten Surf Pants	Green	15.50	65

Congratulations! You have completed the ActiveX interface tutorial and now have a working ActiveX interface report.

Glossary

action bar

An alternative term for menu bar. The horizontal bar containing the names of all the application menus. It appears just below the title bar of the application window.

active document

The Windows environment lets you have multiple applications open at a time. However, only one application can be active at any one time. The active document can be identified by the different colored title bar at the top of the document window.

active printer

An installed printer that has been assigned to a printer port with the File Printer Setup command. Many printers can be assigned to a single printer port, but only one can be active at a time.

active window

The window or icon that is currently selected. The next keystroke or command you execute applies to this window. If a window is active, it appears in front of all other windows, and its title bar is a different color from the inactive windows.

aggregate function

A function that lets you summarize data for an entire column, or group of rows. It produces a single value from a column of data.

In a query, you only use an aggregate function with grouped data. The function outputs a summary row for each grouped set of data.

Reports use aggregate functions to provide summary data within each break group, or to generate cross tab and total values.

alphanumeric

A character string that is made up of alphabets and numbers. You cannot perform numeric operations on alphanumeric strings.

Application Control menu

This is the icon at the far left corner of the title bar of the application, and is indicated by a space bar icon within a rectangular box. You may use this menu to move, change the size of, and close the application window. You can also use this menu to move to another open application via the Switch To command.

application window

The main window for an application. It contains the application title bar, menu bar, and main work space. You can open one report template at a time.

arguments

Information required by a function in the Formula Editor. Most functions require at least one argument. Most arguments are NUMERIC, STRING, or LOGICAL values. These values can come from a constant value, another formula, a column name, or an input item.

background text

Text or character string that defines itself and is not used as a label for something else in the Report Template. All background text in Report Builder must be enclosed by single quotes (' ').

blank line

A line in Report Builder that either has no fields or for which there is no data that prints in those fields. Use the Format Line, Suppress Line Spacing command to suppress the printing of this line.

block

All the lines, fields, pictures, and boxes that belong to a block caption. A report is comprised of many types of blocks such as header blocks, footer blocks, and detail blocks.

block caption

The heading for a block. It is shown as a title within a rectangle above each set of block group lines. The block caption displays the number of lines within its block when a block is collapsed with the Collapse All Blocks command.

block group

Is made up of a paired header and footer block, with all their associated lines, fields, pictures, and boxes. A block group is generated for every break group, as well as for the Page, Report, and Detail blocks of a report.

block lines

Are all the lines that belong to a block and that lie immediately beneath that block caption heading. Block lines can be collapsed or expanded from view by clicking on the arrow beside the block caption name.

box tool

Creates and inserts boxes in the Report Builder template. You can choose the box tool by clicking the right mouse button until the tool appears, or by choosing the Tools Box command from the menu bar.

box

A graphical rectangle that can be used to frame a group of fields, lines, or a block. You can change the density of the box lines by using the Format Box command. Use the box tool to draw your box.

break group item

The name of the input item which serves as a break group identifier. When this item changes, page breaks, summary calculations, and total calculations for that break group are performed. Break group items are defined with the Format Break Groups command.

break groups

Break groups divide the report into logical subunits. They are frequently used for subtitling and pagination purposes. A report begins a new unit when the Break Group Item changes.

break item

The input item which acts as a break group identifier. When this item changes, summary and total calculations for that group can be performed.

browse bar

A horizontal bar just below the activity bar when the activity is in Field view. The browse bar lets you move up and down the rows in a table, viewing each row one at a time within the Field view.

browse mode

Displays the information from a database table. You can view the information, but cannot change or modify it in any way. However, you can change the sort order of the display, and copy all or part of it to the Clipboard.

calculated field

A report field whose contents are based on the results of a formula you specified. Use the Formula Editor on the ruler to create and assign a formula to a calculated field.

CHAR

The data type assigned to alphanumeric information. You must specify a length for columns of this data type. In SQLBase, the maximum length allowed is 254 characters.

click

Press and release the mouse button (usually the left mouse button).

Clipboard

This is a temporary storage area for cut or copied graphics and text. You can paste the contents of the Clipboard into Report Builder, or to an external application.

column

Columns make up the structure of a table, and define the type of data in the table. They are made up of data items of a single type.

command

A word or phrase, usually found in a menu, that carries out an action when it is chosen.

concatenated index

A database index made up of two or more columns in a table. When more than one column is specified for an index, the second column is ordered within the first, the third within the second, and so on. Each column can be sorted in ascending or descending order.

content

The contents of a field in Report Builder can be an input item, background text, or a formula. Box contents can be other fields, empty space, or a graphic image. All fields have content.

Comma Separated Values (.CSV)

The .CSV file format is commonly used to store data. This format uses a comma (,) to separate fields. If a field contains a comma as part of its text, then that comma is enclosed in double quotation marks ("). CSV files are generally saved with an extension of .CSV. Report templates can use the data in .CSV files.

current report

The active report which is currently open in Report Builder. All commands, selections, and so on used at this time apply to the current report.

data item

A single piece of information you cannot divide. A data item occupies one cell in database table.

data table

Relational databases are made up of data tables. A data table is organized into rows and columns. Each row in a data table is the equivalent of a record in a flat file, and each column element (or cell) is the equivalent of a single field. A database can have any number of data tables.

data type

Defines the type of data in a table column, or in a field in a report.

Columns can be assigned data types of CHAR, VARCHAR, LONG VARCHAR, DATE, DATETIME, TIME, DECIMAL, DOUBLE PRECISION, FLOAT, INTEGER, NUMBER, REAL, and SMALLINT.

Fields in a report can be STRING, NUMBER, or DATE/TIME.

database

Databases are collections of related information organized in a logical manner for ease of retrieval and storage. This information can be accessed by application programs like Report Builder.

DATE

A data type that specifies a three part date value (dd/MM/yy).

DATE/TIME

A data type that specifies a date and time value. Any data item that represents a date or a time must be assigned this data type for Report Builder.

DB2

A relational database management system offered by IBM Corporation that uses SQL (Structured Query Language). It runs in the IBM mainframe environment, and is accessible to Report Builder via SQLHost.

DECIMAL

A data type for a number with a decimal point. You must specify the precision and scale. You can specify up to 15 decimal digits of precision.

design mode

In design mode you can design the report format, layout, inputs, titles, etc. To view the report as it appears when printed, you must go into the Report Preview mode.

detail lines

The lines associated with each block caption. Detail lines can be blank or can contain fields, pictures, and boxes.

dialog box

A rectangular box that either requests or provides information. Dialog boxes often provide options for you to choose from in order to execute a command. Other dialog boxes provide warning messages, and explanations.

direction keys

The four arrow keys on your keyboard. These keys move the cursor or insertion point to different locations on the screen. Each key has an arrow on it showing the direction in which the cursor moves. Each key is named for the direction the key points; up arrow, down arrow, left arrow, and right arrow.

document window

This is the work space within an application window. Each document window contains a single document.

DOUBLE PRECISION

A data type for double precision floating point numbers.

drag

To press and hold down the left mouse button while moving the mouse.

drop down list box

A single line list box that opens to display a list of choices. One choice displays until the down arrow button is clicked to show the remainder of choices.

edit mode

Displays the information from a database table. You can view, add, modify, sort, select, copy, and delete this information while you are in edit mode.

field tool

Use this tool to draw fields in your report template. You can select the tool by clicking the right mouse button until the tool appears, or choose it with the Tools Field command.

field

Fields are report objects that you can use when you build your report template. All fields in Report Builder have contents. They can contain literals, input items, input variables, input totals, input cross tabs, tabbed text, or formulas.

Fields in Report Builder can be fixed length, or dynamic. (Dynamic fields change in length to accommodate the size of the input item they have to hold.)

flat file

A simple file where each data item is separated from the next by commas, tabs, or some other delimiter. Each line of the file is equivalent to a single input row (or record). Flat files can have dictionary information in their headers.

FLOAT

A data type for a floating point number of any precision or scale up to 22 digits.

fonts

The design of the characters you print on screen or paper. The Report Builder default font is Helvetica 10 point, but Report Builder supports all standard Windows fonts.

format or picture format

Also referred to as Picture Format. You can use picture formats to specify how you want field contents to appear on a printed page or in the columns of a table or form.

You can format the contents of a field or column by using the picture format characters. For example, yy/MM/dd can also be shown as
dd-MM-yy. Use the Format Field function in Report Builder ruler
or the Column Settings command in the View menu for tables and queries. Report fields can also be formatted

with font types, sizes, and styles.

formula

A mathematical statement or expression, such as 4*(salary - 500). In Report Builder, use the Formula Editor to create formulas and assign their values to fields in your report template.

All the formulas you create are listed in the Content list box of the ruler, and within various Report Builder dialog boxes.

function

A function takes information that you provide, processes it, and then returns new information for you to use. It is an arithmetic, string, or date/time relationship that has been predefined for you by Report Builder. Functions are available for your use in Report Builder, and can be accessed from the Formula Editor in these two activities.

group footer

The area of the report that is printed after the last line of a group of records. It can contain summary or total information for that group of lines.

group header

Information in the group header block of a report prints before the detail lines for that break group. It is generally used to identify the next group of detail lines.

groups

A set of information arranged into related groups, where the members of each group have a common characteristic. Groups in Report Builder typically have both a Header Block and a Footer Block. For example, all employees in Department A can belong to one “group”.

Gupta SQLWindows

A client-server application development system from Gupta Technologies that is used with SQL databases. It runs under the Microsoft Windows environment.

heading

A title at the top of a report section, such as a page header, break group header, or column header. A pictorial representation of an application or document when it is minimized. Double-click on an application icon to restore it to a full size application window.

input cross tabs

Input cross tabs are one of the four forms of input that Report Builder accepts. (The others are input items, input variables, and input totals.) Input cross tabs are cross tabular statistics that are generated by Report Builder.

The Cross Tabs Collector processes each input row of information to calculate the input cross tab. You can assign input cross tabs to any field in your report template.

input item

Input items are one of the four forms of input that Report Builder accepts. (The others are input cross tabs, input variables, and input totals.). Input items are the equivalent of a data field in a data record or a column item in a database table.

Input items are provided to Report Builder, Gupta Team Developer applications, or a .CSV file.

input item name

A name you assign to each input item, that uniquely identifies it.

input row

The basic unit of information in a file. It is the equivalent of a record in a data file and is made up of input items (data fields). Input rows must be updated with each input fetch to Report Builder.

input total

Input totals are one of the four forms of input that Report Builder accepts. (The others are input items, input variables, and input cross tabs.) Input totals are aggregate values that Report Builder calculates. Input totals are also known as two-pass totals.

The Input Total Collector processes each input row of information to calculate the input total. You can assign input totals to any field in your report template.

input variable

Data that is provided to Report Builder on a one time basis by a Gupta Team Developer application. Unlike input items, input variables do not have to be updated after each input fetch. Define input variables with the Format Input Variables command.

insertion point

The location where the contents of the Clipboard or your typed text or graphics are inserted. The insertion point generally appears as a flashing vertical bar in the application or document window. It can be positioned with either the mouse or the keyboard navigation keys. The text you type is inserted to the left of the insertion bar, and the bar moves to the right as you type.

INTEGER
A data type for whole numbers with no decimal point. It can have up to 10 digits of precision.

item fields
Contain input items with data from a data file or database.

join
This is a type of query that retrieves data from two or more tables. Rows are selected when data from one column of a table matches columns from another table. When a join is specified, only the rows that match the join specifications display.

join key
A specific field used to link the contents of two tables together. Rows are selected when the value of the join key in Table A matches the value of the join key in Table B.

key
A column or set of columns in an index used to identify a row in a database table. A key value can be used to locate a row.

keyboard direction keys
The four arrow keys on your keyboard. These keys move the cursor or pointer to different locations on the screen. Each key has an arrow on it showing the direction in which the cursor will move. Each key is named for the direction the key points, up arrow, down arrow, left arrow and right arrow.

key icon
An icon used to represent a table link in the current query. Choose the Query
Link Table command to see this.

line tool
Creates and inserts lines in your Report Builder template. It can be selected by clicking the right mouse button until the tool appears, or chosen with the Tools Line command from the menu bar. Link establishes communication between two files. When data changes in one file, the linked file is updated, either automatically or on demand. This term is frequently used with OLE.

link hand
Attaches the link hand to the operator list box. This is found in the Link Tables and Build Conditions dialog boxes of the Query menu.

list box
A box that provides a list of items from which you can make a selection. For example, a list of available files in a directory, or a list of fonts as shown in this example. Generally, you select one item from a list box. However, some list boxes let you make more than one choice. Boxes with long lists can also have a vertical scroll bar.

LITERAL
Text information that you type directly into a field in the Report Builder template, or in the Edit box of the Formula Editor. All literal information must be enclosed in single quotes (' ').

literal date
A Date/Time value that you type into the Formula Editor. Supported date styles include:

Date
MMM d, yyyyyyyy-MM-dd MMM dd,yyyyd MMM, yyyy MMMM d,yyyyd MMMM,yyyy
MMMMM dd,yyyydd MMMMM,yyyy
MM/dd/yyMM-dd-yy M/dd/yyM/d/yy MM/d/yyMM/d/yy

Time is optional, and follows any of the above formats with a single space between the date and time. Seconds and Milliseconds are optional. Acceptable formats for time are:

Time

hh[.mm[.ss[.mmmmmm]]]

hh[.mm[.ss]] AM|PM (AM PM can be added to any time value that has milliseconds)

LONG VARCHAR

A variable length, alphanumeric data type used in column definitions. It is used for text that may be longer than 254 characters in length. You do not have to specify a column length for this data type.

menu

A grouped listing of commands that drop down from the menu bar. Select a menu command by clicking on it.

menu bar

A horizontal bar containing the names of all the application menus. It appears just below the title bar of the application window.

menu title

A word or phrase in the menu bar that identifies a group of commands. Clicking a menu title highlights the title and displays a list of commands.

move pointer

Lets you move fields, pictures, and boxes with a block.

network

A group of PC's, terminals, mainframes, printers, etc., that connect to each other via data transmission lines. Networks let unrelated devices communicate to each other. Report Builder uses networks to access information on databases that are not local, and to print reports generated by Gupta Team Developer.

NUMBER

A data type that is used to represent a numeric value of up to 22 digits of precision. You do not have to define precision or scale for this data type.

Use this data type for any numeric input item in Report Builder. Use the Format
Input Items command to define the data types of input items and input variables.

Object

Input Items or variables that have been assigned an Object data type can hold OLE objects. You can assign input items with an Object data type to any Picture field.

objects or objects

An object can be a field, box, picture, or a block in the report template.

Object data type

An input item, or input variable, that is defined with an OBJECT data type to contain OLE Objects.

ORACLE

A relational database produced by Oracle Corporation. Report Builder can access and manipulate data from this database type through SQLNetwork.

operator

Operators are used by Report Builder Formula Editor dialog box to create formulas that limit the type and quantity of data retrieved from the database. Operators available to you include: =, NOT =, >, >=, <, <=, NOT <, NOT >, IN, BETWEEN, LIKE, NOT LIKE, NULL, NOT NULL.

page edge

The actual physical edge of the defined paper size.

page footer

The portion of the report that is printed once at the bottom of every page. It can contain messages, page numbers, references, page totals, and so on. Line wrapping is not allowed in the page footer.

page header

The portion of the report that is printed once at the top of each page. It can contain report titles, dates, column headings, company logo, and so on.

page margin

Determines where the main body of the report prints. The margins apply to the entire report.

page preview mode

Page preview mode displays the generated report as it appears when printed. To perform further modifications on the report, you must go into Design mode.

palette

A floating palette that can be placed anywhere within the Report Builder window. The tool palette contains the selector tool, the field tool, the box tool, the line tool, and so on.

parameter

A variable that can have different values assigned to it. For functions, a parameter can be an input item, a numeric string, a literal, or the result of another function.

picture

A graphical rectangle in the report or form template you can use to contain graphic items or OLE objects. You can change the size, shape, and contents of the picture object with the Format Picture command. Pictures are drawn with the Picture tool.

precision

Defines the total number of digits in a column.

point size

A measurement used to describe character size. There are 72 points to an inch.

preview mode

Page preview mode displays the generated report as it appears when printed. To perform further modifications on the report, you must go into Design mode.

pull-down

An alternative term used for menu. When you select a choice from the menu bar, a pull-down containing a list of options appears.

push button

An object found in rulers, menu bars, and dialog boxes. Clicking a button results in the performance of a specific activity.

radio button

One of a fixed set of choices that are mutually exclusive to each other. When one is selected, the other choices are disabled.

range

Defines a set of values that are to be returned by a query. The set can be explicitly defined by using the IN operator, which compares a value to a collection of values and returns only those that match the defined collection. The set can also be implicitly defined by using the BETWEEN operator, which returns all values that lie between the defined range.

REAL

The data type for a single precision floating point number.

Report Builder

Report Builder generates reports with an easy-to-use graphical interface. A variety of tools and commands let you quickly design and format complex reports.

report objects

Report Builder provides a number of report objects that you can add to your report template. These objects are:

Fields

Fields can contain input items, input variables, input totals, input cross tabs, and formulas.

Lines

You can add lines to any report block group. Lines contain fields, pictures, and boxes.

Boxes

You can use boxes to frame lines, block groups, and fields. Boxes are drawn to the report background and do not overlay the objects they surround.

Pictures

You can use picture objects to contain static bitmaps, textual data, or OLE objects.

report template

A visual and graphic representation of the specifications you have defined for your report. It shows how the data appears in your report by using graphic elements to represent fields, lines, objects, break groups, and formulas.

result set

The collection of data that is the result of a query to the database.

ribbon

The horizontal bar containing icons for commonly used functions and commands. All items available on the ribbon also appear as commands in the Menu bar. The ribbon is shown just below the Menu bar.

router

A special file provided to you that lets Report Builder communicate with databases in your hard drive, or with databases accessed via a communication network.

row

A set of related columns that describe a single record in a table.

ruler view

Click this button to toggle the ruler to start between the left margin of the report template, and left edge of the report paper.

ruler

The ruler is a horizontal scale that lies just below the Menu bar in the report window. It is divided into inches, and displays report margins, icons for field alignment, list boxes for setting font type, font size, and format text boxes that display the current position, width, and format of a selected field, as well as an easily accessed list of the contents of all the fields in your report template, and a Formula Editor.

scale

Defines the maximum number of digits to the right of the decimal point.

scroll bars

A bar that appears at the right side, and sometimes at the bottom of a window. Dialog boxes and list boxes can also have scroll bars. The scroll bar contains a scroll arrow at either end of the bar, and a scroll box that moves within the scroll bar. Mouse users can click parts of the scroll bar to scroll through the document.

select

To mark or choose an item. The selected object is affected by your next action. A selected object appears in reverse video, or is enclosed by a dashed line.

select conditions

Defines the criteria by which rows are selected from a table. The select conditions appear in the Where clause of a SQL query. It may include sorts, conditions, predicates, etc.

select statement

A SQL database statement which defines the conditions you must meet in order to retrieve a row from a table.

selected data

Appears visually different from unselected data. Generally, it is highlighted against a dark background.

selector tool

A marking device that shows where you are in an application or document window. The type of tool determines the action you are going to perform. For example, the insertion point indicates where information is inserted, the box tool inserts a box at the indicated point on a report, etc.

server
A computer on a network that provides services and facilities to client applications.

SMALLINT
A data type for numeric data with no decimal point. It can have up to five digits of precision.

SQL
Structured Query Language is a language used for the management of data in a relational database. These commands let the user retrieve, add, update, or delete data.

SQLBase
A relational database by Gupta Technologies that lets users access, create, and update data. Report Builder communicates directly with SQLBase.

SQLRouter
A Gupta Technologies client application that talks to a gateway through a router program. The router enables a logical connection between a client and the gateway. Once this connection is established on the LAN, the client application can use the router to send SQL request to the gateway and receive the results.

SQLTalk
An interactive user interface for SQLBase by Gupta Technologies. It is used to manage SQLBase. SQLTalk has a complete implementation of SQL and many extensions. SQLTalk is a client application.

SQLHost
A family of tools produced by Gupta Technologies. These tools connect client applications to DB2, SQL Server, Oracle, OS/2EE Database Manager, and other database engines.

status bar
Displays information on the bottom of the screen about the currently active command, or about the currently active dialog box.

string
A data type that refers to an input item that is made up of characters, numbers, or words. All alphanumeric input items must be assigned this data type. Use the Format Input Items command to assign this data type to input items in Report Builder.

switchset button
This button appears in the Browse bar of a table in Field view. Use the SwitchSet button to move between the Edit and Insert portions of the Table when you are in Field view.

system catalogs
Relational databases keep track of information about themselves in a group of tables called the system tables or system catalogs. These tables contain information about every defined table, column, view, and index in the current database. Look in the system catalogs to find out the names, descriptions, and sizes of the tables, views, or columns in your database.

Tab Delimited Format
A common format used by a number of word processing programs. Each column item is separated from the next by a tab. Each row is separated from the next row by a paragraph marker. Microsoft Winword for Windows is an example of an application that can accept data in this format.

table
This is the basic storage structure of a relational database. It is a two dimensional structure made up of rows and columns.

text box
A box within a dialog box or ruler where you type information needed to carry out a command or action.

TIME
A data type that specifies a three-part time value (hh:mm:ss).

title bar

A horizontal bar at the top of a window that contains the title of the application or dialog. On some windows, the title bar may also contain the document control box, and maximize and minimize buttons. A window with a title bar can be moved to another location on the screen.

total field

A field which is created to contain calculated summary and total information. Use the Formula Editor on the Report Builder ruler to assign a formula to a total field. Total fields are generally placed in group and page footers.

undo

Reverses the last action carried out by the user. It is generally used when editing or modifying data, or when formatting a report. It can be found in the Edit menu, or from the keyboard using the key combination Alt-Backspace.

unique columns

Unique Columns are a column or group of columns which uniquely identify each row of a table.

user ID

Also known as authorization-ID. A unique name that identifies a user to the system. Associated with each user ID is a password.

VARCHAR

The data type assigned to alphanumeric information. You must specify a length for columns of this data type. In SQLBase, the maximum length allowed is 254 characters.

views

A logical representation of data from one or more tables. It may include all or only some of the columns from each table. Single table views let you add, delete, or modify data in the table. You cannot modify data from a multi-table view.

window

A rectangular area on your screen in which you can view an application or a document. You can open, close, move, and change the size of most windows. Multiple windows can be opened on the desktop at the same time. Windows can be enlarged to fill the entire screen, or reduced to icons.

work area

The area in a Report Builder window where you can view, enter, change, or delete data and information.