

HYPERION® SQR® PRODUCTION REPORTING STUDIO

RELEASE 11.1.1

USER'S GUIDE

ORACLE®
ENTERPRISE PERFORMANCE
MANAGEMENT SYSTEM

SQR Production Reporting Studio User's Guide, 11.1.1

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P a r t I

Creating a Typical Report

In Creating a Typical Report:

- [Defining Reports](#)
- [Formatting Reports](#)
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1

Defining Reports

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Viewing the Sample Report

Part One of this book discusses creating a typical report using an *Order Details and Analysis* report as an example. *Order Details and Analysis* is an internal sales report that displays information about product sales for customers of a fictitious company. At the end of the report, a graph displays a product summary by state.

[Figure 1](#) displays the first page of the *Order Details and Analysis* report. We will refer to this report as we discuss the steps involved in creating a typical report.

Figure 1 Sample Order Details and Analysis Report

Order Details & Analysis				
				
Product Sales for Customer: Alfred E Newman & Company				
Average Sale: <u>\$1,303.72</u>				
<u>Product Description</u>	<u>Date Ordered</u>	<u>Quantity</u>	<u>Discount</u>	<u>Sale Amount</u>
Air Deodorizer	07/30/97	10	2%	\$98.20
Laser Printer	07/30/97	3	2%	\$523.95
Light Bulbs	10/06/96	1,100	2%	\$3,289.00
Average Quantity:		<u>371</u>	Total: <u>\$3,911.15</u>	
Number of Sales:		<u>2</u>	Average Discount: <u>2.00</u>	
Product Sales for Customer: Clair Butterfield				
Average Sale: <u>\$10,887.79</u>				
<u>Product Description</u>	<u>Date Ordered</u>	<u>Quantity</u>	<u>Discount</u>	<u>Sale Amount</u>
Binford 4000 P	01/20/96	2	2%	\$67.98
Canisters	06/22/97	34	2%	\$45,109.50
Canisters	05/02/97	3	3%	\$3,980.25
Modeling clay	06/03/96	120	1%	\$4,136.40
Modeling clay	05/02/97	1	3%	\$34.47
New car	01/20/96	1	2%	\$8,974.87
Wire rings	05/02/97	7	3%	\$13,911.03
Average Quantity:		<u>24</u>	Total: <u>\$76,214.50</u>	
Number of Sales:		<u>7</u>	Average Discount: <u>2.22</u>	
Product Sales for Customer: Corks and Bottles, Inc.				
Average Sale: <u>\$6,322.72</u>				
<u>Product Description</u>	<u>Date Ordered</u>	<u>Quantity</u>	<u>Discount</u>	<u>Sale Amount</u>
Ginger snaps	06/18/97	20	5%	\$73.80
Hop scotch kit	06/18/97	9	3%	\$7,764.75
Thingamajigs	03/03/96	120	0%	\$1,554.00
Wire rings	06/18/97	8	3%	\$15,898.32
Report Em Date: 05/20/00 13:4				

We created the *Order Details and Analysis* report using sample data that you can load into your database with the `loadall.sqr` program included with Oracle's Hyperion® SQR® Production Reporting Studio.

➤ To load the sample data and view the report:

1 Set up a user and password in your database.

The user must have the appropriate rights to create tables.

2 From the Program Group that contains SQR Production Sale Reporting Studio, run `loadall.sqr`.

For example, for Oracle's Hyperion® SQR® Production Reporting for Oracle, select **Start**, then **Programs**, then **Oracle EPM System**, then **Reporting and Analysis**, then **Production Reporting for Oracle**, and then **LoadAll**.

3 Enter connectivity information in the Production Reporting Server dialog box; then, click **OK** to load the sample data.

After `loadall.sqr` finishes running, a log file appears showing that the data loaded successfully.

4 Start SQR Production Reporting Studio and select **File**, then **Open**.

5 Go to `\Hyperion\products\biplus\bin\SQR\Studio\samples`, click `salesdemo.srm`, and click **Open**.

The *Order Details and Analysis* report is displayed in the SQR Production Reporting Studio Layout window.

- 6 Click  to maximize the screen display.
- 7 Press **[F5]** to process the report; then, click the **Report** tab and review the report on the screen.

If you get an error message that says, “*table or view does not exist*,” set the **Local Database** to **Oracle** on the Select Production Reporting Database page of the Create Data Connection wizard. (See [step 5 on page 16](#) under [Creating a New Data Source Connection](#).)

- 8 Click  or select **File**, then **Print** to print the report.

Note:

SQR Production Reporting Studio sample reports are in ASCII format. To successfully run the reports, specify a valid ASCII-derived encoding value in SQR.INI. For information on encoding values, see “Encoding Keys in the [Environment] Section” in Volume 2 of the *Hyperion SQR Production Reporting Developer's Guide*.

Creating a New Data Source Connection

Before you create a report, you must first create a data source connection. This section describes creating an ODBC data source connection. See Part VI Accessing Additional Data Sources for information on creating other types of data source connections.

- To create an ODBC data source connection:
 - 1 Click **Connection** on the main SQR Production Reporting Studio screen.

A Create Data Connection wizard is displayed.

- 2 On the first page, enter a name to identify the data connection.

For example, enter **Oracle** to connect to an Oracle data source.

- 3 On the second page, select **ODBC** to identify the data source provider.

For examples of selecting DDO as the data source provider, see “[Creating an SAP R/3 Data Source Connection](#)” on page 170, “[Creating an SAP BW Data Source Connection](#)” on page 183 and “[Creating an Essbase Data Source Connection](#)” on page 200.

- 4 On the third page, select an **ODBC** data source.

This page lists data sources accessible through ODBC from your computer. The data sources are configured through the ODBC Manager.

To add a data source, click **New** to access the Create New Data Source dialog box and select the appropriate driver from the list of available drivers.

SQR Production Reporting Studio supports these drivers:

- MERANT OEM 5.0 Wire Protocol drivers
- IBM RedBrick 32 Warehouse ODBC driver
- Sybase IQ driver

If you are asked for a connect string, refer to the information in [Table 1](#).

Table 1 Data Sources and Their Connect Strings

Data Source	Description
DB2	<i>Ssname/SQLid</i> is the subsystem name and SQL authorization ID to use.
Informix	<i>Database</i> is the name of the database to use.
Oracle	<i>[Username]/[Password[@Database]]</i> is your user name and password for the database. Optionally, you can specify the connection string for the database.
SQL Server	<i>Data_Source_Name/[Username]/[Password]</i> is the name you give to the ODBC driver when you set up the driver, your user name, and the password for the database.
Sybase	<i>Username/[Password]</i> is your user name and password for the database.

5 On the fourth page, select the **Production Reporting** database to which you want to connect.

SQR Production Reporting Studio assumes that you installed Production Reporting for the specified database on the same machine running SQR Production Reporting Studio. For example, to create reports in an Oracle database, install Production Reporting for Oracle on the SQR Production Reporting Studio machine.

To connect to a remote Production Reporting database, select **Remote** as the Local Run and select the desired remote Production Reporting database in the Remote Run field. For example, to use Production Reporting for Oracle installed on a Remote host, select **Remote** as the Local Run and **Oracle** as the Remote Run.

6 (Optional) On the fifth page, enter login parameters.

If you do not enter a username and password here, you are prompted to enter a username and password each time you connect to the database and create a report. If you do enter a username and password here, however, you are not prompted to enter them again.

If you choose to override the default server name or the default database name, enter the desired server name or database name here. For example, if you are connecting to Oracle and your `tnsnames.ora` entry differs from your SID entry, you could change the Server Name to match your Oracle SID.

7 Click **Finish** to exit from the wizard.

Changing the Data Source Connection

► To change the data source connection after logging in:

- 1** Close any open reports.
- 2** Select **File**, then **Logon to Database**.

A window is displayed asking you to confirm that you want to break the current connection.

- 3** Click **Yes** to disconnect from the current data source.

Choosing a Report Type

Before creating a report, select a report type.

- **Tabular**—Data displayed in columns
- **Chart**—Data summarized visually
- **Cross-tab**—Summary numeric data displayed in a matrix or spreadsheet
- **Label**—Data used on customer mailings, file folders, and internal company routings
- **Export**—Data formatted for use by another program

Most reports are *tabular*. Use other report types to accompany or enhance tabular reports.

- ▶ To choose a report type:
 - Click next to the desired report type on the main SQR Production Reporting Studio screen, or
 - Select **File**, then **New** and select the desired report type in the Create New Report dialog box.

Selecting Report Data (Query Builder)


After selecting a report type and creating a database connection, you must select the data to use. When you select data, you *query* a database. After completing a basic query, you can refine the query, create group breaks, and configure layout information.

Selecting report data involves:

- [Starting the Query Builder](#)
- [Connecting to a Data Source](#)
- [Selecting Tables](#)
- [Joining Tables](#)
- [Selecting Fields](#)

Starting the Query Builder

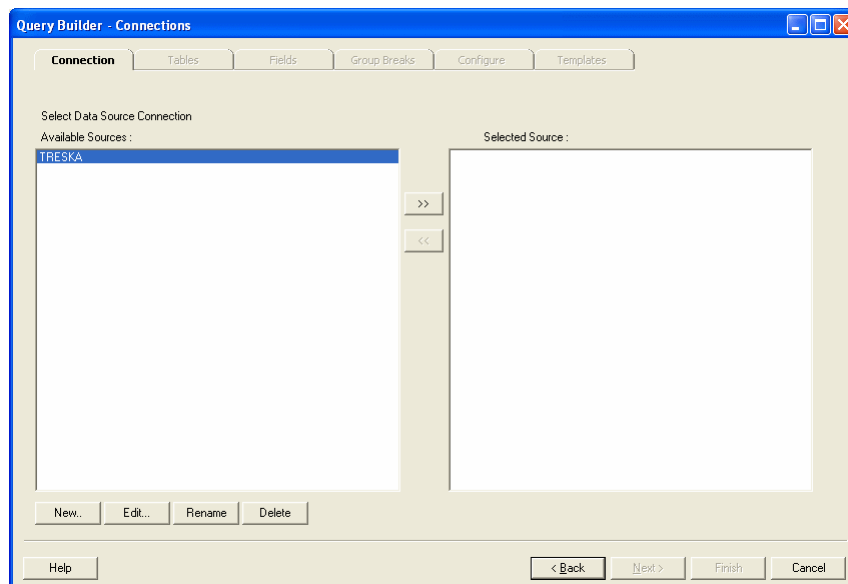
A *query* is a set of instructions that specifies which data to use in a report. SQR Production Reporting Studio comes with a Query Builder that collects information and steps you through the query building process.

- To launch the Query Builder for a new report, select the desired report on the main SQR Production Reporting Studio screen, or select **File**, then **New** and specify the report type.
- To launch the Query Builder for an existing report, display the report in the Layout window and select **Report**, then **Edit Query** or click .
- To move through the Query Builder, click **Next** and **Back** or click the tab on the top of a Query Builder page.

Note that some pages are disabled until you enter the information on the previous page.

Connecting to a Data Source

Begin building a query by connecting to a data source. Use the **Query Builder - Connection** page to connect to a data source.

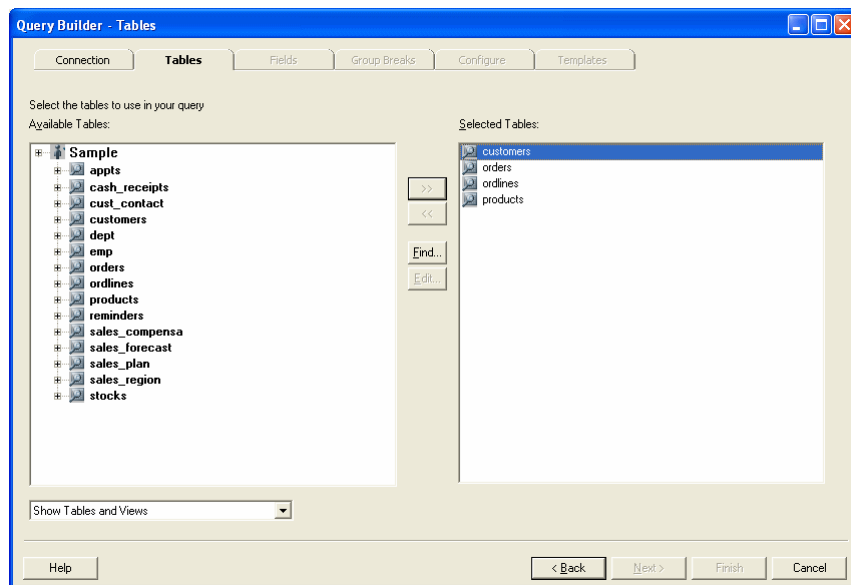


The available sources are the data sources that have already been created. (See [“Creating a New Data Source Connection” on page 15.](#)) Click **New** to create a new data source, **Edit** to edit the information on an existing data source, **Rename** to Rename the data source, or **Delete** to delete the data source.

- To connect to a data source, select an existing data source under **Available Sources** and click  to move it under **Selected Source**.

Selecting Tables

Use the **Query Builder - Tables** page to select tables that will contain the report data.



SQR Production Reporting Studio organizes tables under schemas. In our example, the tables appear under the "Sample" schema.

► To select tables:


1 Select which tables and views to display.

Click the arrow to the right of the list box under Available Tables.

You can *Show Tables*; *Show Tables and Views*; *Show Tables, Views, and System Tables*; or *Show All*. (*Show All* displays all the items in the database, including custom tables and aliases.)

A *View* is a stored result set from a query. *System Tables* are hidden or private tables; they generally contain information about the database.

2 Select the desired tables.

- Drag the table into the right pane.
- Select a table and click .

To create the *Order Details and Analysis* report, we selected four tables: CUSTOMERS, ORDERS, ORDLINES, and PRODUCTS.

Note:

Expand a table to view its columns and data types. To expand a table, click the plus sign (+) next to the table, or double-click the table.

Finding Database Objects

If you cannot find a database object (table, column, or procedure), you can search for text in the object's name.

➤ To search for text in a database object:

- 1 Click **Find** on the **Query Builder - Tables** page.
- 2 In the **Find Database Object** dialog box, enter information in **Search Text** and click **Search**.

You can search for an entire table or column name or any portion of the text that appears in the name.


After you click **Search**, SQR Production Reporting Studio highlights the first table or column that contains the text string. To find additional tables or columns that contain the text string, click **Search** again.

- 3 (Optional) Select **Match case** to consider case when searching.

Defining Table Aliases

Aliases are alternate names that can make cryptic table names clearer. For example, you could change a table name such as EMP to EMPLOYEES.

➤ To define a table alias:

- 1 Select a table on the **Query Builder - Tables** page.
 - Click the table under **Selected Tables** and click .
 - Right-click the table under **Selected Tables** and select **Edit**.
 - Double-click the table under **Selected Tables**.
- 2 In the **Define Table Alias** dialog box, enter an alias for the table and click **OK**.

The table alias is displayed under **Selected Tables** with the original table name to the right. For example, EMPLOYEES (EMP).

To delete a table alias, right-click the table and select **Delete Alias**.

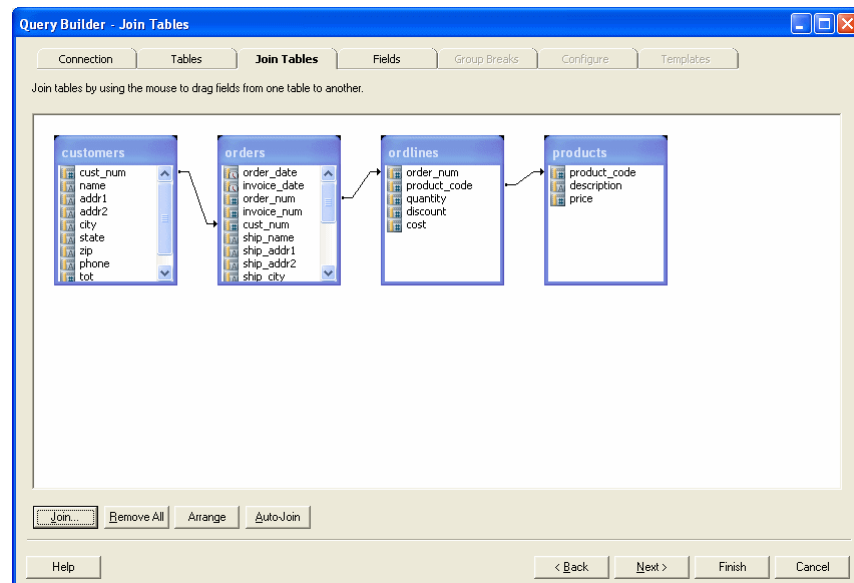
Note:

When a table name is aliased, you must update any reference to the original table name. SQR Production Reporting Studio updates column references in the **Select** clause, as well as much of the **From** clause. However, you must update any variables and subqueries in the **Where** clause that refer to the original table name. If these references are not updated, the SQL syntax will not be correct.

Joining Tables

Joins are SQL statements that correlate data between tables without repeating the data in every table. For example, joining two tables, *customers* and *orders*, by a *customer number* column combines the records for customers and orders and returns those records where the customer numbers are equal.

You can join multiple tables by selecting columns that are common to both tables. Use the **Query Builder - Join Tables** page to join tables.



SQR Production Reporting Studio automatically joins table columns for which both the name and the data type are the same. You can add, remove, or modify joins as desired.

- To add a table join, use the mouse to drag columns from one table to another. Join columns that have equal data types.

For example, join a text column to another text column. You cannot create joins between columns with unequal data types. For example, you cannot create joins between text columns and number columns.

- To remove a table join, click the arrow representing the join and press the [Delete] key. To remove all the joins, click **Remove All**.

In our example report, the CUSTOMERS and ORDERS tables are joined by CUST_NUM, the ORDERS and ORDLINES tables are joined by ORDER_NUM, and the ORDLINES and PRODUCTS tables are joined by PRODUCT CODE.

Note:

Use joins with care since unnecessary joins make retrieval time longer and may cause the return of inappropriate data. The Auto-Join feature may add extra joins that you do not need.

Setting the Join Type

When joining tables, you can display a list of the table joins and modify the *join type*. Each table join has an associated join type.

- To view or change the join type:

From the **Query Builder -Join Tables** page:

- Click **Join** to access the Joins dialog box, click the desired join under **Current Joins**, and select a join operator next to **Join Type**.
- Double-click the arrow representing the join and select a join type in the **Configure Join** dialog box.

Join type operators include:

- Equal
- Greater
- Less
- Greater or Equal
- Less or Equal
- Not Equal
- Outer Join

The tables in the *Order Details and Analysis* report all have a join type of *Equal*.

Note:


An outer join includes all of the rows from one of the tables joined, regardless of whether there are matches in the other table. When you join two tables, you can select the table on which to apply the outer join. For example, assume you have two tables: Table A and Table B. Assume further that Table A does not contain matching rows for all of the values in Table B; however, you still want those unmatched rows to print in your report. In this example, you would apply an outer join to Table A. Your report would then print all the rows in Table A, filling in "null" for all rows not matched in Table B. If you do not use an outer join, rows do not print unless SQR Production Reporting Studio finds a match between both tables.

Joining a Table to Itself

Joining a table to itself is known as a *self-join*. Self-joins correlate the data in a single table. For example, assume you have an *Employee* table that contains columns for *EmployeeID* and *ManagerID*. A self-join would find all the matching pairs of *EmployeeID* and *ManagerID*.

SQL does not allow you to do a true self-join. This means that you cannot join the columns in a single table. Instead, you must create a copy of the table and join it with the original. Since table names in the query must be unique, you must also create an alias for the copy.

- To create a table self-join:

- 1 Select a table on the **Query Builder - Tables** page and add it to your query.
- 2 Add the table again by highlighting the table under **Available Tables** and clicking .

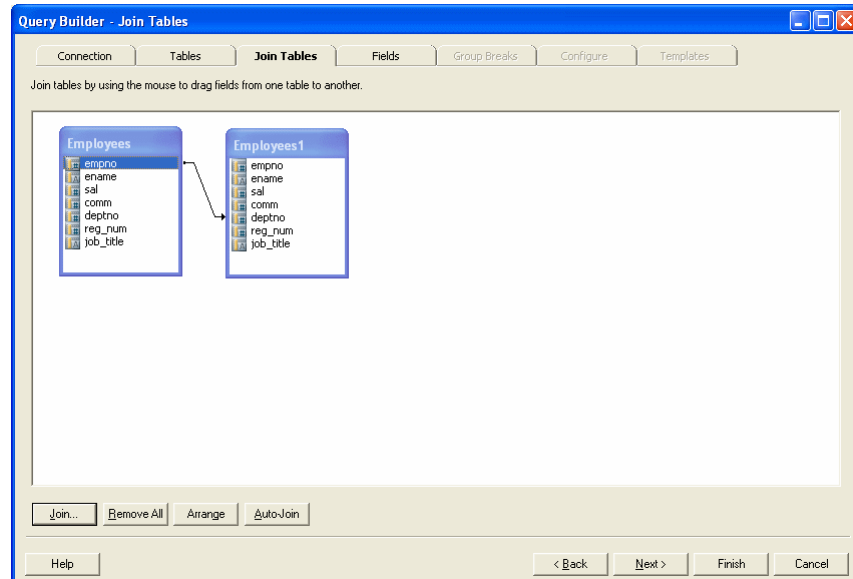
When you add the table a second time, the **Define Table Alias** dialog box is displayed.

- 3 In the **Define Table Alias** dialog box, enter an alias for the table and click **OK**.

Aliases cannot duplicate original table names and cannot match any other table names in the query or under the schema. SQR Production Reporting Studio displays a warning if a table name duplicates an existing table name.

- 4 Click **Next** to advance to the **Query Builder - Join Tables** page .
- 5 Create a join between the table and its alias by dragging a column from one table to another.

In the following example, we created a join between the EMPNO column in the EMPLOYEES table and the DEPTNO column in the EMPLOYEES1 table.

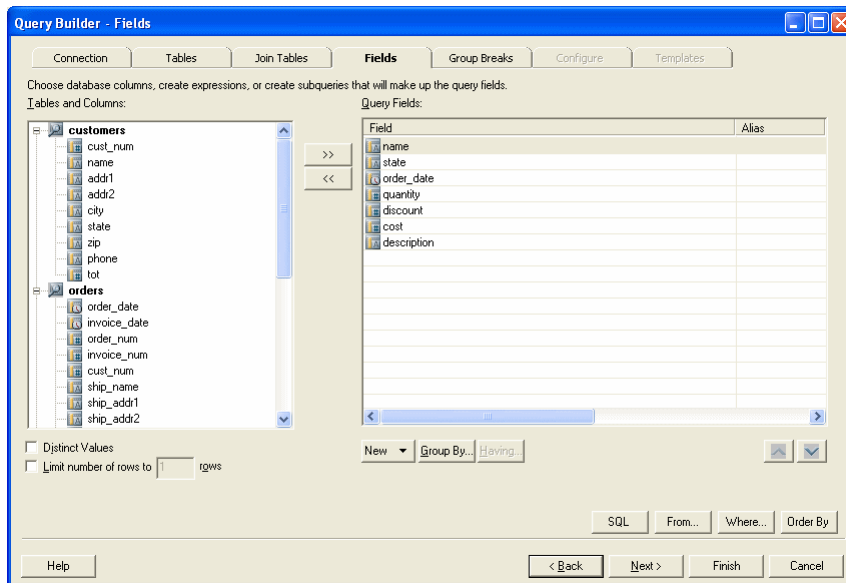


Note:

Clicking **Auto-Join** does *not* create a join between a table and its alias.

Selecting Fields

Use the **Query Builder - Fields** page to select the database columns that will make up the fields in your query. You can design a query to retrieve all the columns associated with each table, or you can select specific columns to retrieve.





➤ To select the database columns that will make up the query fields:

1 Select the desired database columns.

- Drag a column from Tables and Columns to Query Fields.
- Select a column and click the right-arrow.
- Double-click a column.

To select all of the columns in a table, select the table using one of the methods described above. To delete a column from Query Fields, click the column and click the left-arrow. (To select more than one column to delete, hold down the [Ctrl] key and click the desired columns.)

2 Use   to define database column order in the default report layout.

The default layout is the layout that initially appear when you format a report in the Layout window. The order in which the database columns appear on the Fields page is the order in which the columns will appear in the default report layout. You can change the column order as you format your report in the layout if desired.

Eliminating Duplicate Query Rows

➤ To eliminate duplicate query rows, select **Distinct Values** on the **Query Builder - Fields** page.

For example, assume your company has three departments and you query the Employees table to return department numbers. If you do not select Distinct Values, your query may return duplicate department numbers, one for each row (employee) in the table.

```
DEPTNO
20
30
30
20
30
```


30
10
20
10
10

If you select Distinct Values, however, your query returns only those departments that are distinctly different.

```
DEPTNO  
10  
20  
30
```

Limiting Query Rows

- ▶ To limit query rows, select **Limit number of rows to** on the **Query Builder -Fields** page and enter the desired number of rows.

For example, if your company has a large customer base and you want a report on the first 100 customers to which your company made a sale, you would select **Limit number of rows to** and enter 100 as the desired number of rows. (This assumes that you sort your report by customer.)

Using this example, you could also create a report on the last 100 customers by sorting by customer and changing the sort order. See [“Sorting Data” on page 41](#) for information on how to change the order in which the data is sorted.

Defining Column Aliases

Aliases are alternate names that can make cryptic column names clearer. For example, you could change a column name such as *la_stors* to *Los Angeles Stores*.

- ▶ To define a column alias, go to the **Query Builder - Fields** page and enter the alias in the Alias column under Query Fields.

Once you define an alias, you can view the alias name in the report layout by selecting **View**, then **Column Aliases**.

- ▶ To change a column alias in the report layout:
 - Right-click the column, select **Object Properties**, and change the alias in the Alias field on the Format tab.
 - Select the column and change the alias in the Property Explorer.

Refining the Query

After completing a basic query, you can refine the query by:

- [Adding Expressions](#)

- [Grouping Columns](#)
- [Creating Having Clauses](#)
- [Displaying the SQL Code Generated for the Query](#)
- [Creating Custom From Clauses](#)
- [Adding Conditions to the Data \(Creating Where Clauses\)](#)
- [Sorting Data](#)
- [Chapter 8, “Creating Reports with Nested Subqueries”](#)

Review the following sections for information on the first seven options. Review [Chapter 8, “Creating Reports with Nested Subqueries”](#) for information on adding subqueries.

Adding Expressions

The following sections discuss:

- [Expression Concepts](#)
- [Accessing the Expression Builder](#)
- [Creating an Expression](#)
- [Displaying Column Values](#)

Expression Concepts

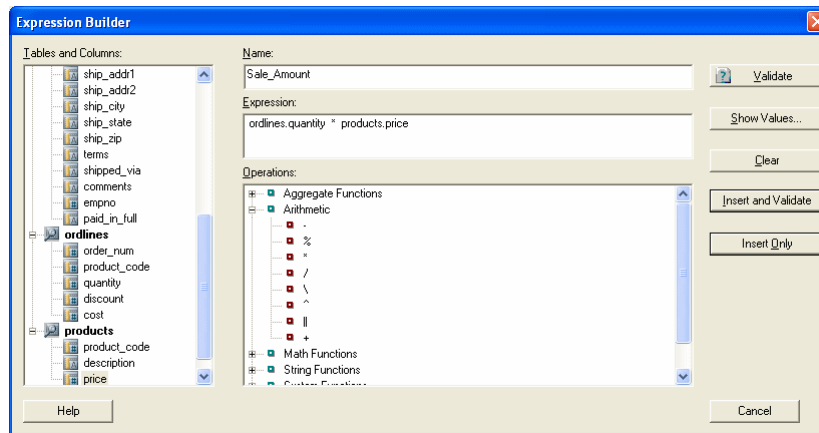
Expressions are values that are computed based on other database values. For example, the *Order Details and Analysis* report includes an expression to calculate the amount of a sale. The expression, named *Sale_Amount*, is calculated as:

```
QUANTITY * PRICE
```

Expressions are written in database-specific SQL. You can use expressions for many purposes, such as, performing math calculations, concatenating two columns, and retrieving the current date and time.

Accessing the Expression Builder

Use the Expression Builder to add expressions to a report query. To access the Expression Builder, click **New** on the **Query Builder - Fields** page and select **Expression**.



Creating an Expression

► To add an expression to a query:

1 Enter a name for the expression in the **Name field.**

You use expression names in reports in the same way you use column names. Assign a name to help you identify the expression later. Valid characters are A-Z, 0-9, and underscore. You cannot use spaces.

2 Enter the expression in the **Expression field. To enter an expression:**

- Drag a function from **Operations** to a column under **Tables and Columns**.
- Drag a function or column into the **Expression** field.
- Double-click a function or column to enter it into the **Expression** field.
- Type the expression in the **Expression** field.

To delete an expression from the Expression field, click **Clear**. (This also deletes the name of the expression from the Name field.)

The types of functions that you can use in expressions appear under **Operations**. For example, aggregate functions, numeric functions, and arithmetic operators.

To view available options for a function type, click the plus sign (+). The functions that appear depend on the database selected on the Select Production Reporting Database page of the Create Data Connection wizard. (See [step 5 on page 16](#) under [Creating a New Data Source Connection](#).) As a result, if you change the database, the available functions may change.

Some functions have the same name as Production Reporting commands. When you use a function in an expression, do not confuse the function with the Production Reporting command. Functions used to create expressions in queries are coded to the database format (*not* Production Reporting).

For example, a *datediff* function used inside an expression takes the format (parameters, return type) of the database queried. This function used in a variable outside of the query, however, takes the format of the Production Reporting command.

3 Insert the expression into the query.

- Click **Validate** to validate the expression before inserting it in the query.
If the expression is valid, the question mark that appears on **Validate** changes to a check mark. If the expression is not valid, the question mark changes to an “X.” After you click **Validate**, click **Insert Only** to insert the expression into your query.
- Click **Insert and Validate** to validate the expression *and* insert it into the query.
If the expression is valid, the question mark that appears on **Validate** changes to a check mark. If the expression is not valid, the question mark changes to an “X.”
- Click **Insert Only** to insert the expression into your query without validating it first.
The Expression Builder remains open for additional entries. Before adding additional expressions, click **Clear** to clear the input fields in the Expression Builder.

4 Click **Close** to close the Expression Builder.

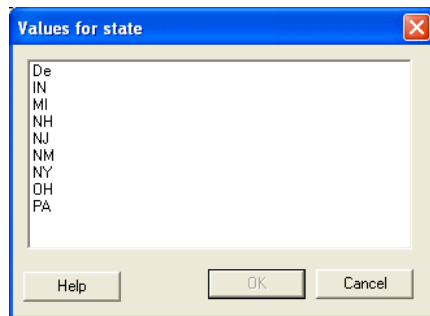
Tip:

If an expression will not validate, ensure that you defined the correct local database.

Displaying Column Values

To display the values contained in text or numeric columns, select the column in the Expression Builder and click **Show Values**. You can then use these values in your expression if desired. Show Values displays up to 100 values for each column.

In the *Order Details and Analysis* report, if we select the State column, Show Values displays up to the first 100 states in the database.



To insert a value into an expression, Having clause, or Where clause, double-click the value.

Grouping Columns

Some databases require a Group By clause with certain functions. In SQR Production Reporting Studio, data grouping is generally linked to aggregate functions such as: AVG, COUNT, MIN, MAX, or SUM. These functions group the data returned by the query and produce summary values.

SQR Production Reporting Studio automatically generates the Group By statement needed by your query; however, you can override the default grouping if desired.

- To manually configure the grouping:
 - 1 Click **Group By** on **Query Builder - Fields**.
 - 2 In the **Group By** dialog box, clear **Generate Group By statement automatically**.
 - 3 Select a column under **Available Fields** and add it to **Group By Fields**.

Note:

Do not confuse this grouping with the defined in the Group Breaks page in the Query Builder.

Creating Having Clauses

Having clauses define selection criteria for aggregate rows. (Aggregate rows are derived from aggregate functions such as AVG, COUNT, MIN, MAX, and SUM. Aggregate functions summarize the results of a query rather than listing all of the rows.)

For example, assume you want to create a query that retrieves a list of products and their prices, and that you want to group the products by category (for example, household products and commercial products). Next, assume that you want to determine the most expensive product in each category. Finally, assume that you only want the product to appear in your report if the price is greater than \$1,000.

To do this, you would create an expression with an aggregate function such as MAX(Price) to determine the most expensive item ordered. You would then group the data by Category ID. Finally, you would create a Having clause such as MAX(Price)>1000 to limit the items printed to items over \$1,000.

Note:

Think of Having clauses as Where clauses for grouped columns. Unlike Where clauses, however, you can include aggregate expressions in a Having clause.

- To add a Having clause to a query:
 - 1 Go to **Query Builder - Fields**.
 - 2 Click **New**, choose **Expression**, and create an expression that uses an aggregate function.

For example, MAX(Products.Price) calculates the maximum price in the Products table.

- 3 Click **Group By** and define how to group the data.

Using the example discussed above, you could group the data by Category ID.

This step is optional. When you create an expression that uses an aggregate function, SQR Production Reporting Studio automatically groups the data for you.

- 4 Click **Having**.

SQR Production Reporting Studio enables **Having** *only* when a Group By statement exists. Group By statements exist when you create an expression that uses an aggregate function and SQR

Production Reporting Studio generates the Group By statement automatically, or when you define the Group By statement manually. If neither of these conditions exist, **Having** is disabled.

After you click **Having**, the Having Clauses dialog box is displayed

You can combine several Having clauses with the logical operators AND, OR, or ELSE. If you create more than one Having clause, select the desired operator under Logical Operator. To change the order in which the Having clauses appear, click the desired Having clause and click **Move Up** or **Move Down**.

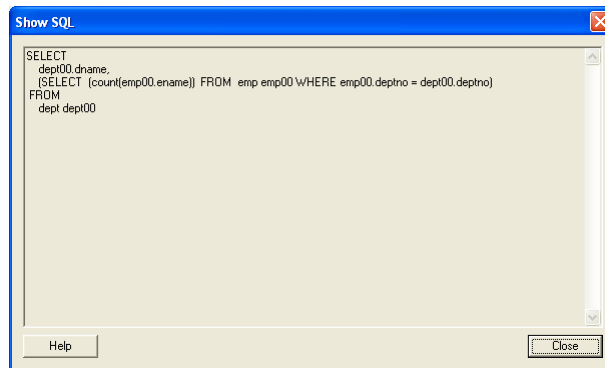
- 5 Click **Add Clause** and enter information about the Having clause in the dialog boxes that appear, or click **Add Custom** and enter a custom Having Clause.

Note:

As discussed previously, Having clauses are essentially Where clauses for grouped columns. As a result, the dialog boxes used to create a Having clause are the same as the dialog boxes used to create a Where clause. See “[Adding Conditions to the Data \(Creating Where Clauses\)](#)” on page 31 for detailed information on how to create Where and Having clauses.

Displaying the SQL Code Generated for the Query

To review the SQL code used to generate your query, click **SQL** on the **Query Builder - Fields** page. The Show SQL window is displayed.



You can copy the SQL code from the Show SQL window to the SQL editor provided by your database client software. Advanced users may find this useful for debugging queries.

Creating Custom From Clauses

Custom From clauses are an advanced feature for users who are comfortable creating their own SQL logic. SQR Production Reporting Studio uses the SQL code that you enter to define the From Clause in the query SQL. Note that SQR Production Reporting Studio does *not* do any error checking. Only users who are interested in creating specialized SQL logic should use this feature.

► To create a custom From clause:

1 Click From on the Query Builder - Fields page.

The Custom From Clause Builder is displayed.

2 Select Use Custom From Clause.

3 Enter the SQL code.

For example, you could create a From clause to print a report if the number of customers is greater than 50. In this example, you would enter:

```
customers where cust_num > 50
```

4 To read a text file into the input area, enter the name of the file next to Load from text file.

5 To overwrite the From clause with the last selected file, click Reload.

This feature is useful if you made a lot of edits on the From clause and want to get back to the original From clause before you made any edits.

6 Click OK to close the Custom From Clause Builder.

Caution!

Using this feature causes user-defined Where clauses or Having clauses to be ignored when Production Reporting code is generated.

Adding Conditions to the Data (Creating Where Clauses)

When you build a query, you can enter conditions and customize the rows of data retrieved. As you customize the data to retrieve, you may want a column to match a specific value, and you may want a column to be greater than a specific value.

For example, if you had a column named ZIPCODE, you could specify ZIPCODE < 40000 to select all zip codes under 40000.

Add conditions to your query in from the Where Clauses dialog box in the Query Builder - Fields page.

Note:

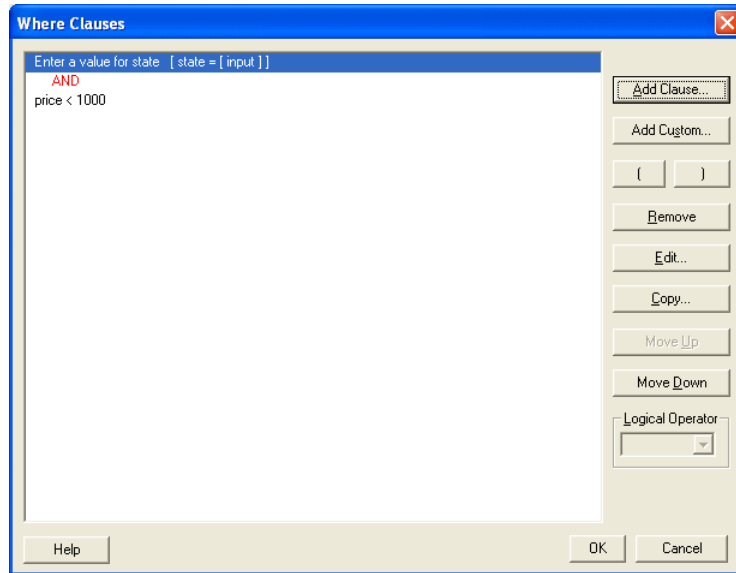
In SQL, a condition is called a Where clause.

You can combine several Where clauses with the logical operators AND, OR, or ELSE. For multiple Where clauses, select an operator under **Logical Operator**. (See [“Joining Where Clauses” on page 39.](#))

To change the order in which the Where clauses appear, select a Where clause and click **Move Up** or **Move Down**. In general, you should put your most restrictive Where clauses first.

In the *Order Details and Analysis* report, for example, we could limit the data retrieved to customers in California who had orders less than \$1000. To do this, we would create two Where

clauses and join them with a Logical Operator of AND (CUSTOMERS.STATE='CA' AND PRODUCTS.PRICE>1000).



The following sections discuss:

- [Creating Where Clauses](#)
- [Creating Where Clauses to Evaluate Database Columns or Expressions](#)
- [Creating Where Clauses to Evaluate Constant or One-off Expressions](#)
- [Creating Where Clauses to Evaluate Values Prompted at Runtime](#)
- [Creating Custom Where Clauses](#)
- [Joining Where Clauses](#)

Creating Where Clauses

In SQL, conditions are called Where clauses. Where clauses reduce the number of rows to search. When you run reports, the data prints only if it meets all of the conditions defined in the Where clause.

A Where clause is essentially an equation that returns a value or values. Because it is an equation, it can be thought of in terms of a left side and a right side. In the example Where clause below, SAL is the left side of the equation, greater than is the operator, and 2500 is the right side of the equation.

```
WHERE SAL > 2500
```

- To create a Where clause:
 - 1 Choose an option to place on the left side of the equation.
 - 2 Choose an operator or SQL predicate to join the two sides.
 - 3 Choose an option to place on the right side of the equation.

Table 2 Valid Options for Where Clauses

Type of Clause (Left Side)	Operator or SQL Predicate	How to Evaluate the Value Selected (Right Side)
Evaluate a Database Column or Expression	Equal to	Against a Database Column or Expression
Evaluate a Constant or One-off Expression	Not equal to	Against a Constant or One-off Expression
Evaluate a Value Prompted at Runtime (report parameter)	Less than	Against a Value Prompted at Runtime (report parameter)
Test for Existence via a Subquery	Greater than	Against One or More Values from a Subquery
Test for Non-Existence via a Subquery	Less than or equal to	
	Greater than or equal to	
	IN	
	NOT IN	
	BETWEEN	
	NOT BETWEEN	
	LIKE	
	NOT LIKE	
	IS NULL	
	IS NOT NULL	

In the majority of instances, you can create a Where clause by taking an item from the first column of the table and using an operator or SQL predicate to join it to an item in the third column. However, there are limitations. For example, you cannot join two report parameters. The operator or SQL predicate used to join the two sides of the Where clause also determines what can go on the right side. Using IN for example, restricts the right side of the Where clause to a constant or one-off expression, a value prompted at runtime, or a subquery.

When you select an item on the left side of a Where clause and an operator or SQL predicate, SQR Production Reporting Studio disables any resulting invalid options for the right side of the Where clause.

The examples in the following sections discuss how to create Where clauses that evaluate database columns or expressions against constant or one-off expressions, and how to create Where clauses that evaluate values prompted at runtime. For information on how to evaluate a value against one or more values, see [“Creating Subqueries that Return Zero to Many Values”](#) on page 132.

Creating Where Clauses to Evaluate Database Columns or Expressions

Use this type of Where clause to evaluate a specific database column or expression. The Where clause limits the report to the data that meets the condition defined by the Where clause.

For example, in the *Order Details and Analysis* report, you could limit the data printed to customers who had orders greater than \$1000.

Note:

In this example, we will select **Evaluate a Database Column or Expression** on the left side of the Where clause and **Against a Constant or One-off Expression** on the right side of the Where Clause.

► To create a Where clause to evaluate a database column or expression:

- 1 Click **Add Clause** in the main Where Clauses dialog box.
- 2 Select **Evaluate a Database Column or Expression** as the type of clause.
- 3 Select the database column or expression to evaluate.

SQR Production Reporting Studio places the database column or expression on the left side of the Where clause equation.

For example, to limit the report to orders greater than a certain amount, you would choose *Price* as the database column.

- 4 Choose the comparison operator or SQL predicate to use in the clause.

SQR Production Reporting Studio uses this operator or SQL predicate to evaluate the selected database column or expression.

For example, to limit the report to orders greater than \$1000, you would choose *Greater than* as the comparison operator.

You can modify comparison operators with the ANY or ALL modifiers. Comparison modifiers are mutually exclusive – you can select ANY, ALL, or None, but not all three. If you choose ANY or ALL, the right side of the Where clause must be a subquery, and the appropriate dialog boxes will appear. (See [“Creating a Where Clause Using ANY or ALL” on page 133](#) for an example.)

When you evaluate a *text column* or an *expression*, you can also the SQL predicates LIKE and NOT LIKE. The LIKE predicate supports the use of wildcard characters where comparing text strings. For example, `PRODUCT.DESCRPTION LIKE %LIGHT%` returns all products descriptions containing the word “light” (light bulbs, desk light).

If you are creating a list, use IN or NOT IN. If you choose IS NULL or IS NOT NULL, the Where clause does not have a right side.

- 5 Choose how to evaluate the database column or expression selected.

Depending on the operator or SQL predicate selected, you can evaluate the database column or expression against another column or expression, against a constant or a one-off expression, against a value prompted at runtime, or against one or more values from a subquery.

In our example, we want to evaluate the *Price* column against the constant value \$1000. So, we would select **Against a Constant or one-off Expression** as the option to place on the right side of the Where clause.

- 6 Enter the constant against which to evaluate the column or expression.

In our example, we want to evaluate the *Price* column against the constant value \$1000. So, we would enter 1000 as the constant.

If you chose to evaluate the database column against another database column or expression, against a value prompted at runtime, or against one or more values from a subquery, the appropriate dialog boxes would appear instead of the constant or SQL expression dialog box above.

7 Verify that the Where clause is correct and click **Finish to return to the main Where Clauses dialog box.**

In our example, the Where clause to limit the report to customers who had orders greater than \$1000 would appear in the main Where Clauses dialog box as follows:

```
PRODUCTS.PRICE>1000
```

Creating Where Clauses to Evaluate Constant or One-off Expressions

Constant or one-off expressions allow you to hand-code anything you want, as long as it is legal SQL. This can be a constant of some kind, or maybe a complete expression.

For example, you could create a report that lists the items with a sales price less than or equal to \$500.

Note:

In this example, we will select **Evaluate a Constant or One-off Expression** on the left side of the Where clause and **Against a Database Column or Expression** on the right side of the Where Clause.

► To create a Where clause to evaluate a constant or one-off expression:

- 1 Click **Add Clause** in the main Where Clauses dialog box.**
- 2 Select **Evaluate a Constant or One-off Expression** as the type of clause.**
- 3 Enter the constant or expression to evaluate.**

SQR Production Reporting Studio places the constant or expression you select on the left side of the Where clause equation. For example, to limit the report to items with a sales price less than or equal to \$500, you would enter 500 as the constant.

- 4 Choose the comparison operator or SQL predicate to use in the clause.**

SQR Production Reporting Studio uses this operator or SQL predicate to evaluate the constant or expression. For example, to limit the report to items with a sales price less than or equal to \$500, you would choose Less than or equal to as the comparison operator.

If you choose a comparison operator, you can modify it with the ANY or ALL operators. Comparison operators are mutually exclusive – you can select ANY, ALL, or None, but not all three. If you choose ANY or ALL, the right side of the Where clause has to be a subquery, and the appropriate dialog boxes will appear.

When you evaluate an expression, you can also the SQL predicates LIKE and NOT LIKE. The LIKE predicate supports the use of wildcard characters where comparing text strings. For

example, `PRODUCT.DESCRPTION LIKE %LIGHT%` returns all products descriptions containing the word "light" (light bulbs, desk light).

If you are creating a list, use `IN` or `NOT IN`. If you choose `IS NULL` or `IS NOT NULL`, the Where clause does not have a right side.

5 Choose how to evaluate the value entered.

Depending on the operator or SQL predicate selected, you can evaluate the value against column or expression, against another constant or one-off-expression, against a value prompted at runtime, or against one or more values from a subquery.

In our example, we want to evaluate the constant value 500 against the expression to calculate the sales price. So, we would select **Against a Column or Expression** as the option to place on the right side of the Where clause.

6 Enter the column or expression against which to evaluate the constant.

In our example, we would select an expression to calculate the sale amount.

If you chose to evaluate the constant or one-off expression against another constant or one-off-expression, against a value prompted at runtime, or against one or more values from a subquery, the appropriate dialog boxes would appear.

7 Verify that the Where clause is correct and click **Finish to return to the main Where Clauses dialog box.**

In our example, the Where clause to limit the report to items with a sales price less than or equal to \$500 would appear in the main Where Clauses dialog box as:

```
500<= (ORDLINES.QUANTITY*PRODUCTS.PRICE)
```

Creating Where Clauses to Evaluate Values Prompted at Runtime

This type of Where clause allows you to enter values and generate a new result set each time you run a report. This is useful for reports that have one or more varying runtime parameters, such as start and stop dates, zip codes, or telephone area codes.

Consider the scenario of limiting the data retrieved in the *Order Details and Analysis* report to customers in a specific state. When you create a Where clause to evaluate a value prompted at runtime, you could define a state each time you run the report. You could also create a default value for the state if a user failed to enter a value at runtime.

Note:

In this example, we will select **Evaluate a Value Prompted at Runtime** on the left side of the Where clause and **Against a Database Column or Expression** on the right side of the Where Clause.

➤ To create a Where clause to evaluate a value prompted at runtime:

- 1 Click **Add Clause** in the main Where Clauses dialog box.**
- 2 Select **Evaluate a value prompted at runtime** as the type of clause.**
- 3 Choose the comparison operator or SQL predicate for the clause.**

SQR Production Reporting Studio uses the operator or predicate to evaluate the information you define in the Where clause against the user input value.

For example to limit a report to a specific state, you would choose *Equal to* as the operator.

If you choose a comparison operator, you can modify it with the ANY or ALL operators.

Comparison operators are mutually exclusive – you can select ANY, ALL, or None, but not all three. If you choose ANY or ALL, the right side of the Where clause must be a subquery, and the appropriate dialog boxes will appear. (See “[Creating Subqueries that Return Zero to Many Values](#)” on page 132 for examples.)

4 Choose how to evaluate the value prompted at runtime.

Depending on the operator or SQL predicate selected, you can evaluate the value against a column or expression, against a constant or one-off expression, or against one or more values from a subquery. (SQR Production Reporting Studio disables the value prompted at runtime option since you cannot join two report parameters.)

In our example, we want evaluate the value prompted at runtime against the *State* database column. So, we would select **Against a Column or Expression** as the option to place on the right side of the Where clause.

5 Choose the database column or expression to evaluate.

For example, to limit the data displayed to a different state each time you run the report, you would choose the *State* column.

If you chose to evaluate the value against a constant or one-off expression or against one or more values from a subquery, the appropriate dialog boxes would appear instead of the database column or expression dialog box above.

6 Enter the text that will appear in the prompt and the maximum number of characters that you can input when you run the report.

SQR Production Reporting Studio generates a default prompt for you. For example, when you run the report, SQR Production Reporting Studio may prompt you to: “*Enter a value for state.*” You can override the default prompt if you wish.

The input length is the maximum number of characters you can enter when you respond to the prompt and run the report. For example, if you limit the report to a specific state, you could define the input length to be a maximum of two characters. If you do not select an input length, SQR Production Reporting Studio sets the input length to the column size.

7 Define how to handle the report when a user fails to enter a value at runtime.

If users fail to enter a value when they run the report, SQR Production Reporting Studio can:

- Stop running the report.
- Default to the value you specify.

For example, if you were limiting the report to a specific state and a user failed to enter a value when running the report, you could have the report default to California.

- Repeat the prompt until a user enters a value.

8 Verify that the Where clause is correct and click **Finish** to return to the main Where Clauses dialog box.

In our example, the Where clause to evaluate a value prompted at runtime would appear in the main Where Clauses dialog box as follows:

```
Enter a value for STATE [[input]=STATE]
```

Note:

We created the Where clause described above by selecting **Evaluate a Value Prompted at Runtime** on the left side of the Where clause and **Against a Database Column or Expression** on the right side of the Where clause.

You could also create the Where clause by selecting **Evaluate a Database Column or Expression** on the left side of the Where clause and **Against a Value Prompted at Runtime** on the right side of the Where clause. Although the dialog boxes in which you enter the information would appear in a different order than described above, the resulting Where clause would effectively be the same.

Creating Custom Where Clauses

Custom Where clauses allow you to hand code the SQL used in the Where clause. When you hand code SQL, you can enter advanced SQL features such as unions and intersects. When you create a custom Where clause (as opposed to using the wizard in SQR Production Reporting Studio), you must be familiar with SQL, and you have more responsibility to maintain the clause.

► To add a custom Where clause:

- 1 Click **Add Custom** in the main Where Clauses dialog box.

The Where Clause Builder is displayed.

- 2 Enter the expression in the **Clause** field.
 - Drag a function onto a column in the left pane.
 - Drag a function or column into the Clause field.
 - Double-click a function or column to enter it into the Clause field.
 - Type in the expression.

The types of operations that you can use in your Where clause appear under **Operations** on the right-hand side of the dialog box (for example, comparison operators, logical operators, and range operators). To view the available options for each type of operation, click + next to the operation, or double-click the operation. The options that appear depend on your database.

Note:

With Range Operators, use of system functions is limited to custom clauses only. They may not be used in the Where Clause wizard.

- 3 Click **Validate** to validate the Where clause before inserting it into your query.

If the Where clause is valid, the question mark that appears on the Validate button changes to a check mark. If the Where clause is not valid, the question mark changes to an "X."

Clicking **Validate** is optional. SQR Production Reporting Studio automatically validates the Where clause when you click **Insert**. Click **Validate** to ensure that you entered a valid Where clause before you insert it into your query,

4 Click **Insert to add the Where clause to your query.**

The Where Clause Builder remains open for additional entries. To add an additional Where clause, click **Clear** to clear the input fields. If you are modifying a Where clause, **Insert** changes to **Update**.

5 Click **Close to close the Where Clause Builder.**

Note:

SQR Production Reporting Studio enables the **Show Values** button when you click a text or numeric column in the Tables and Columns pane. Click **Show Values** to display the values contained in the selected column. You can then use these values in your Where clause. To limit the report output in the *Order Details and Analysis* report to customers in California, for example, we could click **Show Values**, select CA, and enter it into a Where clause such as `CUSTOMERS.STATE='CA'`.

Joining Where Clauses

Joining Where Clauses involves:

- [Using the Logical Operators AND/OR/ELSE](#)
- [Specifying Order Precedence](#)

Using the Logical Operators AND/OR/ELSE

When you have several Where clauses, you can join them with the logical operators AND or OR. When you join more than one Where clause that evaluates a value prompted at runtime (report parameter), you can also use the logical operator ELSE. Select the operator you wish to use in the Logical Operator list box found in the Where Clauses dialog box.

As an example, assume you create two Where clauses:

- The first Where clause limits the report to customers with a specific *Customer Number*.
- The second Where clause limits the report to customers with a specific *Name*.

When you run the report, SQR Production Reporting Studio behaves differently depending on the type of join you used to combine the Where clauses.

AND

AND joins two or more conditions and returns a row only if *all* of the conditions are true for that row.

In this example, if you use AND as the Logical Operator and run the report:

1. A prompt to enter a value for Customer Number appears.

If you do not enter a value, SQR Production Reporting Studio stops running the report, defaults to the value specified for the Where clause, or repeats the prompt until you enter a value.

2. After you enter a value for Customer Number, a prompt to enter a value for Customer Name appears.

When SQR Production Reporting Studio runs the report, it looks for a value in response to both prompts and displays those records that match *both* the Customer Number and the Customer Name.

OR

OR joins two or more conditions and returns a row if *any* of the conditions are true for that row.

In this example, if you use OR as the Logical Operator and run the report:

1. A prompt to enter a value for Customer Number appears.

If you do not enter a value SQR Production Reporting Studio stops running the report, defaults to the value specified in the Where clause, or repeats the prompt until you enter a value.

2. After you enter a value for Customer Number, a prompt to enter a value for Customer Name appears.

When SQR Production Reporting Studio runs the report, it looks for a value in response to both prompts and displays those records that match *either* the Customer Number *or* the Customer Name.

ELSE

ELSE joins two or more conditions, but only evaluates one of them.

In this example, if you use ELSE as the Logical Operator and run the report, a prompt to enter a value for Customer Number appears.

- If you enter a value, SQR Production Reporting Studio skips the second prompt and displays the records that match the Customer Number entered.
- If you do not enter a value, SQR Production Reporting Studio ignores the first prompt and displays a prompt for you to enter the value for Customer Name.

When SQR Production Reporting Studio runs the report, it looks for a value in response to the first prompt. If it finds a value, it skips the second prompt and displays the records that match the value in the first prompt (in this example, *Customer Number*). If you do not enter a value in the first prompt, SQR Production Reporting Studio displays the second prompt and displays the matching records (in this example, *Customer Name*).

Specifying Order Precedence



When you use AND, OR, and ELSE operators to form complex expressions, you can use the parenthesis buttons to specify order precedence.

- To add a parenthesis above a line:
Select the line above which you want to add the parenthesis and click the open parenthesis button.
- To add a parenthesis below a line:
Select the line below which you want to add the parenthesis and click the close parenthesis button.
After you add the parentheses, click **OK**. SQR Production Reporting Studio validates the Where clause. If the validation fails, an error appears.
- To remove a parenthesis:
Select the parenthesis and click **Remove**. Only the parenthesis associated with the clause is deleted. Matching open or close parentheses are *not* deleted.

Sorting Data

To make reports more effective, you can sort by one or more database columns. You can sort columns in ascending or descending order.

- To set the sort order of columns:
 - 1 Click **Order By** on the **Query Builder - Fields** page.
The Order By dialog box is displayed.
 - 2 Select a column under **Available Columns** and add it to the sort order under **Order Columns**.
 - Click the desired column and click **Add**.
 - Double-click the column.
To remove a column from the sort order, click the column and click **Remove**, or double-click the column.
 - 3 To change the column order, click a column and click **Move Up** or **Move Down**.
The order in which you add the columns is important, since the column order designates the sort priority.
 - 4 Click **Toggle Sort** to specify whether to sort the columns in ascending or descending order.

Icon	Description
	The icon with the arrow pointing up indicates that the columns will sort in <i>ascending</i> order.
	The icon with the arrow pointing down indicates that the columns will sort in <i>descending</i> order.

In the *Order Details and Analysis* report, SQR Production Reporting Studio sorts the columns first by customer name and then by product description.

Note:

If you define group breaks, it is a good idea to apply a sorting order to your database columns. SQR Production Reporting Studio automatically generates the sort order if you have automatic group break synchronization enabled (you selected **Create sort order fields from break fields** in the Group Breaks dialog box). With group break synchronization, SQR Production Reporting Studio selects sort order fields based on the current group breaks. Adding or removing sort order fields at this point, disables group break synchronization.

Creating Group Breaks

Group breaks group database information in tabular reports. Defining group breaks allows you to add white space to your reports, avoid printing redundant data, perform conditional processing on variables that change, and print subtotals.

When you define a group break, a column (or expression) prints only when the value of the column (or expression) changes.

For example, in the *Order Details and Analysis* report, each customer name prints once – at the top of the list of sales for the customer. By defining the *Name* column as a group break, the column prints only when its value changes.

Figure 2 Report with Group Breaks

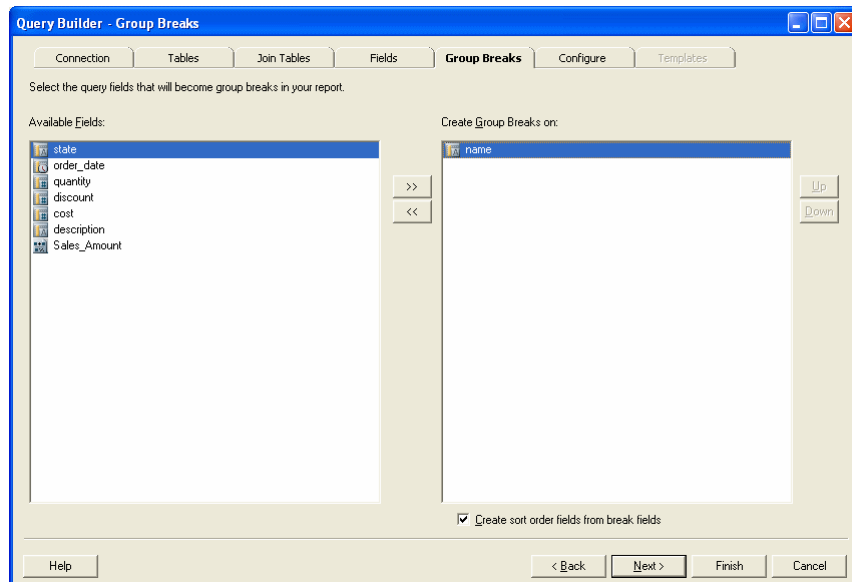
Order Details and Analysis			02-Apr-1999
<u>Name</u>	<u>Order Date</u>	<u>Description</u>	<u>Price</u>
Corks and Bottles, Inc.	03/03/1996	Thingamajigs	12.95
	06/18/1997	Wire rings	1987.29
	06/18/1997	Ginger snaps	3.69
Harry's Landmark Diner	06/18/1997	Hop scotch kits	862.75
	01/01/1996	Widgets	4.59
	01/01/1996	Thimble	1.29
	01/01/1996	Canisters	1326.75
	01/01/1996	Wire rings	1987.29
Joe Smith and Company	01/01/1996	Modeling clay	34.47
	03/18/1996	Widgets	4.59
	03/18/1996	Curtain rods	26.72
	03/18/1997	Ginger snaps	3.69
	03/18/1997	Hookup wire	3.99
	12/27/1996	Hammers	8.90
	03/18/1997	Modeling clay	34.47

If you did not define the *Name* column as a group break, however, the column would print on each line.


Figure 3 Report without Group Breaks

Order Details and Analysis			02-Apr-1999
Name	Order Date	Description	Price
Corks and Bottles, Inc.	03/03/1996	Thingamajigs	12.95
Corks and Bottles, Inc.	06/18/1997	Wire rings	1987.29
Corks and Bottles, Inc.	06/18/1997	Ginger snaps	3.69
Corks and Bottles, Inc.	06/18/1997	Hop scotch kits	862.75
Harry's Landmark Diner	01/01/1996	Widgets	4.59
Harry's Landmark Diner	01/01/1996	Thimble	1.29
Harry's Landmark Diner	01/01/1996	Canisters	1326.75
Harry's Landmark Diner	01/01/1996	Wire rings	1987.29
Harry's Landmark Diner	01/01/1996	Modeling clay	34.47
Joe Smith and Company	03/18/1996	Widgets	4.59
Joe Smith and Company	03/18/1996	Curtain rods	26.72
Joe Smith and Company	03/18/1997	Ginger snaps	3.69
Joe Smith and Company	03/18/1997	Hookup wire	3.99
Joe Smith and Company	03/18/1997	Hammers	8.90
Joe Smith and Company	06/18/1997	Modeling clay	34.47

Use the Query Builder - Group Breaks page to select the query fields that will become group breaks in your report.



► To select a query field to be a group break:

- Click the desired field and click .
- Double-click the field.

Multiple group breaks must be arranged in a hierarchy. For example, if your breaks are geographical units, it is logical to arrange them according to size: first *state*, then *city*. To change the group break order, select a break and click **Up** or **Down**.

To synchronize group breaks with the column sort order, select **Create sort order fields from break fields**. (This is selected by default since ideally, you should sort the result set by the same fields as your group breaks.)

Note:

SQR Production Reporting Studio uses the Group Breaks you define here to configure your default report layout. To change the group breaks while you are laying out your report, select **Report**, then **Group Breaks**.

Configuring the Default Layout

The default layout is the arrangement of data columns and headings that initially appears when you display a report. Use the **Query Builder - Configure Layout** page to configure default layout information.

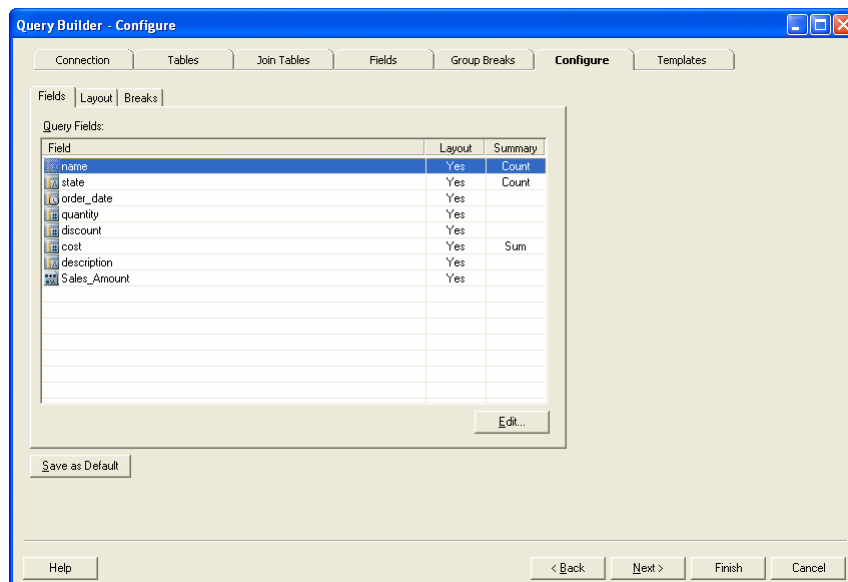
- [“Configuring Query Fields for the Default Layout” on page 44](#)
- [“Configuring Layout Information” on page 46](#)
- [“Configuring Breaks” on page 47](#)

Tip:

Click **Save as Default** to use the layout settings you define in each report you create. If you change the default layout settings and don't save them, SQR Production Reporting Studio only applies the settings to your current report. To change the default layout after it appears in the Layout window, select **Layout**, then **Default Layout**, and then **Configure**.

Configuring Query Fields for the Default Layout

Use the Fields tab to define how SQR Production Reporting Studio will use the query fields in the default report layout. When you configure query fields you can include or exclude columns in the default report layout, and you can create summary columns.



Note:

This option is not available for reports created using a layout template.

Including Columns in the Default Report Layout

When you add database columns to your query, SQR Production Reporting Studio automatically includes them in the default report layout. This is indicated by the *Yes* that appears under the Layout heading in the Fields tab.

Occasionally, you may want to include a column in your query, but do *not* want it to appear in the default report layout. For example, if you plan to save a chart or cross-tab as an Interactive Reporting client analysis file, you may need to select a column to generate the desired data; however, you may not want to display the column in your Production Reporting report.

- To specify whether to include a column in the default report layout:
 - Double-click next to the database column under the Layout heading to toggle between Yes and No.
 - Select the column, click **Edit** to access the Layout Settings dialog box, and add or remove the check next to **Include in default layout**.

Excluding a column does *not* prevent you from adding it to the layout at a later time, it simply excludes the column from the *default* layout.

Note:

SQR Production Reporting Studio uses all the fields that have *Include in the default layout* selected to rebuild the default layout when you select **Layout**, then **Default Layout**, and then **Rebuild** in the Layout window.

Creating Summary Columns

A summary column is a calculated field that the default layout generates in the Group Summary section of a report.

For example, assume you create a report that displays information about the orders placed by each of your customers. In this case, you could create summary columns that calculate and print the total number of orders placed by each customer and the total cost of each customer's orders.

- To create a summary column to appear in the default layout:
 - Double-click under the Summary heading for the desired column.
 - Select the column, click **Edit** to access the Layout Settings dialog box, and select **Create summary columns in group footer**.

When you create a summary column for a *text* column, SQR Production Reporting Studio *counts* the items in the column. For example, you could count the number of customers in a report.

When you create a summary column for a *numeric* column, SQR Production Reporting Studio *sums up* the items in the column. For example, you could calculate the total cost of the orders placed by a customer.

You cannot create a summary column for a *date* column.

Note:

Since SQR Production Reporting Studio places summary columns in the Group Summary section of a report, you must create group breaks for the summary columns to appear. See “Creating Group Breaks” on page 42.

Configuring Layout Information

The Layout tab defines how objects and headings are displayed in the default report layout.

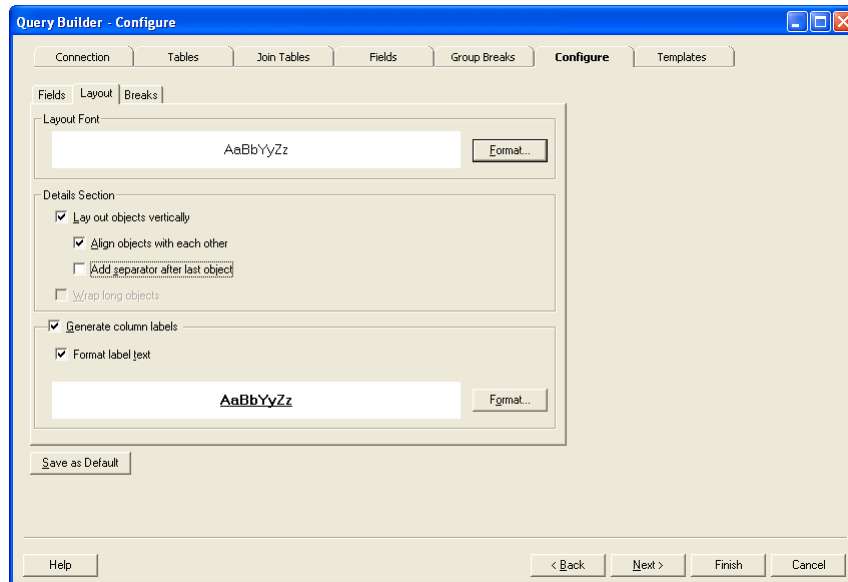


Table 3 Details Section Layout Options

Option	Description
Layout font	Click Format to specify formatting options for objects in the details section of the report layout. Formatting options include font, font size, text color, and background color.
Lay out objects vertically	Aligns objects in the report vertically down the page. If not selected, SQR Production Reporting Studio aligns objects horizontally across the page.
Align objects with each other	Aligns objects with each other in the report layout. This option is only available if you choose to lay out objects vertically.
Add separator after last object	Adds a horizontal line after the last object between columns. This option is only available if you choose to lay out objects vertically.
Wrap long objects	Wraps long objects onto the next line. If you do not wrap long objects, an object is cut off if it is too long to fit on the page.

Table 4 Column Labels Layout Options

Option	Description
Generate column labels	Prints column headings for each column in the report.
Format label text	<p>Formats column heading text so that it is easier to read. For example, if you applied formatting to a <i>SALE_AMOUNT</i> heading, it would appear as <i>Sale Amount</i>.</p> <p>Click Format to specify formatting options for label text. Formatting options include font, font size, text color, and background color.</p>

Configuring Breaks

The Breaks tab defines how group breaks operate in the default report layout.

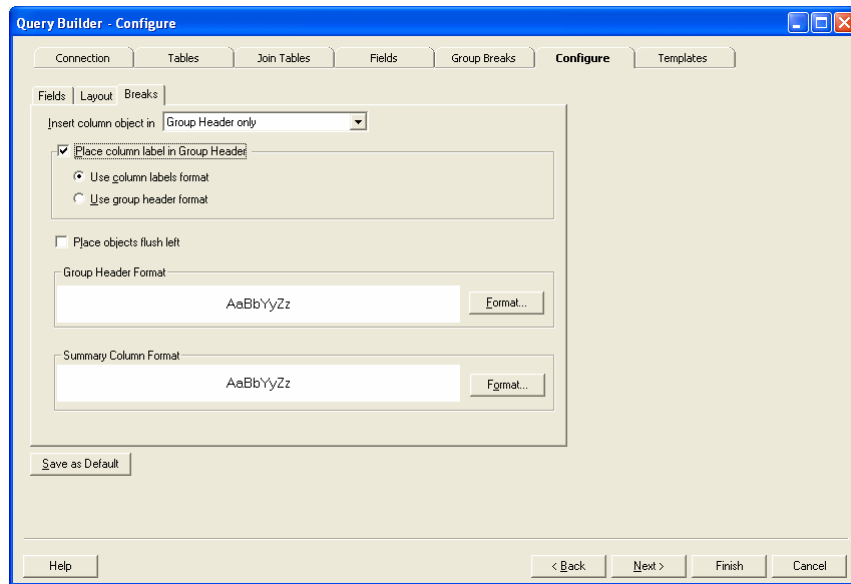


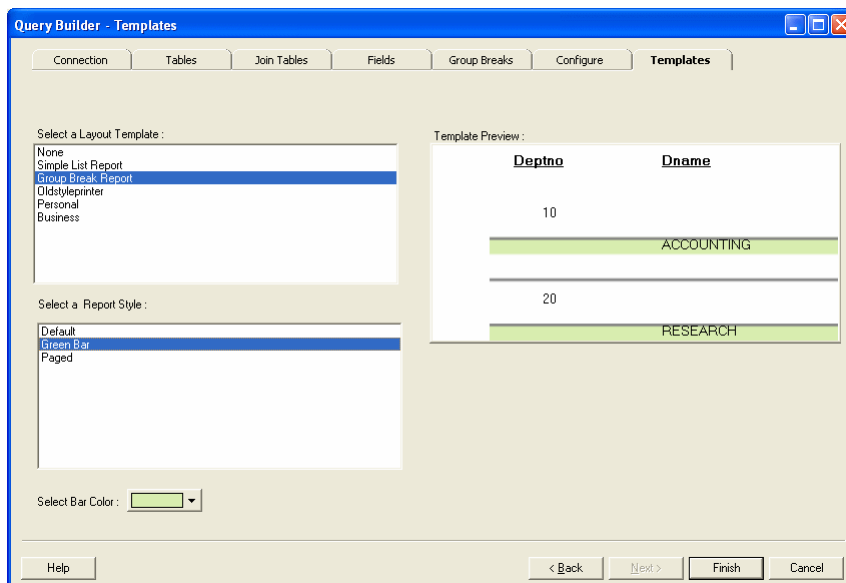
Table 5 Break Options

Option	Description
Insert column object in	Specifies where to insert a column defined as a group break. You can insert a column in the <i>Group Header Only</i> , in the <i>Details only</i> , or in <i>both</i> .
Place column label in Group Header	<p>Places a column label in the Group Header section of the layout for each column.</p> <p>For example, if you define a <i>Name</i> column as a group break and place it in the Group Header, you can identify the column in the report by inserting a heading titled "Name" to appear before the column.</p>
Use column labels format	Applies the formatting options defined under <i>Format Label Text</i> on the Layout tab to the column label in the Group Header.
Use group header format	Applies the formatting options defined under <i>Group Header Format</i> to the column label in the Group Header.
Place objects flush left	Places objects flush left against the page.

Option	Description
Group Header Format	Click Format to specify formatting options for Group Header columns in the report layout. Formatting options include font, font size, text color, and background color.
Summary Column Format	Click Format to specify how to format summary columns in the report layout. You create summary columns in the Fields tab. See “Creating Summary Columns” on page 45.

Selecting Report Templates and Styles

The final step in defining a report is to select a template and style for the report. Use the **Query Builder - Templates** page to select a report template and style.



SQR Production Reporting Studio provides the following templates:

- **Simple List Report**—A dynamic list generated from query data with an option to create a report-level summary.
- **Group Break Report**—A dynamic list generated from query data with the ability to break line items at multiple levels of grouped data.
- **Business**—A static business report with a default title, date, and company logo.
- **Old Style Printer**—A static customer account summary with a fixed background image and fixed headings.
- **Personal**—A static contact list report with a fixed background image and fixed headings.
- **Placeholder**—Layout templates with specific formatting that can be mapped to fields in the query. (See [“Adding Placeholders to Layout Templates” on page 115.](#))

The templates displayed depend on the type of report you are creating. For example, the Group Break Report template only appears if you defined a break on the Query Builder - Group Breaks

page. If you defined any additional layout templates, they are also displayed here. (See [Chapter 6, “Creating Report Layout Templates.”](#))

Note:

If you do not want to use a template, select None for the layout template. This is the default value.

SQR Production Reporting Studio provides the following report styles:

- **Default**—Displays and prints detail lines on a white background.
- **Green Bar**—Displays and prints detail lines in rows alternating with white and green background colors.
- **Paged**—For Group Break Reports. Same as the “default” Group Break report with the following exceptions: no Page Header section—instead the highest level Group Header provides for Page Header and Group Head functionality, page breaks are set, a table of contents is generated based on the field in Group Header #1.

The styles displayed depend on the layout template selected. For example, “green bar” is only available for dynamic Simple List and Group Break reports.

A preview of how the report will look with the selected template and style is displayed under Template Preview.

Note:

For detailed information on creating and using layout templates, see [Chapter 6, “Creating Report Layout Templates.”](#)

2

Formatting Reports

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Displaying Reports

After you define a report in the Query Builder, SQR Production Reporting Studio displays the default report layout in the Layout window.

Use the Layout window to design the layout of your report. In addition to the Layout window, SQR Production Reporting Studio provides additional windows to help with report formatting.

To access a window, click the corresponding tab.

- **Layout**—Displays the report layout. Use the Layout window to insert and position the report contents. When you save a report in the Layout window, SQR Production Reporting Studio saves the report as an SRM file.
- **Source**—Displays the Production Reporting source code for the report. Use the Source window to view or edit the generated Production Reporting code.
- **Report**—Displays the report. Typically, the Report window uses an internal browser to display the report in an HTML format. If you do not want to use the internal browser or if your system does not support it, the Report window displays the report in an SPF format. Use the Report window to view the results of your report as you create it.
- **Template**—Displays a report layout based on a template. Use the Template window to define layout templates that you can use when you create reports.

Note:

The windows that display depend on the type of report opened. For example, if you open an SRM file, the Layout, Source, and Report windows display; if you open an SQR file, the Source and Report windows display; if you open a template, the Template window displays.

Defining Report Preferences

SQR Production Reporting Studio allows you to define several report preferences. To review or change the preferences, select **File**, then **Preferences** before creating a report, or select **Edit**, then **Preferences** while formatting a report.

[Table 6](#) describes the preferences that apply to each new report that you create (they do not affect the report that is currently open):

Table 6 Preferences that Only Apply to New Reports

Preference	Description
Layout (layout mode, configure default layout, location in default layout, number format)	Graphic or character layout display setting, how to configure the default report layout, the location in which the page number and date/time print in the default layout, and the number format to use.
Format	The numeric format used when previewing or printing reports.
Page	Parameters such as paper size, margins, page orientation, and character layout.
Labels	How labels print on the page.
Export	Parameters such as column lengths and separator characters for Export reports.
Editor (font, tabs)	Fonts displayed in the SQR Production Reporting Studio editor and whether to use spaces or tabs in Production Reporting programs.
View	Grid characteristics, the display of aliases in the Layout window, and whether inches centimeters, or points display on the horizontal and vertical rulers.
Navigation Bar (language)	The language in which the navigation bar at the top of HTML reports appears.
HTML (page background)	Page background pattern and color for HTML reports.

[Table 7](#) describes the preferences that apply to the report that is currently open and to any new reports that you create:

Table 7 Preferences that Apply to the Currently-Open Report and to New Reports

Preference	Description
General	Preview options, run parameters, default directories, and the Production Reporting command line.
Layout (line, box, date/time, chart size)	Parameters such as line width, box borders and shading, date/time format, and default chart size.
Editor (syntax coloring)	The coloring of syntax elements in the SQR Production Reporting Studio Editor.

Preference	Description
Table of Contents	Options for printing a table of contents.
Navigation Bar (background and navigation icons)	<p>How to display the navigation bar that appears at the top of HTML reports in your browser. You can:</p> <ul style="list-style-type: none"> ● Define a background pattern or color to appear behind the navigation bar ● Display icons on the navigation bar that allow you to generate PDF files ● Export report data in CSV format ● Display XML report output ● Activate Interactive Reporting analysis
HTML (scale report to, demand paging, images directory, zip archive)	Options for running HTML reports such as the percent to which to scale the report, how to write the report, where to store images, and whether to compress all the files created by the HTML generator and related GIF files into a single ZIP archive file.

Formatting Report Contents

The Layout window contains sections to help you format a report. The sections that appear depend on the type of report created. The Layout window for a tabular report contains the following sections:

Table 8 Layout Window Sections for a Tabular Report

Section	Description
Report Header	Information that appears before the actual report. Use the Report Header to customize the first report page. Unlike the Page Header (which appears at the top of every page), the Report Header appears only once. To create a “cover page,” insert a page break after the Report Header. (See “Inserting Page Breaks” on page 67.)
Page Header	Information such as page numbers, the current date, column headings, and images. The Page Header prints at the top of every page in the report.
Group Header	Appears only if you defined a group. The header information for the group prints in this section.
Details	The body of your report. This is where you insert most of your database columns; however, you can also drag columns into the Header and Footer sections. If you defined detail queries, each detail query has its own Details section.
Group Summary	Appears only if you defined a group. The summary, such as totals or averages, prints in this section for the specified group.
Query Summary	Summary information such as totals, averages, charts, and cross-tabs. This section executes after all the data rows have been executed. If you defined detail queries or sequential master queries, each detail query and sequential master query has its own Query Summary section.
Page Footer	Information such as page numbers and the current date. The Page Footer prints at the bottom of every page in the report.

Section	Description
Report Footer	Information that appears after the actual report. You can use the Report Footer to customize the last report page. Unlike the Page Footer (which appears at the bottom of every page), the Report Footer appears only once.

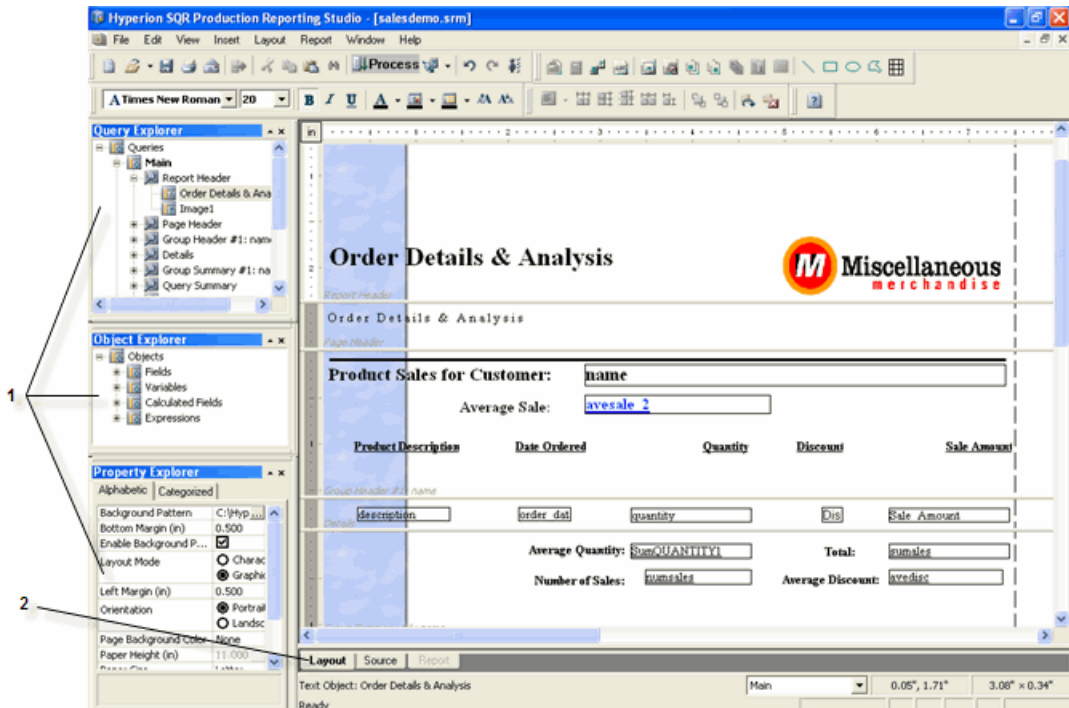
When you first access the Layout window, the default report layout displays the query fields in the Details section and the current date and page number in the Page Header section. The rest of the information displayed depends on the options you specified on the Configure page in the Query Builder as you defined your report. (See “Configuring the Default Layout” on page 44 for more information.)

You can modify the default layout as desired.

- To modify the default layout configuration, select **Layout**, then **Default Layout**, and then **Configure**.
- To clear the layout and start from scratch, select **Edit**, then **Clear All**.
- To return to the default layout after you make changes, select **Layout**, then **Default Layout**, and then **Rebuild**.
- To undo an edit in the layout, select **Edit**, then **Undo** or press [Ctrl+Z].

The layout for the *Order Details and Analysis* report appears as shown in Figure 4.

Figure 4 Layout for the *Order Details and Analysis* Report



1. Layout window Explorers help you format your report.
2. Click a tab to access a window.

Using the Layout Window Explorers

When you initially access the Layout window, three Explorers are displayed on the left side of the window. You can minimize, maximize, close, and re-open these Explorers. You can also drag an Explorer to another part of the Layout window and re-size the Explorer. To re-open an Explorer once it is closed, select **View**, then **Explorers** and select the Explorer from the menu.

- [“Using the Query Explorer” on page 55](#)
- [“Using the Object Explorer” on page 55](#)
- [“Using the Property Explorer” on page 55](#)

Using the Query Explorer

The Query Explorer displays the query (or queries) used to create the report. The Query Explorer contains a “snapshot” of the report layout (it displays each Layout window section and the objects in that section). When you select an object in the Query Explorer, the object is selected in the Layout window. Similarly, when you select an object in the Layout window, the object is also selected in the Query Explorer.

Using the Object Explorer

The Object Explorer displays the fields, variables, calculated fields, and expressions defined in the Query Builder. As you format your report, you can drag the desired objects from the Object Explorer into the Layout window. To edit an object in the Object Explorer, right-click the object and select **Edit**.

Using the Property Explorer

The Property Explorer displays the properties for the object selected in the report layout. You can display the properties alphabetically or by category. You can also edit the properties in the Property Explorer.

Note:

In addition to viewing and editing properties with the Property Explorer, you can view and edit the properties for an object by right-clicking the object in the Layout window and selecting **Object Properties** from the menu that appears.

Displaying Toolbars in the Layout Window

SQR Production Reporting Studio provides toolbars that you can display in the Layout window to help format reports. You can display or hide these toolbars as desired. To display or hide a toolbar, select **View**, then **Toolbars** and select the toolbar from the menu.

- **Standard Toolbar**—Options for opening, creating, saving, printing, or emailing reports; cutting, copying, pasting, or finding text; processing reports; editing the query; undoing and redoing edits to the layout; and viewing report preferences.
- **Object Toolbar**—Options for inserting query fields, calculated fields, variables, text, images, dates, page numbers, record numbers, charts, cross-tabs, lines, and boxes.
- **Formatting Toolbar**—Formatting options such as font, font size, text color, and background color.
- **Browser Toolbar**—Options to navigate through reports displayed in browsers.
- **Layout Toolbar**—Options to align report objects.
- **Help Toolbar**—Online help for SQR Production Reporting Studio.

Inserting Report Fields

Usually, the most important information in a report comes from the database tables. Each table contains one or more columns of data. The database columns make up the fields in the query. When you place fields in the layout, their values print in the report.

► To insert fields in the report layout:

- Drag a field from the Object Explorer into the desired report layout section.
- Insert the fields from the Database tab in the Report Fields dialog box.

To access the Report Fields dialog box, click  on the Object Toolbar, select **Insert**, then **Field**, or right-click **Fields** in the Object Explorer and select **Insert**.

When you insert fields from the Report Fields dialog box, you can:


- Drag a field from the Database tab to the desired area in the report layout.
- Place your cursor in the desired section in the layout, click the field in the Database tab, and click **Insert**. The field appears in the upper left-hand corner of the layout section in which it is inserted.

After you insert a field in the report layout, you can change the properties of the field if desired. To change the properties of a field:

- Select the field in the layout and change the properties in the Property Explorer.
- Double-click the field in the layout.
- Right-click the field and select **Object Properties**.

Adding Text

Text objects are pieces of text that you can move to different parts of the layout. Text objects are very useful for column headings and prompts.

To enter a text object, click  on the Object Toolbar and drag it to the desired area in the Layout, or click in the desired Layout section and select **Insert**, then **Text Object**. A box appears where you can type the text for the text object.

To move a text object to another location in the Layout, select the text object and drag it to the desired location.

To edit the text in a text object, right-click the text object and select **Edit Text**.

To change the properties of a text object, select the object in the layout and change the properties in the Property Explorer, or right-click the text object and select **Object Properties**.



Adding Variables

SQR Production Reporting Studio allows you to create variables that you can use in your report. These variables are written with Production Reporting syntax. You add the variables in the Variable Builder. After you add the variables, you can insert them into the report layout.

- [Creating Variables in the Variable Builder](#)
- [Inserting Variables in the Report Layout](#)
- [String Variables](#)
- [Numeric Variables](#)
- [Date Variables](#)
- [Encode Variables](#)

Creating Variables in the Variable Builder

To access the Variable Builder:

- Click  on the Object Toolbar.
- Select **Insert**, then **Variable**.
- Right-click **Variables** in the Object Explorer and select **Insert**.
- Click  on the Object Toolbar (or select **Insert**, then **Field**), select the Variables tab in the Report Fields dialog box, click **New**, and choose **Variable**.

► To add a variable in the Variable Builder:

1 Enter a name to identify the variable.

You can enter any alphanumeric character. You cannot enter spaces.

Existing variables are listed under Local Variables in the Operations pane. You cannot use an existing variable name.

2 Specify a variable type by clicking next to **String**, **Numeric**, or **Date**.


3 Add the variable:

- Select an operation and drag it on a column in the left pane.
- Drag an operation or column into the Variable field.
- Double-click an operation or column to enter it into the Variable field.
- Type in the variable.

To delete a variable from the Variable field, click **Clear**.

The types of operations that you can use in your variables appear under the Operations pane on the right-hand side of the Variable Builder (for example, numeric functions, file functions, or operators). To view the available options for an operation, click the plus sign (+) next to the operation, or double-click the operation. (For more information on Production Reporting operations, see Volume 2 in the *Hyperion SQR Production Reporting Developer's Guide*.)

4 Click **OK** to close the Variable Builder

If you accessed the Variable Builder by clicking  or by selecting **Insert**, then **Variable**, the variable is displayed in your report layout.

If you accessed the Variable Builder from the Report Fields dialog box, the variable is displayed under the Variables tab. At this point, you can add additional variables, insert the variable into the layout, or close the Report Fields dialog box.

Tip:

You can use the name of a calculated field in your variable. For example, could create a calculated field `TotalSalaryByRegion` and insert into your variable as follows:

```
'Total Salary is $' || TO_CHAR(#TotalSalaryByRegion) || '.''
```

Inserting Variables in the Report Layout

- To insert a variable in your report layout:
 - Drag the variable from the Object Explorer into the desired report layout section.
 - Insert the variable from the Variables tab in the Report Fields dialog box.

To access the Report Fields dialog box, click  on the Object Toolbar, select **Insert**, then **Field**, or right-click **Fields** in the Object Explorer and choose **Insert**.

When you insert variables from the Report Fields dialog box, you can:

- Drag a variable from the Variables tab to the desired area in the report layout.
- Place your cursor in the desired section in the layout, click the variable in the Variables tab, and click **Insert**. The variable is displayed in the upper left-hand corner of the layout section in which it is inserted.

Tip:

To delete a variable so that it does not appear under Variables in the Object Explorer, select the variable in the Variables tab in the Report Fields dialog box and click **Delete**.

String Variables

Use string variables to concatenate multiple database columns.

For example, to insert customer names and addresses into a report, you could add the column for *city*, insert a text box for a comma, and add the column for *state*. When you print the report, you will find that the city and state are not always spaced correctly. For example, *New York, NY*, *Brooklyn, NY*, and *Queens, NY* would print as follows:

```
New York, NY
Brooklyn,  NY
Queens,   NY
```

If you create a string variable for city and state, however, the columns will always be aligned.

```
New York, NY
Brooklyn, NY
Queens, NY
```

Assume you call the string variable used to concatenate city and state *address*. This variable would appear in the Variable Builder as follows:

```
$CITY || ', ' || ' ' || $STATE
```

When you create string variables:

- Use single quotes to enclose characters, symbols, and spaces.
For example, `' , '` prints a comma, `' '` prints a space and `'text'` prints the word *text*.
- Use `||` to concatenate (combine) text and symbols.

Numeric Variables

Use numeric variables to calculate values based on other values in the database.

For example, to calculate employee compensation if the total compensation includes employee salary plus an employee commission, you could create a numeric variable to add the salary and commission fields as follows:

```
$SAL + $COMM
```

Date Variables

Use date variables to contain the results of date calculations.

For example, to create a date variable that adds 14 days to the date of a customer's last appointment, you could use the miscellaneous function *dateadd*, and enter the information in the Variable Builder as follows:

```
dateadd (<##Master_Query=APPTS.APPT_DATE>, 'day', 14)
```


When you create date variables:

- Use single quotes to enclose text literals.
In the above example, day is enclosed in single quotes as 'day'.
- Use single quotes to enclose literal dates.
For example, enter the date of 05-May-00, as '05-May-00'.
- Follow the format that is acceptable to your database, or that is defined in the `SQR_DB_DATE_FORMAT` section of `SQR.INI`.

Encode Variables

Use the Encode feature to create string variables that contain non-display and other special characters. This is handy for international characters or special symbols, or to create escape sequences for printers. Creating an Encode variable in SQR Production Reporting Studio generates a Production Reporting `ENCODE` statement in the `BEGIN-PROGRAM` section of the Production Reporting file.

➤ To create an Encode variable:

- 1 Click  on the Object Toolbar, select **Insert**, then **Field**, or right-click **Fields** in the Object Explorer and choose **Insert**.
- 2 In the **Report Fields** dialog box, click **Variables**.
- 3 Click **New** and choose **Encoding**.

If you do not have a keyboard with the Euro symbol, use the Encode feature to create a string variable for it. The code for the Euro symbol is typically 128. To use character codes, surround the code in angle brackets as shown here:

```
Variable Name      euro  
Encode Characters: <128>
```

The preceding information creates a string variable called \$euro. You can use the \$euro variable anywhere in SQR Production Reporting Studio or the Production Reporting language that allows string variables.

You can combine display and non-display characters in any combination, as long as you surround each non-display character code by angle brackets. The example shows a printer escape:

```
Variable Name      bold  
Encode Characters  <27>L11233
```

The code generated by SQR Production Reporting Studio for euro and bold appears as:

```
begin-program
  encode '<128>' into $euro
  encode '<27>L11233' into $bold
  do main
end-program
```


Note:

For detailed information on encoding, see Chapter 4, “Encoding in Production Reporting” in Volume 2 of the *Hyperion SQR Production Reporting Developer's Guide*.

Adding Calculated Fields

Calculated fields display statistics gathered while a report runs. For example, if you group your records by state, you could use a calculated field to print the total number of customers in each state.

In the *Order Details and Analysis* report, we created calculated fields to calculate the Average Quantity, the Number of Sales, the Total Sale Amount, and the Average Discount for each customer. We placed these calculated fields in the Group Summary section of the report layout. In addition, we created a calculated field in the Group Header section that calculates the average sale for each customer.

- To insert a calculated field into your report layout:
 - 1 Place your cursor in the Group Header, Query Summary, or Group Summary section of the layout.
 - 2 Access the Insert Calculated Field dialog box using one of the following options:
 - Click  on the Object Toolbar.
 - Select **Insert**, then **Calculated Field**.
 - Right-click **Calculated Fields** in the Object Explorer and select **Insert**.
 - 3 Enter the requested information in the Insert Calculated Field dialog box.
 - a. In **Name**, enter a name for the calculated field.

Assign a name that will help you identify the calculated field. For example, *numsales* for Number of Sales, or *avgsale* for Average Sale.
 - b. In **Fields/Expressions**, select a column or expression from the query.
 - c. In **Functions**, select the function you want to perform on the specific column or expression.

For *character* or *date* columns (or expressions that contain character or date columns), use the *Count* function. For example, to count the number of sales in the *Order Details and Analysis* report, we performed a *Count* function on the *Order Date*.

For *numeric* columns, you can use any function (summation, average, count, minimum, maximum, variance, and standard deviation).
 - 4 Click **OK** to return to the report layout.

Note:

If you select *Summation* or *Average* as the function, SQR Production Reporting Studio can round each column value to a specific number of digits before adding all the values. To round the values, select **Round to** and enter the number of digits to the right of the decimal point to use in the rounding calculation. To ensure that a manual calculation of report values matches the calculated total, enter the same number of digits as the width specified in the column's object properties.

Rounding only applies to *decimal* variables. SQR Production Reporting Studio disables the option for *integers*, since integers have no digits after the decimal point.

Working with Objects in the Layout

Several options are available to help you design the report layout. As you work with the report layout, you can select and edit multiple objects across multiple sections.

- To select multiple objects, press the [Shift] key and click the desired objects.
- To select all the objects in one section, click in the section and select **Edit**, then **Select All**.

When you select multiple objects, you can define properties that apply to all the objects. For example, you could select all the objects in the Page Header section and change the font color to red.

➤ To work with the objects in your report layout:

- Use the buttons on the Layout toolbar.
- Use the keys on your keyboard.
- Use the options on the Layout menu.

The keystrokes that correspond to each menu option are displayed to the right of the menu option. For example, to align objects to the left, you can select the objects and press [Ctrl +Left Arrow].

Table 9 Layout Options

Option	Description
Align	Aligns objects in the report layout.
Space Evenly	Places objects an even distance apart from each other in the report layout.
Make Same Size	Makes an object the same size as another object.
Stretch/Shrink	Stretches or shrinks the edge of an object so that it is aligned with the edge of another object.
Move	Moves an object left, right, up, or down.
Center on Page	Centers an object on the page.
Fit to Page	Resizes an object so that the edges of the object stretch to the edges of the page.

Option	Description
Bring to Front	Moves an object in front of another object.
Send to Back	Moves an object behind another object.
Default Layout	Rebuilds or configures the default report layout. Rebuilding the layout overwrites any changes you have made.

Tip:

When you align objects or make objects the same size, select the object you want to align to or the object with the desired size last. For example, to align *object 1* with *object 2*, select *object 1* and then select *object 2*. Similarly, to make *object 1* the same size as *object 2*, select *object 1* and then select *object 2*.

Tip:

When you display both the horizontal and vertical rulers in the Layout window, a *measure indicator* is displayed. Click the measure indicator to select whether to display the rulers in inches, centimeters, or points.

Formatting Exceptions

Use exceptions to change the formatting for report objects and highlight specific data values based on some condition. For example, in the *Order Details and Analysis* report, you could highlight any sale amount less than \$100.

► To format an exception:

- 1 Double-click an object in the report layout, or right-click the object and select **Object Properties**.
- 2 Select the **Exceptions** tab.

The Exceptions tab displays all the exceptions created for the selected column. When you create more than one exception, the exception displayed at the top of the list has the highest priority. If a data value meets the conditions of multiple exceptions, SQR Production Reporting Studio applies the formatting options of the highest exception. To change the priority of an exception, select the exception and click **Move Up** or **Move Down**.

- 3 Click **Add** to add an exception

You can also click **Edit** to change the information on an exception, **Copy** to create a copy of an exception, or **Remove** to delete an exception.

After you click Add, the Exception Builder is displayed.

- 4 Define the condition for the exception.

- Drag a column or operation into the Condition field.
- Double-click a column or operation to enter it into the Condition field.

- Type in the condition.

Since SQR Production Reporting Studio writes the condition directly to the Production Reporting source file, the condition must be legal in Production Reporting.

Valid operations for the condition appear under the Operations pane (for example, numeric functions, file functions, and operators). To view the options for each type of operation, click the plus sign (+) next to the operation, or double-click the operation. (For more information on Production Reporting operations, see Volume 2 in the *Hyperion SQR Production Reporting Developer's Guide*)

5 Click **Format to define the format to apply to the exception.**

A format can include a font name, font size, font style, text color, background color, and script. A preview of how the exception will display in your report appears in the Sample area of the dialog box.

For example, in the *Order Details and Analysis* report, you could specify that any sale amount less than \$100 will print bold and in red.

6 Select **Suppress Output to exclude data values to which the exception applies.**

For example, in the *Order Details and Analysis* report, you could select **Suppress Output** to specify that any sale amount less than \$100 will not print in the report.

Suppressing the output to exclude data values that meet the exception disables the **Format** button.

7 Select **Priority Notification to integrate the exception with Oracle Enterprise Performance Management Workspace, Fusion Edition.**

When you publish a report flagged with Priority Notification to the EPM Workspace, and a user runs the report, an exception is produced. EPM Workspace uses this exception to notify users who are interested in the report, and to place a high-priority icon next to the report.

If you create more than one exception, the notification message only addresses the last exception created.

8 Select **Overwrite Existing Exception File Prior to Run to overwrite the existing exception file prior to running a report.**

As an example, assume that you previously published a report to EPM Workspace that had an exception, and you subsequently deleted the exception. If you do not overwrite the existing exception file, when you re-publish the report, the deleted exception might still appear in the report. If you overwrite the exception file, however, the old file with the exception is cleared, and the exception will not appear in the published EPM Workspace report.

This option is available only if **Priority Notification** is selected.

9 Click **OK to exit the Exception Builder.**

When you preview your report, the data values that meet the exception display and print according to the formatting you defined.

Caution!

If you create more than one exception, the notification message will only address the last exception that you created.

Note:

If you enter a column or expression on which you have created a group break into the **Details** section of the layout, you cannot create an exception for that column or expression.

Formatting Group Breaks

Groups allow you to group database information in reports. For example, we grouped the columns in the *Order Details and Analysis* report by name. As a result, each customer name prints only once, followed by the product sales for that customer. If you defined group breaks when you created your query, they appear in your default report layout.

► To modify or add group breaks:

1 Display your report in the Layout window and select Report, then Group Breaks.

The Group Breaks dialog box is displayed. Any group breaks you defined in the query appear under Current Group.

2 Add or remove group breaks as desired.

- To add a break, click the column under **Query Fields** and click **Add**, or double-click the column.
- To remove a group break, click the column under **Current Group** and click **Remove**.

Each break has an associated Group Header and Group Summary section in the report layout. Immediately before a new break occurs, the contents of the Group Header print, and before the next break occurs, the contents of the Group Summary print. Use the Group Header to enter heading information that will print before each group, and use the Group Summary to enter summary information for the group.

In the *Order Details and Analysis* report, for example, we placed an object for the *Name* column in the Group Header for *Name*, gave it a bold 14pt font, preceded it with a text object that says “Product Sales for Customer:”, and placed a horizontal line on top of the object. As a result, every time a break occurs on the *Name* column, the Group Header prints a horizontal line followed by “*Product Sales for Customer: xxxx.*”

To print a summary of the records for each group, we placed calculated fields in the Group Summary that calculate the Average Quantity, the Number of Sales, the Total Sale Amount, and the Average Sale for each customer.

Note:

When you define group breaks, you can generate a table of contents based on the group breaks. See “[Creating a Table of Contents](#)” on page 78 for more information.

Multiple Group Breaks

Multiple groups must be arranged in a hierarchy. For example, if your groups are geographical units, it is logical to arrange them according to size: first *state*, then *city*. To change the order, select a group break and click **Move Up** or **Move Down**.

When using multiple group levels, it is important to understand how the hierarchy affects the report output. When a break occurs at one level, it also forces breaks on variables with higher level qualifiers. For example, if *state* is defined as level 1 and *city* is defined as level 2, a break on *state* also means a break on *city*.

Break Options

► To define how groups affect the report:

1 Click the desired query field under Current Group and click Break Options.

The Break Options dialog box is displayed.

2 If the break object is in the Details section of the report layout, select an option under Print Mode to specify how the column selected as the group break will print in your report.

- **Print the value only when it changes**—Prints a column (or expression) only when the value of the column (or expression) changes. For example, in the *Order Details and Analysis* report, the report prints a customer name only when it starts printing the customer's product sales. By defining Name as a group break, the column prints only when its value changes.
- **Print the value when it changes and at the top of each page**—Prints a column (or expression) when it changes and after every page break. For example, if you select this option in the *Order Details and Analysis* report, a customer name will print not only when it changes, but whenever the report starts a new page.
- **Always print the value**—Always prints the value of the column (or expression).
- **Never print the value**—Never prints the value of the column (or expression). This allows you to use the features of group breaks (group headers, group summaries, line skipping) without actually printing the column or expression value. When a break object is marked “never print”, it has a crosshatched appearance in the SQR Production Reporting Studio layout.

If the break object is the in *Group Header* section of the report layout, SQR Production Reporting Studio disables the preceding options.

3 Specify the number of lines to skip when the value of a column (or expression) changes.

Skipping lines when the value of a column (or expression) changes further enhances the effect of group processing.

4 Enter a value in the Store Previous Value in Variable field to print a column's value before a break occurs.

For example, assume you group your records by state and place a calculated field in the Group Footer to print the total number of customers in each state. Since the calculated field is in the Group Footer, the total prints only after the value of state changes.

Assume further that you want to print the state name along with the totals for each state. Simply printing the value of state will not work because its value will have changed when the break occurs. If you store the value of state in a variable, however, you can print the value of state along with the total number of customers in each state.

When you store a variable in this field, it appears under *Local Variables* in the *Operations* section of the Variable Builder. (For more information on inserting variables, see “[Adding Variables](#)” on page 57.)

Inserting Page Breaks

When you print a report, SQR Production Reporting Studio starts a new page according to the paper size, margins, and page orientation defined in the Report Properties dialog box. (To access this dialog box, select **Report**, then **Report Properties**.)

The *Order Details and Analysis* report, for example, is formatted to print on 8.5" x 11" paper, with a portrait orientation, and margins of 0.50 inches. The product sales for each customer display on the page according to these settings. There is more than one customer per page, and a customer’s information may print across two pages.

If you wanted to change the *Order Details and Analysis* report to print only one customer per page, you would select **Report**, then **Page Breaks** and click the box next to **After Group Summary#1: Name**.

- To insert page breaks into your report:
 - 1 **Select Report**, then **Page Breaks**.
 - 2 In the **Page Breaks** dialog box, click next to the section(s) where you want page breaks to occur.
 - 3 Select a **Break Type** to specify how to generate the page breaks.
 - **Always**—Inserts page breaks *only* if objects exist in the specified report layout section.
 - **Not Empty**—Inserts page breaks regardless of whether objects are in the report layout.
 - For example, consider the following report layout.

The screenshot shows a report layout editor with a table structure. The table has columns for MM/DD/YY, Name, State, Order Date, Quantity, Discount, Cost, Description, and Sale Amount. The layout includes a Page Header, a Group Header #1: NAME, a Details section with a table of columns, a Group Summary #1: NAME, a Query Summary, and a Page Footer. A status bar at the bottom shows 'Group Header #1: NAME' and a 'Main' dropdown menu.

If you selected **Before Group Header#1: Name** in the Page Breaks dialog box and selected **Not Empty** as the break type, SQR Production Reporting Studio would insert the page breaks because there is an object in the Group Header section for Name.

If you selected **Before Query Summary** in the Page Breaks dialog box and selected **Not Empty** as the break type, however, SQR Production Reporting Studio would *not* insert page breaks because there is no object in the Query Summary section of the layout.

Adding Charts to Highlight Information

As you decide how to display report data, you may wish to create charts to highlight key information. When you create a chart, you can place it in the Group Summary, Query Summary, or Report Footer section of a *Tabular* report, or you can create the chart as a separate report. Charts require *numeric* columns. As a result, you cannot create a chart if your query does not contain numeric columns.

The following sections discuss:

- [Types of Charts](#)
- [Adding Charts to Tabular Reports](#)
- [Creating Charts as Separate Reports](#)
- [Formatting Charts](#)
- [Formatting Charts Using Advanced Options](#)

Note:

Production Reporting reads a null numeric column field as a zero. This affects numeric columns containing null values and used as groups in a chart. Consequently, if you group values in a chart, code your query to exclude null fields used as grouped values. For example, if you create a chart to show employee salary by region number, Production Reporting does not distinguish REG_NUM=NULL (employees with no region assigned) from REG_NUM=0. If you group a chart by a non-numeric value (*region name*, for example), the chart will display correctly.

Types of Charts

SQR Production Reporting Studio provides 19 chart types. You can select the chart type, adjust the dimensions, and define the information to highlight.

Table 10 Chart Types

Chart Type	Description
Pie	Represents item values as slices of a pie.
Bar	Represents the value of an item as the height of a rectangular bar.
Area	Highlights the significance of an individual item relative to other items.

Chart Type	Description
Line	Highlights trends by drawing connecting lines between data points.
Stacked Bar	Highlights the comparative significance of an individual item using rectangular bars.
Overlapped Bar	Highlights the contribution of individual items, within categories, to the total value.
Floating Bar	Represents the value of an item as the height of a rectangular floating bar.
Histogram	Displays frequencies of each category from categorical variables.
100% Bar	Highlights the contribution of a category to the total using rectangular bars.
100% Area	Highlights the contribution of a category to the total.
Stacked Area	Highlights the significance of an individual item to the total using enclosed polygons.
High-Low Close	Represents high, low, and final values of an individual item over time.
Combo	Combines two types of charts.
XY-Scatter-Plot	Compares pairs of values.
Bubble	Compares sets of three values. Like a scatter chart with the third value displayed as the size of the bubble marker.
Radar	Plots data as a function of distance from a central point.
Polar	Specifies points as an angle and distance from the origin. Often used for scientific purposes.
Candle Stick	Type of Hi-Lo-Open-Close chart that draws four series together as a “candle” bar.
Area Radar	Similar to Radar charts except that the area between the origin and the points is filled.

Adding Charts to Tabular Reports

Placing a chart at the end of a Tabular report highlights specific report areas and summarizes key information.

- To place a chart at the end of a Tabular report:

- 1 Click  on the Object Toolbar and drag it to the Query Summary or Report Footer section of the Layout window, or click in the Query Summary or Report Footer section and select **Insert**, then **Chart**.

If you defined group breaks, you can also place the chart in the Group Summary section of the Layout window. When you place a chart in the Group Summary section, you cannot save the report as an Interactive Reporting analysis file. (For more information on saving charts as Interactive Reporting analysis files, see [Chapter 5, “Activating Interactive Reporting Analysis.”](#))

- 2 Format the chart in the Chart Wizard.
- 3 Optional: Make any changes in the Property Explorer or in the Chart Properties dialog box.

Creating Charts as Separate Reports

If you have a long Tabular report, you may wish to create a chart as a separate report. This allows you to analyze the chart without having to scroll through several pages of information. You can use the Chart report by itself, or you can use it to accompany your Tabular report.

► To create a Chart report:

- 1 Select **File**, then **New**.
- 2 Click the **Chart** icon in the Create New Report dialog box.
- 3 Select the data for the chart on the pages of the Query Builder.

See “[Selecting Report Data \(Query Builder\)](#)” on page 17 for additional information.

- 4 Format the chart in the Chart Wizard.
- 5 Optional: Make any changes in the Property Explorer or in the Chart Properties dialog box.

Formatting Charts

When you create charts, you can enter information about their appearance in one of the following areas:

- **Chart Wizard**—The Chart Wizard is displayed when you first create a chart. Enter information on the pages that appear.
- **Property Explorer**—To view a chart’s properties in the Property Explorer, select the chart in the Layout window. (If the Property Explorer is not displayed, select **View**, then **Toolbars** and make sure that Property Explorer is selected.)
- **Chart Properties dialog box**—To view a chart’s properties in the Chart Properties dialog box, right-click the chart and select **Object Properties**, or double-click the chart.

Formatting Combination Charts

Combination charts combine two chart types. For example, you could create a Line Chart over a Bar Chart or a High-Low Chart over a Bar Chart .

► To format combination charts:

- 1 Go to the **Data** tab in the Chart Properties dialog box and select **Combo** as the chart type; then, select the types of charts to create under **Multi-Charts Option**.
- 2 Enter information about the charts in the Chart Properties dialog box.

When you create multi-chart reports:

- The charts share an X-Axis.
Enter the information about the X-Axis in the X-Axis tab.
- Each chart has its own Y-Axis.

Enter information about the first chart's Y-Axis in the Y-Axis tab. Enter information about the second chart's Y-Axis in the Y2-Axis tab.

- Each chart has its own color palette.

Enter information about the first chart's colors in the Palette tab. Enter information about the second chart's colors in the Y2-Palette tab.

Formatting Charts Using Advanced Options

► To set advanced chart options:

- Select the chart in the report layout, select the **Categorized** tab in the Property Explorer, and scroll to the **Advanced** section.
- Select the chart in the report layout, open the Chart Properties dialog box, and click **Advanced** on the General tab.

The Advanced options that are available depend on the chart type.


Adding Cross-tabs to Summarize Information

Cross-tabs are matrix or spreadsheet-like reports that display summary, numeric data. With cross-tabs, you can quickly present a summary of data based on two categories. When you create a cross-tab, you can place it in the Group Summary, Query Summary, or Report Footer section of a Tabular report, or you can create the cross-tab as a separate report.

Following is a cross-tabular report to accompany the *Order Details and Analysis* report discussed in this book. The cross-tab report summarizes the sales in various states for 1995, 1996, and 1997.

Note:

To view the sample cross-tab report, open `productsales.srm` from the `\Hyperion\products\biplus\bin\SQR\Studio\Samples` directory.

Regional Product Sales					
Jul 11 2005		31-Dec-2002	31-Dec-2001	31-Dec-2000	TOTAL
DE	\$107.50	\$0.00	\$0.00	\$0.00	\$107.50
IN	\$34,071.74	\$17,555.98	\$0.00	\$0.00	\$51,627.72
MI	\$8,606.68	\$136.75	\$2,048.55	\$0.00	\$10,791.98
NH	\$5,606.40	\$80,980.65	\$0.00	\$0.00	\$86,587.05
NJ	\$60,532.99	\$12,855.64	\$0.00	\$0.00	\$73,388.63
NM	\$739.10	\$519.96	\$0.00	\$0.00	\$1,259.06
NY	\$180,061.17	\$31,900.31	\$13,793.68	\$0.00	\$228,612.60
OH	\$69,557.05	\$38,149.48	\$0.00	\$0.00	\$108,607.93
PA	\$1,228.58	\$0.00	\$0.00	\$0.00	\$1,228.58
TOTAL	\$360,511.21	\$182,098.77	\$15,842.23	\$0.00	\$562,211.05


The following sections discuss:

- [Adding Cross-tabs to Tabular Reports](#)
- [Creating Cross-tabs as Separate Reports](#)
- [Selecting the Data to Use in Cross-tabs](#)

Adding Cross-tabs to Tabular Reports

Placing a cross-tab at the end of a Tabular report enables you to summarize specific information in the report.

► To place a cross-tab in a Tabular report:

- 1 Click  on the Object Toolbar and drag it to the Group Summary, Query Summary, or Report Footer section of the Layout window, or click in the Group Summary, Query Summary, or Report Footer section and select **Insert**, then **Cross-tab**.
- 2 Define the columns, rows, and cross-tab data to be summed up in the Property Explorer for the cross-tab or in the Cross-tab Properties dialog box.

Creating Cross-tabs as Separate Reports

If you have a long Tabular report, you may wish to create a cross-tab as a separate report. This allows you to analyze the cross-tabular data without having to review all the information in the Tabular report. You can use the Cross-tab report by itself, or you can use it to accompany your Tabular report.

► To create a Cross-tab report:

- 1 Select **File**, then **New**.
- 2 Click the **New Cross-tab Report** icon in the **Create New Report** dialog box .
- 3 Select the data for the cross-tab on the pages of the Query Builder.
See [“Selecting Report Data \(Query Builder\)”](#) on page 17 for additional information.
- 4 Define the columns, rows, and cross-tab data to be summed up in Property Explorer for the cross-tab or in the Cross-tab Properties dialog box.

Selecting the Data to Use in Cross-tabs

When you create a cross-tab, you must select which data to use and how to display the data. Format cross-tab information in one of the following areas:

- **Property Explorer**—To view a cross-tab’s properties in the Property Explorer , select the cross-tab in the Layout window. (If the Property Explorer is not displayed, select **View**, then **Toolbars** and make sure that Property Explorer is selected.)

- **Cross-tab Properties dialog box**—To view a cross-tab’s properties in the Cross-tab Properties dialog box, right-click the cross-tab and select **Object Properties**, or double-click the cross-tab.


Adding Additional Details

After completing the basic report layout, you can add additional details to your report by:

- [Inserting the Date and Time](#)
- [Inserting Page Numbers](#)
- [Inserting Record Numbers](#)
- [Inserting Images](#)
- [Drawing Lines](#)
- [Drawing Boxes](#)
- [Creating a Table of Contents](#)

Inserting the Date and Time

► To insert the current date and time:

- 1 Click  on the Object Toolbar, or select **Insert**, then **Date**.
- 2 Define where to print the date and time by positioning the date object in the Layout window.
- 3 Select a date/time format using one of the following options:
 - Select the date object in the layout and specify the format in the Property Explorer (see [Using the Property Explorer](#)).
 - Double-click the date object in the layout and specify the format in the Date Properties dialog box.
 - Right-click the date object, select **Object Properties**, and specify the format in the Date Properties dialog box.

You can select any of the following date/time formats:

```
DD-Mon-YYYY = 07-Dec-1999
MM/DD/YYYY = 12/07/1999
DD/MM/YYYY = 07/12/1999
YYYY/MM/DD = 1999/12/07
MM/DD/YY = 12/07/99
DD/MM/YY = 07/12/99
YY/MM/DD = 99/12/07
DATE-EDIT-MASK
```

You can select any of the following time formats:


```
HH:MI PM= 11:32 PM
```

Note:

To print the date only, select **None** as the Time Format. To print the time only, select **None** as the Date Format.

Inserting Page Numbers

► To insert page numbers:

- 1 Click  on the Object Toolbar, or select **Insert**, then **Page Number**.
- 2 Define where to print the page number by positioning the page number object in the Layout window.
- 3 (Optional) Enter text before or after the page number in the **Text Before Number** and **Text After Number** fields.

For example, you can precede the page number with the word *Page* by entering **Page** in the **Text Before Number** field.

To add text before or after the page number:

- Select the page number object in the layout and add the text in the Property Explorer .
- Double-click the page number object in the layout and add the text in the Page Number Properties dialog box.
- Right-click the page number object, select **Object Properties**, and add the text in the Page Number Properties dialog box.

Note:

The page number displays as 9999 in the report layout; however, SQR Production Reporting Studio replaces the 9999s with the actual page numbers when you preview or print the report.



Last Page Number

To insert the last page number, click  on the Object Toolbar, or select **Insert**, then **Last Page Number**.

You can use the last page number object along with the page number object to create page number formats such as “Page 1 of 4.”


Creating a “Page X of X” Page Number Format

- To create a page number format such as “Page 1 of 4”:
- 1 Click in the desired report layout section.

- 2 Click  on the Object Toolbar, or select **Insert**, then **Page Number**.
- 3 Access the Property Explorer or the Page Number Properties dialog box.
- 4 Enter **Page** in **Text Before Number**.
- 5 Enter **of** in **Text After Number**.
- 6 Click  on the Object Toolbar, or select **Insert**, then **Last Page Number**.
- 7 Position the Last Page Number object after the Page Number object in the report layout.

Inserting Record Numbers

► To insert record numbers:

- 1 Go to the **Details** section of the report layout.
- 2 Click  on the Object Toolbar, or select **Insert**, then **Record Number**.

When you insert a record number, the report prints a running count of records.


The Record Number object appears as 999999 in the Details section of the layout; however, SQR Production Reporting Studio replaces the 999999s with the actual record numbers when you preview or print the report.

Inserting Images

You can insert the following types of images into an Production Reporting report:

- BMP
- GIF
- JPEG

To insert an image:

- Click  on the Object Toolbar.
- Select **Insert**, then **Image**.
- Drag an image from the Windows Explorer into the layout.

In the *Order Details and Analysis* report, the *Miscellaneous Merchandise* text that appears on the top right of the report is actually an image inserted into the report.

After you insert an image, you can reposition it in the layout. You can also change the size of the image by dragging its “handles.” To define an image as a hypertext link or anchor, double-click the image and select **Create Link** or **Create Anchor** on the **HTML** tab.

If you move or delete a previously-inserted an image, SQR Production Reporting Studio displays the border of the image with a small “no image” icon.

Note:

GIF and JPEG images appear when you preview a report in an HTML or a PDF format. (If you preview a report in an SPF format, the GIF and JPEG images do *not* appear.) BMP images appear when you preview a report in an HTML or an SPF format. (BMP images do *not* appear in PDF files.) See [Chapter 3, “Saving and Previewing Reports”](#) for more information on report preview options.

Drawing Lines

Horizontal and vertical lines can enhance the appearance of reports, make an aspect of a report stand out, and separate report sections.

➤ To insert a line:

1 Click  on the Object Toolbar, or select **Insert**, then **Line**.

2 In the report layout, reposition or resize the line.

To resize the line so that it is the same size as the page, select **Layout**, then **Fit to Page**.

3 **Optional:** Change the line's properties by selecting the line and entering information in the Property Explorer, or by double-clicking the line and entering information in the Line Properties dialog box.

To draw a diagonal line, select *Line* as the line type in Property Explorer or in the Line Properties dialog box.

Note:

When you preview HTML reports, only horizontal lines display. When you preview SPF reports, both horizontal and vertical lines display.


In the *Order Details and Analysis* report, a horizontal line separates the product sales for each customer. This makes the report easier to read by enabling you to quickly locate the information for a particular customer.

Product Sales for Customer: Alfred E Newman & Company				
Average Sale: <u>\$1,303.72</u>				
<u>Product Description</u>	<u>Date Ordered</u>	<u>Quantity</u>	<u>Discount</u>	<u>Sale Amount</u>
Air Deodorizer	07/30/97	10	2%	\$98.20
Laser Printer	07/30/97	3	2%	\$523.95
Light Bulbs	10/06/96	1,100	2%	\$3,289.00
Average Quantity:		<u>371</u>	Total: <u>\$3,911.15</u>	
Number of Sales:		<u>3</u>	Average Discount: <u>2.00</u>	
Product Sales for Customer: Clair Butterfield				
Average Sale: <u>\$10,887.79</u>				
<u>Product Description</u>	<u>Date Ordered</u>	<u>Quantity</u>	<u>Discount</u>	<u>Sale Amount</u>
Birford 4000 P	01/20/96	2	2%	\$67.98
Canisters	06/22/97	34	2%	\$45,109.50
Canisters	05/02/97	3	3%	\$3,980.25

Drawing Boxes


You can draw boxes in reports to make a report aspect stand out and to highlight specific information. For example, to quickly locate the totals in a financial report, place the totals in a shaded box.

► To insert a box:

- 1 Click  on the Object Toolbar, or select **Insert**, then **Box**.
- 2 In the report layout, reposition or resize the box.
- 3 Optional: Change the box's properties by selecting the box and entering information in the Property Explorer, or by double-clicking the box and entering information in the Box Properties dialog box.


Drawing Ovals

► To insert an oval:

- 1 Click  on the Object Toolbar, or select **Insert**, then **Oval**.
- 2 In the report layout, reposition or resize the oval.
- 3 Optional: Change the oval's properties by selecting the oval and entering information in the Property Explorer, or by double-clicking the oval and entering information in the Oval Properties dialog box.

Drawing Polygons

► To insert a polygon:

- 1 Click  on the Object Toolbar, or select **Insert**, then **Polygon**.
- 2 Click in the report layout, and draw the polygon.
- 3 Double-click the last point on the polygon to stop drawing.
- 4 Optional: Change the polygon's properties by selecting the polygon and entering information in the Property Explorer, or by double-clicking the polygon and entering information in the Polygon Properties dialog box.

Note:

You can edit, add, or delete the points on a polygon. To edit a point, click on the point and drag it to a new location. To add a point, right-click on an existing point and select **Insert Point**. To delete a point, right-click on the point and select **Delete Point**.

Creating a Table of Contents

► To create a table of contents:

- 1 Select **File**, then **Preferences**, and then **TOC** tab if you are creating a report, or select **Edit**, then **Preferences**, and then **TOC** tab if you are formatting a report.
- 2 Select **Enable Table of Contents**.
- 3 Specify the width of the table of contents.

The width of the table of contents is a percentage of the width of the entire page.

- 4 In the **Title** field, enter a title to appear at the top of the table of contents.
- 5 (Optional) Select **Customize Background** to enable **Background Pattern** and **Background Color** options.

To add an image for a background pattern, click the icon next to **Background Pattern**. To select a background color, click the list box next to **Background Color** and select a color from the color palette that appears.

- 6 Specify the number of spaces to indent each level in the table of contents.

Choosing Table of Contents Entries

If you define group breaks, SQR Production Reporting Studio generates the table of contents based on your group breaks. If you do not define group breaks, you can create a table of contents entry for any object that produces text in the layout.

► To create a table of contents entry for an object in the layout:

- 1 Double-click the object, or right-click the object and select **Object Properties**.
- 2 Enter the information in the **TOC** tab.

If the **TOC** tab does *not* appear, enable the table of contents option in the **TOC** tab under **Preferences**.

Note:

To regenerate the table of contents after you make changes in your report layout, select **Report**, then **Generate Table of Contents** from the menu at the top of the **Layout** window.

When you select this option, SQR Production Reporting Studio deletes any individual table of contents entries you defined. To avoid this, use the **Generate Table of Contents** option *only* if you defined group breaks and are generating the table of contents based on those group breaks.

Displaying the Table of Contents in HTML

When you display reports in an HTML format, a **Contents** icon appears on the navigation bar at the top of the report in the browser. Click the **Contents** icon to display the table of contents.

Defining Security Rules

You can use SQR Production Reporting Studio to define security rules based on users and groups defined in Oracle's Hyperion Reporting and Analysis applications in Oracle's Hyperion® Shared Services.

► To define security rules:

- 1 **Connect to Oracle's Hyperion® Shared Services to retrieve a list of users and groups.**
- 2 **Make any desired edits, and save the list as a text file.**

The text file must have two variables, User Name, Mode. For example:

```
User1, ON
```

```
User2, ON
```

```
User3, OFF
```

- 3 **Display the report in the SQR Production Reporting Studio Layout window.**
- 4 **Select **Report**, then **Report Properties**.**
- 5 **Select the **Security** tab.**
- 6 **Check **Security** and select a security file.**

After you select a security file, the User Name and Mode fields are populated.

- 7 **Click **OK**.**

After you create a security file, the information is embedded in the SQR code for the report, and is applied when the Production Reporting job is run in EPM Workspace. You can then “burst” the file (send the results of running the Production Reporting job to the appropriate users as described in the security file).

3

Saving and Previewing Reports

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Saving Reports


Before viewing or printing a report, you must save it. To save a report, click  on the Standard Toolbar, or select **File**, then **Save**.


Table 11 Files Created When Reports Are Saved

File	Description
SRM	SQR Production Reporting Studio layouts (for example, queries, group breaks, layout objects, and report settings). SRM files are binary with a proprietary format.
SQR	Script that SQR Production Reporting Studio executes to run a report.SQR Production Reporting Studio generates SQR files from SRM files. You can create SQR files in any text editor.
SPF	File created when SQR Production Reporting Studio executes an SQR file. SPF files contain srepresentations of report output, including fonts, spacing, headers, and footers.
SRT	File created when you save a report as a layout template. SRT files contain information about the layout template, such as objects inserted into the layout, report properties, and formatting styles. (See Chapter 6, “Creating Report Layout Templates” for information on using layout templates.)
HTML	Hypertext Markup Language, which can be read by World Wide Web browsers. (See Chapter 4, “Adding HTML Options to Reports ” for information on using HTML options in your reports.)
ERR	File generated if there is an error in your Production Reporting program and the SQR file fails to execute in Production Reporting.SQR Production Reporting Studio creates the ERR file when you run a report.

Processing Reports

In SQR Production Reporting Studio, you preview reports in the Report window. The Report window is disabled until you process a report. The Report window then displays the report that was last processed. If you modify a report, you must re-process it for your changes to appear.

To process a report:

- Press [F5].
- Click  **Process**.
- Select **Report**, then **Process Report**.

Previewing Reports

You can preview reports in an HTML (Web) format or an SPF (printer-friendly) format.

Typically, SQR Production Reporting Studio displays HTML using an internal browser. If you do not want to use the internal browser or if your system does not support it, you can still preview HTML using an external browser. If you do not want to use a browser to preview HTML, you can preview the report in an SPF format.

Table 12 Report Preview Options

To:	Do the following:
Preview HTML using an internal browser	<ol style="list-style-type: none">1. Enable the internal browser (Edit, then Preferences, and then General Tab).2. Process the report.3. View the report in the Report window.
Preview HTML using an external browser	<ol style="list-style-type: none">1. Disable the internal browser (Edit, then Preferences, and then General Tab).2. View the report by selecting Report, then HTML Preview. <p>When the internal browser is disabled, clicking directly on the Report tab displays the report in an SPF format.</p>
Preview SPF	<ol style="list-style-type: none">1. Select File, then Print Preview to view the report. <p>If the internal browser is disabled, you can also click directly on the Report tab to display the report in an SPF format.</p> <p>If the internal browser is enabled, however, clicking directly on the Report tab displays the report in an HTML format, and you must select File, then Print Preview to view the SPF report.</p>

Note:

You must process a report before you can preview it. In addition, if you make changes to your report, you must process the report again for your changes to appear. See “[Processing Reports](#)” on page 81 for more information.

Defining Preview Options

Before previewing a report, you can define parameters that affect how the report displays.

➤ To define preview options:

- 1 Select **File**, then **Preferences** if you are creating a new report, or **Edit**, then **Preferences** if you are editing a report layout.
- 2 In the Preferences dialog box, select **General**.
- 3 Select **Use Internal Browser for Preview** to use your internal browser to preview reports in an HTML format.

Do not select this option to preview HTML reports using an external browser or in an SPF format.

Currently, internal browser support is limited to Microsoft Internet Explorer, version 5.5 SP2 or higher.

- 4 Select **Limit to** to limit the report preview to a specific number of pages, and enter the desired number of pages.

Limiting the number of pages increases performance; however, if you defined a specific sort order (see “[Sorting Data](#)” on page 41), SQR Production Reporting Studio does not sort the data when you limit the report preview.

- 5 Enter any desired Production Reporting command-line flags or parameters.

For information on flags and parameters, see Volume 2 of the *Hyperion SQR Production Reporting Developer's Guide* or the Production Reporting Language online help.

Previewing HTML Reports

When you preview a report in an HTML format, SQR Production Reporting Studio uses the HTML browser installed on your machine.

SQR Production Reporting Studio may be able to use your HTML browser as an internal browser to preview HTML reports directly in the Report window. Using an internal browser eliminates the need to launch an entire browser when viewing HTML output. (Currently, internal browser support is limited to Microsoft Internet Explorer, version 5.5 SP2 or greater.)

If you do not want to use an internal browser to preview your reports, you can still preview HTML using an external browser.

Previewing HTML Reports Using an Internal Browser

➤ To preview HTML reports using an internal browser:

- 1 **Enable the internal browser.**

Select **File**, then **Preferences** if you are creating a new report or **Edit**, then **Preferences** if you are editing a report layout, and select **Use Internal Browser for Preview** in the **General** tab.

- 2 **Click the Report tab to display the report.**

If you have not yet saved your report, you will be asked to do so. After you save the report, or if the report is already saved, SQR Production Reporting Studio displays the report in the Report window in an HTML format.

Previewing HTML Reports Using an External Browser

➤ To preview HTML reports using an external browser:

1 Disable the internal browser.

Select **File**, then **Preferences** if you are creating a new report or **Edit**, then **Preferences** if you are editing a report layout, and clear the box next to **Use Internal Browser for Preview** in the **General** tab .

2 Select **Report**, then **HTML Preview**.

If you have not yet saved your report, you will be asked to do so. After you save the report, or if the report is already saved, SQR Production Reporting Studio launches your external browser and displays the report.

Note that when you disable the internal browser, the Report window displays the report in an SPF format. As a result, you must use **Report**, then **HTML Preview** to display the HTML report.

Note:

If you get an error message about program lines being too long when you select **Report**, then **HTML Preview**, set the following flags to True in the [Default-Settings] section of the SQR.INI file:





```
UseUnicodeInternal=True
```

```
AutoDetectUnicodeFiles=True
```

Navigating Among Pages in HTML Reports

To navigate among pages in HTML reports, use the options on the navigation bar that appears on the top right of the report.






Table 13 Navigation Options

Icon	Description
	Displays the first report page.
	Displays the previous report page.
	Displays the next report page.
	Displays the last report page.

Previewing Report Information in Different File Formats

The navigation bar in HTML reports displays icons for previewing the report in different file formats. The icons that appear are defined in the Navigation Bar tab in the Preferences dialog box (Edit, then Preferences, and then Navigation Bar).

Table 14 Display Options

Icon	Description
	Displays the Table of Contents frame.
	Displays the report in a Portable Document Format (PDF) and launches it in a new browser window.
	Downloads report data in a Comma Separated Value format (CSV) and displays it in a new browser window.
	Downloads report data in a Brio Query Data format (BQD) format and displays it in a new browser window.
	Displays the report in an XML format and launches it in a new browser window.

Previewing SPF Reports

SPF files contain a representation of the actual formatted report output, including fonts, spacing, headers, and footers. SPF files more closely represent actual report formatting than HTML files.

► To preview an SPF report:

1 Select File, then Print Preview.

If you have not yet saved your report, you will be asked to do so. After you save the report, or if the report is already saved, SQR Production Reporting Studio displays **Run Report** dialog box.

The Run Report dialog box displays any previously defined parameters or restrictions on the number of pages to display.

2 Enter any desired command-line parameters and specify whether to limit the report preview to a specific number of pages, then click OK.

Note:

Limiting the number of pages increases performance; however, if you defined a specific sort order (see [“Sorting Data” on page 41](#)), SQR Production Reporting Studio does not sort the data when you limit the report preview. In addition, limiting the number of pages prevents you from saving your report in an XML file. (See [“Displaying Icons on the Navigation Bar” on page 95](#) for information on saving a report in an XML file). Finally, if you placed a calculated field in the Group Header section of the layout, the calculated field may not print if you limit the number of pages. (See [“Adding Calculated Fields” on page 61](#) for information creating calculated fields.)

Note:

If you disabled the internal browser, you can click directly on the Report tab to display the SPF report. If you enabled the internal browser, however, clicking directly on the Report tab displays the report in an HTML format, and you must select **File**, then **Print Preview** to display the SPF report.

Note:

If you get an error message about program lines being too long when you select **File**, then **Print Preview**, set the following flags to `True` in the [Default-Settings] section of the SQR.INI file:

```
UseUnicodeInternal=True
```

```
AutoDetectUnicodeFiles=True
```

Navigating Among Pages in an SPF Report

You can navigate among the pages of a multi-page SPF report by using the options on the Page menu that appears when you display the report in the Report window, or by pressing keys on the keyboard.

Page Menu	Keystroke	Description
Next Page	PgDn	Displays the next page.
Previous Page	PgUp	Displays the previous page.
Go to Page	CTRL+G	Defines the number of the pages to display.
First Page	Home	Displays the first report page.
Last Page	End	Displays the last report page.

Zooming

You can view SPF reports in a number of sizes. Changing the size has no effect on the report or how it prints.

Reports initially display at 100%. You can change the size from the View menu by selecting 25%, 50%, 75%, 100%, or 150%. If you select **Full Page**, each page fully displays on the screen. You can also select **Zoom In** or **Zoom Out** from the View menu or from the toolbar to increase or decrease the display size.

The Viewer Status Bar

The Viewer Status Bar appears at the bottom of the Report window. It shows the page number that you are currently viewing and displays informational messages. As you move the mouse over the menu options, a brief description of each option displays in the status bar.

Previewing Reports Using Runtime Parameters

If you defined runtime parameters when you were building the query for your report, SQR Production Reporting Studio prompts you to enter values when you preview the report. You can either enter different values each time you run the report, or you can define default values to use in the report preview.

For example, if you defined runtime parameters to limit the data retrieved to customers in a specific state who have orders greater than a specific amount, you could define a state and amount each time you ran the report, or you could define default values for the state and amount.

Note:

You define runtime parameters by creating a Where clause. See [“Creating Where Clauses to Evaluate Values Prompted at Runtime” on page 36](#) for more information.

Displaying Prompts to Enter Different Values

- ▶ To enter different values each time you preview a report:

- 1 Follow the steps in the previous sections for previewing an HTML or SPF report.

Before you can view the report in the Report window, the Report Parameter Presets dialog box appears. Any report parameters you defined as you created your report query appear in the dialog box.

- 2 Select **Prompt for all values** and click **OK**.

SQR Production Reporting Studio displays a prompt for each report parameter. In the preceding example, SQR Production Reporting Studio would display a prompt for you to enter a *state* and a *cost*.

Disabling the Prompts and Defining Default Values

If you do not want to display prompts for the report parameters each time you preview a report, you can define default values to use in the report preview.

Disabling the prompts is useful when you fine-tune a report layout and wish to quickly switch between the Layout window and the Report window without entering report parameter values each time.

- ▶ To disable the prompts and define default values for the report preview:

- 1 Follow the steps in the previous sections for previewing an HTML or SPF report.

Before you can view the report in the Report window, the Report Parameter Presets dialog box appears. Any report parameters you defined as you created your report query appear in the dialog box.

- 2 Select a report parameter and click **Set Value**.

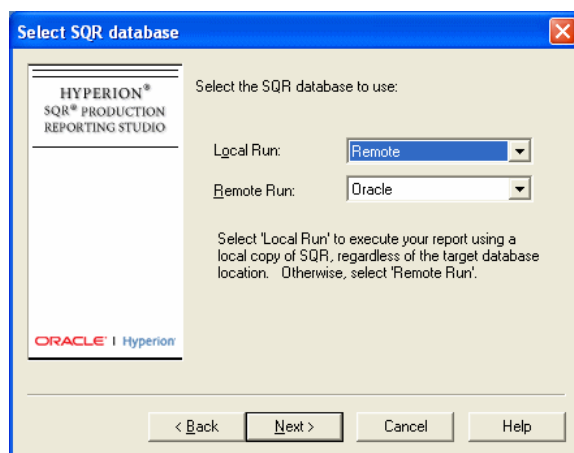
- 3 In the Set Value dialog box, enter the value for the report parameter and click **OK**.

- 4 Continue setting values until you set a value for every report parameter defined.
- 5 Click **OK** in the Report Parameter Presets dialog box to preview the report.

Previewing Reports at a Remote Location

SQR Production Reporting Studio allows you to execute reports on a remote Production Reporting server. When you use a remote Production Reporting server, you can preview your reports in a remote test environment, and you may be able to take advantage of more powerful platforms.

To preview a report at a remote location, you must be connected to Production Reporting using a remote data connection. You define the remote data connection in the Select SQR Database window in the Create Data Connection wizard.



See [step 5 on page 16](#) under “[Creating a New Data Source Connection](#)” on [page 15](#) for more information on using the Create Data Connection wizard to connect to a database.

- To preview a report at a remote location:
 - 1 Make sure you are connected to Production Reporting using a remote data connection, and select **Report**, then **Remotely Process Report**.
 - 2 In the **Remote Login dialog** box, enter the requested information and click **OK**.

Table 15 Remote Login Options

Option	Description
Host Server	Production Reporting host name.
Username	Domain name to log into the Production Reporting host.
Password	Password to log into the Production Reporting host.
Connectivity String	Database username, database password, and database name. For example: scott/tiger@dbname where <i>scott</i> is the database user name, <i>tiger</i> is the database password, @ is the Oracle-specific separator, and <i>dbname</i> is the database name.

Note:

The last field changes depending on the type of database you log into (for example, Oracle or Sybase) and the database networking software running on the server (for example, SQL*Net). See [step 5 on page 16](#) under “[Creating a New Data Source Connection](#)” on [page 15](#) for more information.

Remote Login Requirements

You can log onto a remote server and run Production Reporting jobs on the remote server. The remote server can be Windows or UNIX. Requirements for remote login include:

Remote server

- Production Reporting program installed and configured to have FTP and REXEC access
- Server account to run Production Reporting programs
- Command script that sets up an environment to invoke Production Reporting

Your PC

- TCP/IP access to the remote server
- Server account to run Production Reporting programs

P a r t I I

Enhancing Reports

In Enhancing Reports:

- [Adding HTML Options to Reports](#)
- [Activating Interactive Reporting Analysis](#)

4

Adding HTML Options to Reports

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Defining HTML Preferences

When you create HTML reports, you can define several HTML report preferences. To review or change the preferences, select **File**, then **Preferences** before you create a report, or select **Edit**, then **Preferences** as you are formatting a report.

Review the following sections for information on:

- [Defining HTML Preview Options](#)
- [Defining HTML Display Options](#)
- [Displaying Icons on the Navigation Bar](#)

Defining HTML Preview Options

Use the **Preview Options** section of the **General** tab to define HTML preview options. The changes you make to the preview options apply to your current report and to any new reports that you create.

Table 16 Preview Options

Option	Description
Use Internal Browser for Preview	Defines whether to use an internal browser to preview reports. Currently, internal browser support is limited to Microsoft Internet Explorer, version 6.0 or higher.
Limit to	Limits the number of pages displayed in the Report window.

Option	Description
	Limiting the number of pages increases performance; however, if you defined a specific sort order (see “Sorting Data” on page 41), SQR Production Reporting Studio does not sort the data when you limit the report preview.
No Date Mask Warnings	Disables the Y2K warning messages generated by Production Reporting when a report uses two-digit year masks.
Parameters	Defines command-line flags or parameters.

Defining HTML Display Options

Use the HTML tab to define options relating to the appearance of HTML reports.

Note:

Changes to the page background take effect in the next HTML report that you create—they do not affect your current report. (To apply these options to your current report *only*, access the HTML tab by choosing **Report**, then **Report Properties**.) Changes to the report scaling, the demand page setting, and the images directory apply to your current report and to any new reports you create.

Table 17 Display Options

Option	Description
Page Background	Pattern or color to print as a background.
Scale report to	The size of the report display. Use the bar to increase or decrease the scale, or enter the percentage by which to scale the report. For example, 50% displays the report at 50% of its default size. You can enter percentages between 50 and 200.
Demand Paging	<p>The number of report pages in each HTML file. With Demand Paging, you can avoid downloading an entire report in the browser. Instead, you can break a report into smaller sections for better performance.</p> <ul style="list-style-type: none"> ● Write the entire report as one file—Keeps all the report pages in one HTML file. ● Write a separate file every nn pages—Specifies the number of pages after which to start a new HTML file. ● Write sections based on table of contents entry up to level nn—Specifies the table of contents level after which to start a new HTML file. For more information on creating a table of contents, see “Creating a Table of Contents” on page 78.
Images Directory	The directory where images are located.

Option	Description
	<p>The images that SQR Production Reporting Studio uses for HTML reports include icons for alternate report formats (CSV, PDF, BQD) and the page navigation buttons. These images ship with Production Reporting, and are located by default in c:\Hyperion\products\biplus\common\SQR\images.</p> <p>To replace the default images with your own images, store the new images in a separate directory and enter the path for that directory in the Images Directory field. SQR Production Reporting Studio passes this information to Production Reporting on the command line when it executes the report. Production Reporting then uses the specified directory to locate the images.</p>
Compress HTML and related GIF files into ZIP archive	Compresses the files created by the HTML generator into a single ZIP archive file. The file is named the same name as the report, and is located in the same directory as the report.

Displaying Icons on the Navigation Bar

Use the **Navigation Bar** tab to define which icons display on the navigation bar and to define the language in which the navigation bar appears.

Note:

Changes to the navigation bar background and the icons that appear apply to the current report and to any new reports. Changes to the navigation bar language take effect in the next new report, they do not affect the current report. To change the navigation bar language for the current report, access the HTML tab by choosing **Report**, then **Report Properties**.

For the navigation bar to appear, your report must be two or more pages or you must select one of the navigation icons discussed in [Table 18](#).

Table 18 Navigation Bar Options

Option	Description
Enable Navigation Bar	Displays the navigation bar at the top of HTML reports displayed in a browser. The navigation bar includes icons to navigate through the report (First, Previous, Next, and Last).
Template	Applies a template XML file to the report.
Customize Template Advanced	<p>Accesses a <code>Template.xml</code> file that you can customize and use as the default for all Production Reporting HTML output. (See Chapter 33, “Customizing the HTML Navigation Bar” in Volume 1 of the <i>Hyperion SQR Production Reporting Developer’s Guide</i>.)</p> <p>This option is disabled if you did not define a template.</p>

Option	Description
	<p>Note: You can also define a default XML template with the <code>DefaultTemplate</code> parameter under <code>[Enhanced-HTML]</code> in <code>SQR.INI</code>. (See Volume 2 in the <i>Hyperion SQR Production Reporting Developer's Guide</i>.)</p>
Language	Defines the language for the HTML navigation bar.
Customize Background	<p>Defines a custom background to appear behind the navigation bar.</p> <p>To define a specific background pattern, click the icon next to Background Pattern and select the desired image (for example, GIF or JPEG).</p> <p>To select a color, click the list box next to Background Color and select a color from the color palette that appears.</p> <p>To set the placement of an imported image, select Customize and enter the horizontal and vertical position in the Navigation Bar Image dialog box.</p>
Display Adobe Acrobat (PDF)file	Displays a link on the navigation bar to generate a report in an Adobe Portable Document Format (PDF).
Export report data in a CSV format	<p>Displays a link on the navigation bar to generate report data in a comma-delimited file.</p> <p>CSV data is generated for only the Master level query whether it is the default Master query or any additional Master queries. Only the data for the default Master query is accessible as a hyperlinked icon from the HTML browser. This and the other files are located in the directory containing the report. They are named by concatenating the following items:</p> <p>CSV filename=Report name+Query name+terminating characters.</p> <p>For example, in a report named <i>Customers</i> with two Master queries, <i>OrdersReceived</i> and <i>OrdersShipped</i>, the CSV files would be named as follows:</p> <p><i>Customers_OrdersReceived_1.csv</i></p> <p><i>Customers_OrdersShipped_1.csv</i></p> <p>If more than one CSV file is needed to satisfy the query, the number “1” changes to the number of CSV files generated.</p>
Display XML report output	<p>Displays a link on the navigation bar to save report data in an XML file.</p> <p>XML output will not work properly unless the report is written to one complete file. Doing either of the following actions prevents a complete single file from being written:</p> <ul style="list-style-type: none"> ● Limiting page output by selecting the <i>Limit to</i> option in the Preferences General Tab ● Defining the number of report pages by selecting a Demand Paging option in the Preferences HTML Tab
Activate Interactive Reporting analysis	<p>Displays a link on the navigation bar to generate an export data file that displays in a Interactive Reporting (*.BQD) format.</p> <p>The Interactive Reporting analysis file generated by clicking the Interactive Reporting Analysis icon contains all of the information in the report. If you save a chart or cross-tab as a Interactive Reporting analysis file by selecting Interactive Reporting Analysis on the Analysis tab of the chart's or cross-tab's object properties, click the chart or cross-tab to generate a Interactive Reporting analysis file with information specific to the chart or</p>



Option	Description
	cross-tab. (See Chapter 5, “Activating Interactive Reporting Analysis” for more information.)

Changing an Object’s Text and Background Color

Changing the text and background colors for objects in HTML reports is useful to make certain text objects or columns to stand out.

In the *Order Details and Analysis* report, for example, you could specify that each customer name print in blue. You could also highlight the total sales for each customer by defining a background color of yellow to print behind the calculated field for the total sale amount. Finally, you could highlight the entire Date Ordered column by changing the color for the Date object in the report layout.

► To change text and background colors:

- Click  and  on the Formatting Toolbar.
- Change the colors in the Property Explorer.
- Change the colors on the **Font** property page for the selected object.

To access the Font property page, double-click an object in the report layout, or right-click the object and select **Object Properties**.

Note:

To create a custom color, click **Custom Colors** at the bottom of the color palette in any of the options discussed above and define a color. Custom colors may not display properly in a 256-color mode. If your custom colors do not display properly, try using a higher display setting. Custom colors may also display differently in different browsers.

Adding Borders

As you format HTML reports, you can add borders around objects in the report layout.


Along with text and background colors, borders can highlight columns or text objects. For example, in a report listing customer sales, you could draw a border around the total sale amount for each customer.

You can also use borders to display report details in a table or grid. For example, in the following report, we drew a border around the objects in the Details section of the report layout to display them in a table.

Product Sales for Customer: Alfred E Newman & Company			
Product Description	Date Ordered	Quantity	Sale Amount
Air Deodorizer	07/30/97	10	98.20
Laser Printer	07/30/97	3	523.95
Light Bulbs	10/06/96	1,100	3,289.00
Total:			\$3,911.15

Product Sales for Customer: Clair Butterfield			
Product Description	Date Ordered	Quantity	Sale Amount
Binford 4000 P	01/20/96	2	67.98
Canisters	06/22/97	34	45,109.50
Canisters	05/02/97	3	3,980.25
Modeling clay	06/03/96	120	4,136.40
Modeling clay	05/02/97	1	34.47
New car	01/20/96	1	8,974.87
Wire rings	05/02/97	7	13,911.03
Total:			\$76,214.50

➤ To format a border:

- Click  on the Formatting Toolbar.
- Format the border in the Property Explorer.
- Format the border on the Cell property page for the selected object.

To access the Cell property page, double-click an object in the report layout, or right-click the object and select **Object Properties**.

Defining Report Background Colors and Patterns

➤ To define background colors or patterns:

1 Select Report, then Report Properties, and then HTML.

When you define a background color or pattern from the report properties, it applies to your current report only. To define a background color or pattern for each report you create, access the HTML tab by choosing **File/Edit**, and then **Preferences**.

2 Define a background color or pattern and click OK.

- To define a background *color*, click the list box next to **Page Background Color** and select a color from the color palette that appears.

To create a custom color, click **Custom Colors** at the bottom of the color palette and define a color.

- To define a background *pattern*, select **Background Pattern** and enter a GIF or JPEG image in the field to the right.

To search for a particular image, click the button to the right of the Background Pattern field.

Note:

See “[Displaying Icons on the Navigation Bar](#)” on page 95 for information on how to customize the background pattern or color on the navigation bar for HTML reports.

Note:

Custom colors may not display properly in a 256-color mode. If your custom colors do not display properly, try using a higher display setting. Custom colors may also display differently in different browsers.

Creating Interactive HTML Features

When you create reports that include group breaks, you can add features to make your HTML reports interactive. The following sections discuss:

- [Expanding and Collapsing Detail Items](#)
- [Filtering Information](#)

Note:

These features are only available for breaks placed in the *Group Header* section of the layout. If you use an Internet Explorer browser, the Expand/Collapse feature is supported; however, you can only filter information on the first group break in your report. If you use any other browser, neither the Expand/Collapse nor the filtering option is supported.

Expanding and Collapsing Detail Items

When you create a report with group breaks, you can display the HTML report output in an "expanded" format that includes the detail records for each group, or in a "collapsed" format that hides each detail record.

Note:

The Expand/Collapse feature is only supported on Internet Explorer browsers.

- To add the expand/collapse feature to a report:
- 1 **Double-click the object selected as a group break in the Group Header section of the report layout, or right-click the object and select **Object Properties**.**
 - 2 **Click the **HTML** tab and select **Expand/Collapse Details** in the Interactive Report list box.**

When you select this option, the HTML report output initially displays in a “collapsed” format. To expand the detail for an item the report, click the icon next to the item.

As you work with group breaks using the expand/collapse feature, keep in mind the following:

- **You can nest levels of group breaks**—When you collapse a high-level group break, all lower-level group breaks are hidden.
- **You can expand or collapse any group break**—Any group break can be used to create an expanded or collapsed region in a report.
- **Expanded or collapsed group breaks do not need to be consecutive**—Group breaks can skip levels. For example, you could collapse group breaks at levels one and three, and expand the group break at level two.
- **Lower-level group breaks maintain their state when collapsed**—When a higher-level group break is collapsed and later expanded, lower-level group breaks that were collapsed remain collapsed, and lower-level group breaks that were expanded remain expanded.

Filtering Information

When you group information in a report, you can display the HTML report output for a single item in the group or for all the items in the group.

➤ To filter information in a report:

- 1 **Double-click the object selected as a group break in the Group Header section of the report layout, or right-click the object and select **Object Properties**.**
- 2 **Click the **HTML** tab and select **Filter** in the Interactive Report list box.**

When you select this option, the HTML report output includes a drop-down list for each group. To view the records for a single item in a group, select the item from the list box. To view the records for all the items in a group, select **All**.

Note:

Filtering is only supported for the first level group break if the Internet Explorer is the default browser. Filtering is not supported for other browsers. Also, fields in the Details section can be used with filtering if there are no group breaks.

Note:

When you filter information in a report, you cannot use the Table of Contents to navigate in the report; instead, you must select an option from the list box to go to a specific report section.

Creating Hypertext Links

Hypertext links allow you to link objects in your report to a different HTML document, to another area in the same HTML document, or to an email address. You can create a hypertext link on any object in the report layout.

For example, in the *Order Details and Analysis* report, you could create a hypertext link on *Corks and Bottles*. When you click *Corks and Bottles*, you would be taken to another HTML document that has additional information about Corks and Bottles, Inc.

- To create a hypertext link:
 - Select an object in the report layout and create the link in the Property Explorer.
 - Create the link on the HTML property page for the selected object.

To access the HTML property page, double-click an object in the report layout, or right-click the object and select **Object Properties**.

Table 19 Hypertext Link Information

Field	Description
URL	<p>The URL address to which you want to link.</p> <p>You can enter any valid URL in this field. For example, <code>http://www.example.com</code></p> <p>If you are on the HTML property page, you can:</p> <ul style="list-style-type: none"> ● Display a list of common URL prefixes (<i>http://</i>, <i>mailto:</i>, <i>ftp://</i>) by clicking the arrow to the right of the URL field. To enter a prefix into the URL, click the desired URL prefix. ● Add other column values to your URL by clicking the button to the right of the URL field and select the desired columns in the Insert Column Values dialog box. (See "Graphically Adding Column Values to URLs and Anchors" on page 105.)
Target	<p>Directs the URL to a particular window when the browser displays multiple top-level windows. Specify a window name as a target or enter one of the following target names in the Target field.</p> <ul style="list-style-type: none"> ● -blank—Loads the link in a new, unnamed window. ● -self—Loads the link in the same window. This is the default HTML behavior. ● -parent—Loads the link in the immediate frameset parent. If the document has no parent, the link loads in the same window. ● -top—Loads the link in the full window when frames are in use. If frames are not in use, the link loads in the same window. <p>Targets are most useful when used with frames. Even if you do not use frames, it is a good idea to use _top as the target. This is because someone else might incorporate your HTML document into a frame.</p>

Note:

When you preview the HTML report, the object with the link appears in a different color. Click the linked object to go to the specified URL.

Tip:

You can create a URL from a path on a Windows machine. For example, assume you have the following path:

`d:\monthly\closing\station1.htm`

To create URL from this path, you would enter the path in the URL field as:

`file:///d:/monthly/closing/station1.htm`

Creating Anchors

Anchors identify objects to which you wish to link. When you create anchors, you can link other objects to the section in a report identified by the anchor. Anchors allow you to move between areas in your reports as they display in your browser.

When you use anchors, you can link objects in the same HTML document, or you can link objects in different HTML documents. You can create an anchor on any object in the report layout.

Linking Objects in the Same HTML Document

You can create an anchor to identify a section in a report to which you want to link other objects in the same HTML document.

For example, in the *Order Details and Analysis* report, you could create an anchor on the Product Summary chart at the end of the report. You could then link the *Number of Sales* object for each customer to this chart. When you click a *Number of Sales* object in your HTML report, you would be taken directly to the Product Summary section of the report.

► To link objects in the same HTML document:

1 Create the anchor.

Create the anchor for the object you wish to link *to*. Using the above example, you would create the anchor on the Product Summary chart in the Query Summary section of the report layout.

When you enter a name for an anchor, avoid using spaces, punctuation, and special characters. Letters and numbers work best. Do not include the number sign (#) in an anchor name. For example, you could name the anchor for the Product Summary chart **Summary**.

To create an anchor:

- Select an object in the report layout and create the anchor in the Property Explorer.
- Create the anchor on the HTML property page for the selected object.

To access the HTML property page, double-click the object in the report layout, or right-click the object and select **Object Properties**.

2 Link other objects to the anchored object.

- a. Select **Create Link** in the Property Explorer or on the HTML property page for the object you wish to link *from*.

In the above example, you would create the link on the *Number of Sales* object.

- b. Enter a name to identify the link in the URL field.

When referring to an anchor name in a URL, you must precede the name by the number sign (#). In this example, since we named the anchor **Summary**, we would enter **#Summary** in the URL field.

When you preview the HTML report, the object you are linking from will appear in a different color. Click the object to go to the anchored object in your report.

Linking Objects in Different HTML Documents

If you have a report that is just one part of a series of HTML documents, you might want to add some anchors in key places. The anchors allow you to create other HTML documents that link directly to specific sections in your report.

For example, assume you have a report titled *Customer List* that includes information about each of your customers (a narrative, a photo or logo image, a link to the customer's Web site). If you wanted, you could link each customer in this report to the information about the customer's orders and payments in the *Order Details and Analysis* report.

The following is a sample HTML report for Corks and Bottles, Inc. (a customer on your customer list that also appears in the *Order Details and Analysis* report). Notice the link to orders and payments information underneath the narrative. This link has a URL for the *Order Details and Analysis* report with an anchor for Corks and Bottles appended to the end.

Customer List
Corks and Bottles, Inc. <i>Owner:</i> Brian Jones Corks and bottles has been one of our top customers since we opened for business ten years ago. The 40-store chain specializes in sales of corks and bottles, and can supply or custom build a cork or bottle to fit any cork or bottle need. Primary customers include many well-known wineries and breweries. Owner, Brian Jones, credits part of his success with our fast turnaround on orders and top-notch service. Orders and Payments

► To anchor objects in different HTML documents (as in the above example):

1 Create the anchor.

Create the anchor for the object you wish to link *to*. In this example, you would create the anchor on the *CustName* field in the *Order Details and Analysis* report. Since Corks and Bottles is one of several customer names in the report, you would use the string `<##Main=CUSTOMERS.NAME>` as the anchor.

To create an anchor:

- Select an object in the report layout and create the anchor in the Property Explorer:
- Create the anchor on the HTML property page for the selected object.

To access the HTML property page, double-click the object in the report layout, or right-click the object and select **Object Properties**.

When you create an anchor on the HTML property page, you can either type in the anchor, or click the button to the right of the Name field and select a column from the Insert Column Values dialog box. When you select a column from the Insert Column Values dialog box, SQR Production Reporting Studio automatically generates the correct syntax for the anchor.

2 Link other objects to the anchored object.

- a. Select **Create Link** in the Property Explorer or on the HTML property page for the object you wish to link *from*.

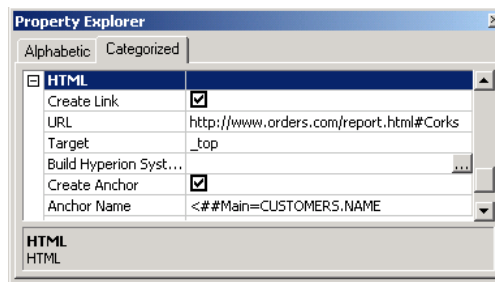
In the above example, you would create the link on the *Orders and Payments* object in the *Customer List* report.

- b. In the **URL** field, enter the URL for the HTML document you wish to link to. Place an anchor for the object you are linking to within the HTML document at the end of the URL.

When referring to an anchor name in a URL, you must precede the anchor with the number sign (#).

For example, assume the URL for the *Order Details and Analysis* report is **http://www.orders.com/report.html**. To link to the *Corks and Bottles* section of the *Order Details and Analysis* report, you could append the anchor **#Corks** to the end of the URL.

The Property Explorer for the example discussed here would appear as follows:



Using Column Values as Part of URLs and Anchors

Integrating the database column values into URLs and anchors allows you to dynamically generate links and anchors.

To include a column value in a URL or anchor name, place the string `<##QueryName=TableName.ColumnName>` in the hypertext link's URL or the anchor's name. When you run the report, the column's value replaces the defined string.

For example, to add the current value of the *name* column in the *customers* table for a *main* query, you would enter the following string:

```
<##Main=CUSTOMERS.NAME>
```

In another example, assume you want to provide a link to each customer's Web page in a *Customer List* report. You would first add the column *homepage* in the customer table. This column would contain the home page URL for each customer. Instead of typing in a URL you would enter `<##Main=CUSTOMERS.HOMEPAGE>`. SQR Production Reporting Studio automatically generates the correct URL by using the URL specified in *homepage* for each customer.

Another more powerful example assumes you have a Web-based information retrieval system that can retrieve information on customers through a structured URL. In this case, you could form the URL by entering the prefix `http://www.yourcompany.com?`, appending the customer name, and following that with the string `&info=sales`.

In this example, whenever you create a report that includes customer names, SQR Production Reporting Studio will automatically generate the correct URL by assigning the following URL to the *customer name* object in your report.

```
http://www.yourcompany.com?custname=<##Main=CUSTOMERS.NAME>&info=sales
```


Note:

The above URL passes the parameters “custname” and “info” to your information retrieval system using “?” to separate the report path from the parameters and “&” to separate the parameters from each other.

Graphically Adding Column Values to URLs and Anchors

You can add column values to a URL without typing in the special token syntax used by SQR Production Reporting Studio.

► To graphically add a column value to a URL:

- 1 Click  on the HTML property page to access the Insert Column Values dialog box.
- 2 Enter the text for your URL or anchor in the Edit field on the right. If you just want a column value, leave this field blank.
- 3 Select a column or expression from the left pane.
 - Drag a column or expression into the Edit field. As you drag the column, the cursor position in the Edit field shows you where the column or expression name will be inserted.
 - Double-click a column or expression to enter it into the Edit field at the current cursor position.
 - Select the column or expression and click Insert.

Building URLs for Items in Workspace

You can use SQR Production Reporting Studio to define URLs for target items in EPM Workspace. When used with EPM Workspace items, these URLs enable “report surfing,” or creating hyperlinks between content of any type. For example, a white paper can link to a glossary document and a sample code listing can link to a job that runs the code and returns output.

In the *Order Details and Analysis* report discussed in this manual, you could add a link to a customer name. After you published the report in EPM Workspace, you could click the customer name and “surf” to supplier information on the customer generated by a *Supplier Exception Report* in EPM Workspace.

Report surfing enables complex output structures, such as “drill-down” reports where you can drill down to levels of detail. For example, you could link a heading titled “Sales Compensation” to current policy in the Human Resources section in EPM Workspace.

- To build a URL for an item in EPM Workspace:
 - 1 In the report layout, double-click an object or right-click the object and select **Object Properties**.
 - 2 Click the **HTML** tab.
 - 3 Select **Create Link** and click **Build Hyperion SQR Workspace Link**

The Hyperion Workspace Link dialog box is displayed

- 4 In **Report Path**, enter the path to the report to which you are linking and the **Production Reporting program file name**.

The Report Path is a *relative* path. If the report to which you are linking is in the same directory as the directory where you are publishing the report, enter the name of the report in the Report Path.

If the report to which you are linking is in another directory, enter the relative location of the report along with the report name. For example, if you had a report titled *Salesreport* in your */sales/shipments* directory, and the report from which you are linking will be published to the *sales* directory, you would enter *shipments/salesreport* in the Report Path.

The Report Path is case-sensitive. If you entered *Shipments/salesreport* for the path in the above example, you would not be able to locate the report.

When specifying the Production Reporting program file name, do not enter a file extension.

To link to Production Reporting program *output* instead of executing an Production Reporting program, include **-frm.htm** in the name. In the above example, you would enter *shipments/salesreport_frm.htm* to link to the Production Reporting html sales report.

To link to another type of file, enter the name as specified in EPM Workspace. If you do not know the correct name of the item, look in EPM Workspace to view the contents.

- 5 To add other column values to your URL, click  and select the desired columns in the **Insert Column Values** dialog box.


See “[Graphically Adding Column Values to URLs and Anchors](#)” on page 105 for more information.

- 6 Click **Add** to access to **Add Prompt** dialog box where you can define default values to use when running the report.

For example, you could add values to limit the report to customers in the South-Eastern region and sales in the fourth quarter.

Table 20 Prompt Display Options

Option	Description
Number	<p>Prompt number.</p> <p>When you first access the Add Prompt dialog box, SQR Production Reporting Studio attempts to calculate the next available prompt number based on the existing prompts. You can override the prompt number if desired. Multiple prompts must be sequential. You cannot add prompts 1, 2, and 4 without adding prompt 3, for example.</p>

Option	Description
	<p>Note: To determine the number and type of prompts a report in EPM Workspace contains, open the Production Reporting Job Publisher on the Job Utilities toolbar, select the item in the Content pane of the main Production Reporting Job Publisher screen, and click Show Properties.</p>
<p>Type</p>	<p>Prompt type.</p> <ul style="list-style-type: none"> ● Input—User-entered data. ● Ask—Compile-time prompts. Retrieval may be by user input, command-line arguments, or as entries in the @file on the command line. <p>Note: For more information on Input and Ask prompts, see Volume 2 in the <i>Hyperion SQR Production Reporting Developer's Guide</i>. You can also view the report properties in the Production Reporting Job Publisher to determine the required prompt type.</p>
<p>Value</p>	<p>Click  to add column values to the prompt,. (See "Using Column Values as Part of URLs and Anchors" on page 104.)</p>

5

Activating Interactive Reporting Analysis

In This Chapter

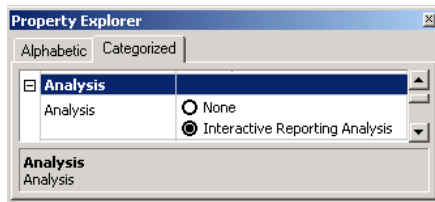
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Saving a Chart or Cross-tab as an Interactive Reporting Analysis File

SQR Production Reporting Studio allows you save a chart or a cross-tab in your report as an Interactive Reporting Analysis file. When you save a chart or a cross-tab as an Interactive Reporting Analysis file, you can visually analyze report data and view different scenarios without having to create a new report each time you make a change.

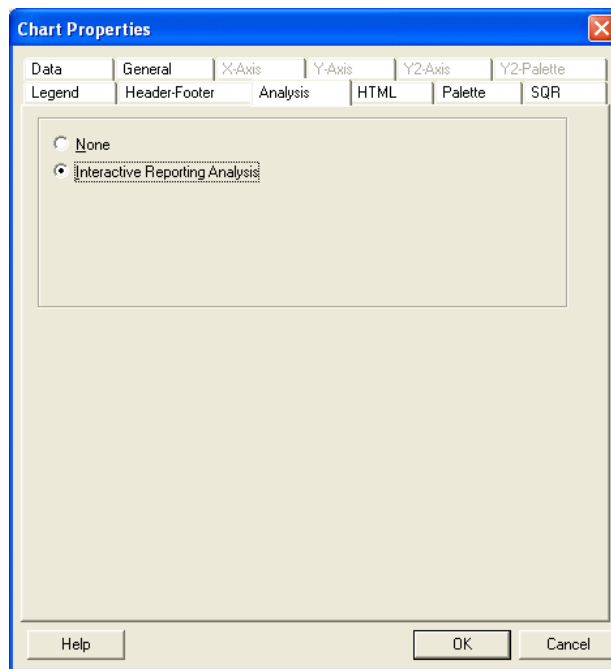
To save a chart or cross-tab as an Interactive Reporting Analysis file, you must place it in the *Query Summary* section of the Layout window. You can only activate Interactive Reporting Analysis on one chart or cross-tab per report, and you cannot create a hypertext link or anchor on a chart or cross-tab for which you activate Interactive Reporting Analysis.

- ▶ To save a chart or cross-tab as an Interactive Reporting Analysis file:
 - Select a chart or cross-tab in the report layout and click **Interactive Reporting Analysis** in the Analysis section of the Property Explorer.



- Select **Interactive Reporting Analysis** in the Analysis tab for the selected object.

To access the Analysis tab, double-click the chart or cross-tab in the report layout, or right-click the chart or cross-tab and select **Object Properties**.



Activating Interactive Reporting Analysis

Once you save a chart or cross-tab as an Interactive Reporting Analysis file, you can activate the file and analyze report data.

► To activate Interactive Reporting Analysis:

- 1 Click the **Report** tab if you are using an internal browser, or select **Report**, then **HTML Preview** if you are using an external browser.
- 2 Click the chart or in the blue area of the cross-tab in your browser.

The chart or cross-tab information displays in the browser in an Interactive Reporting Analysis format.

Note:

To activate an Interactive Reporting Analysis file that includes all of the information in the master query (not just chart or cross-tab specific information), click the Interactive Reporting Analysis icon on the navigation bar at the top of your HTML report. (See [“Displaying Icons on the Navigation Bar”](#) on page 95 for more information.)

P a r t I I I

Creating Other Types of Reports

In Creating Other Types of Reports:

- [Creating Report Layout Templates](#)
- [Creating Reports with Multiple Queries](#)
- [Creating Reports with Nested Subqueries](#)

6

Creating Report Layout Templates

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Layout Template Contents

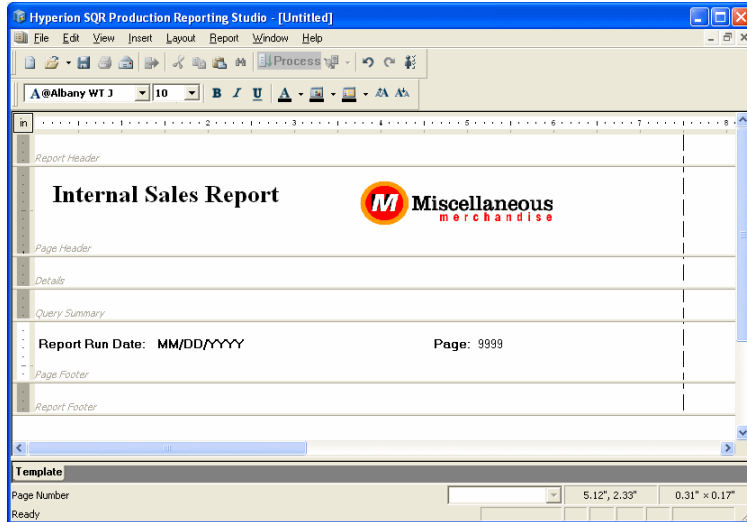
Layout templates define a reports's "look and feel", while remaining separate from the report.

Templates can contain:

- **Objects in the report layout**—Lines, boxes, images, text, page numbers, record numbers, and the current date.
- **Report properties**—Paper size, page orientation, margins, layout mode, and HTML options.
- **Formatting styles**—Font style, font size, text colors, background colors, cell borders, and table of contents entries.

As an example, assume that you want all of your internal sales reports to contain a title and a logo at the top of the report and the current date and page number at the bottom of the report. Assume further that you want the title to always print in a Times 20pt bold font, and that you want a one-inch margin at the top and bottom of each page. Using these specifications, the template for your internal sales reports may appear as shown in [Figure 5](#).

Figure 5 Template for an Internal Sales Report



Creating Layout Templates

- To create a layout template:
 - 1 Click **Templates** on the main SQR Production Reporting Studio screen.
 - 2 In the **Templates** tab, click **New**.

The Layout window for the template is displayed.

- 3 In the Layout window, create the layout for the template.

When you create a layout for a template, you can insert objects into the report layout, define formatting styles for the objects, and define report properties.

You can insert objects into the Report Header, Page Header, Details, Query Summary, Page Footer, and Report Footer sections of the layout.

You *cannot* insert objects into the Group Header or Group Summary sections. This is because groups are tied to query fields, and SQR Production Reporting Studio does *not* store query information in a template.

- 4 Select **File**, then **Save**, enter a name for the template, and click **OK**.

SQR Production Reporting Studio saves the template with an SRT extension. For example, *stockreport.srt*. The template is saved in the directory specified in the *Templates* field under *Start in directories* in the **General** report preferences .

Note:

In addition to creating a template in the Template window, you can save a report layout as a template. To do this, display the report in the Layout window and select **File**, then **Save Template**.

When you save a report layout as a template, define any formatting for columns and column headings in the Configure Default Layout dialog box (**Layout**, then **Default Layout**, and then **Configure**). If you configure columns or column headings in the Layout window, SQR Production Reporting Studio does *not* save the information in the template.

Adding Placeholders to Layout Templates

Placeholders are areas in layout templates with specific formatting that can be mapped to fields in the query. You can use placeholders for things such as improving the appearance of reports and complying with company-required formats.

► To add a placeholder to a layout template and map it to a specific field in the query:

- 1 In the Layout window for the template, select **Insert**, then **Placeholder**.
- 2 Save the template.
- 3 Close the Layout window and create a new report.
- 4 On the **Query Builder – Templates** page, select the template with the placeholder.
- 5 In the **Placeholder Settings** dialog box, map the desired query fields to the desired report section.

The mapped fields will appear in the report with the formatting defined for the placeholder.

Using Layout Templates

► To use a layout template to create a report:

- 1 Click **Templates** on the main SQR Production Reporting Studio screen.
- 2 In the **Templates** tab, select a template and click **OK**.

SQR Production Reporting Studio launches the Query Builder.

- 3 Select the data for the report on the pages in the SQR Production Reporting Studio Query Builder.

When you create a report using a layout template, SQR Production Reporting Studio uses the layout settings defined in the template to configure the default layout.

After you select the data for your report, the SQR Production Reporting Studio Layout window appears. The objects that appear in the Layout window are based on the template you selected.

- 4 Format the contents of the report in the Layout window.

Note:

For information on selecting report templates and styles while building a query, see [“Selecting Report Templates and Styles”](#) on page 48.

Editing Layout Templates

Use the SQR Production Reporting Studio Layout window to change the information in a template.

- To access the Layout window for an existing template:
 - Click **Edit** from the Templates tab in the Create New Report dialog box.
 - Select **File**, then **Open Template** from the menu.

Opening Reports that Use Layout Templates

When you create reports using layout templates, SQR Production Reporting Studio stores the path to the template and the last time it updated the template in the report layout. This creates a link between the report layout and the template.

Whenever you open a report based on a layout template, SQR Production Reporting Studio checks the template file to see if it is updated. If the template file has changed, a prompt appears where you can indicate whether you want to update the report layout.

- Click **Yes** to update the report layout with the template contents.

When you select this option, a warning appears letting you know that you may lose changes made to layout objects that came from the original template. Click **Yes** again to update the report.
- Click **No** to disregard the template changes and leave the original report intact.

Note:

SQR Production Reporting Studio supports a command-line options to update layout templates in a batch mode . This is a great benefit if you have many layouts created from a single template.

Changing the Layout Template Used in a Report

- To add or change a layout template in a report:
 - 1 **Display the report in the Layout window and select Report, then Template.**

The Template Options dialog box is displayed with the current template displayed under Template File.
 - 2 **Click Browse and select a template.**
 - 3 **Click Update Now to update the report layout based on the template.**

Note:

When you change the template used for a report layout, you may lose the changes you made to the layout objects that came from the original template.

Breaking the Link to a Layout Template

When you create a report from a template, SQR Production Reporting Studio links the report layout to the template. If you decide that you no longer want the report linked to the template, you can break the link. Breaking the link to a layout template only removes the link. It does *not* change the report in any other way. All layout objects that came from the template remain in the report.

► To break a link to a template:

- 1 Display the report in the Layout window and select **Report**, then **Template**.

The Template Options dialog box is displayed with the current template displayed under *Template File*.

- 2 Click **Break Link** and click **OK**.

A window appears asking if you are sure you want to break the link.

- 3 Click **Yes** to break the link to the template.

Note:

SQR Production Reporting Studio knows which objects came from a template and which objects you added to the report. As a result, SQR Production Reporting Studio can update the report if the template changes. When you break the link to a template, layout objects that came from the template lose their "template identity," and SQR Production Reporting Studio treats the objects like any other objects you add. This is important to remember if you ever decide to restore the link to the template, since updating the template may not have the same effect as before you broke the link.

Updating Layout Templates in Batch Mode

SQR Production Reporting Studio supports a command-line option to update layout templates in a batch mode. This is a great benefit if you have many report layouts created from a single template.

The batch mode process connects to the data source. If you have reports from more than one data source, make a separate *update.dat* file for each of them; otherwise you will see a message stating, "Cannot locate user."

Table 21 SQR Production Reporting Studio Switches

Switch	Description
-T< <i>batch filename</i> >	Starts batch mode and returns to the DOS prompt after it updates the templates. Follow -T with the name of a batch file that contains one or more SRM file names (one file name per line). When the -T switch appears in the command line, it overrides anything else.
-Q	Regenerates the Production Reporting file corresponding to the updated SRM file. If the template for an SRM file is up-to-date, SQR Production Reporting Studio does <i>not</i> regenerate the Production Reporting file.

For example, assume you have the following *update.dat* file to update your reports:

```
c:\Hyperion\products\biplus\bin\SQR\Studio\samples\report1.srm  
c:\Hyperion\products\biplus\bin\SQR\Studio\samples\report2.srm  
c:\Hyperion\products\biplus\bin\SQR\Studio\samples\report3.srm  
c:\Hyperion\products\biplus\bin\SQR\Studio\samples\report4.srm
```

You could use this *update.dat* file in the following command to update your layout templates in a batch mode:

```
developer -Tupdate.dat -Q
```

If you have reports from more than one datasource, make a separate *update.dat* file for each of them. For example, assume you have the following reports:

- Quarterly_Sales (Oracle Financials)
- Product_Analysis (Oracle Financials)
- Marketing_Exp (Oracle Financials)
- Cust_Cases (Siebel)
- Parts_Tracking (Siebel)

► To update these reports in a batch mode:

- 1 Create two *update.dat* files, each containing the reports for one data source.

Option	File or Path
Filename:	updateOraFinancials.bat
Contents:	c:\Hyperion\products\biplus\bin\SQR\Studio\samples\Quarterly_Sales.srm c:\Hyperion\products\biplus\bin\SQR\Studio\samples\Product_Analysis.srm c:\Hyperion\products\biplus\bin\SQR\Studio\samples\Marketing_Exp.srm
Filename:	updateSiebel.bat
Contents:	c:\Hyperion\products\biplus\bin\SQR\Studio\samples\Cust_Cases.srm c:\Hyperion\products\biplus\bin\SQR\Studio\samples\Parts_Tracking.srm

- 2 Run the update script for each of the *update.bat* files.

When a script runs, SQR Production Reporting Studio lists the data sources used for all reports in the file. This is why separate files are necessary for each data source.

To run the update script:

- a. Run the following command from a DOS prompt:

```
cd c:\Hyperion\products\biplus\bin\SQR\Studio\samples  
..\bin\developer -TupdateOraFinancials.dat -Q
```
- b. Select the data source from the Data Connection dialog box.

7

Creating Reports with Multiple Queries

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Creating Sequential Queries	120
Understanding Master/Detail Reports	122
Creating a Multi-Row Detail Query	122
Creating a Single-Row Detail Query	125
Creating Queries Using Different Data Sources	127

About Multiple Queries

There are several ways to use multiple queries to display information. You can create an initialization query that executes once before the master query, you can create multiple master queries that execute in a sequential order, you can create queries using different data sources, and you can create a master query and one or more detail queries.

Reports that contain both a master query and one or more detail queries bound to the master query are called *Master/Detail* reports. Use Master/Detail reports to show hierarchical information.

Creating an Initialization Query

An initialization query executes once at the beginning of a report, before the master query. It returns a single row with one or more columns. The results are stored in uniquely named Production Reporting variables that you can use anywhere in the layout. Initialization queries are non-layout queries executed using the Production Reporting `BEFORE-REPORT` command. See Volume 2 in the *Hyperion SQR Production Reporting Developer's Guide* for more information.

Initialization queries are useful for:

- Retrieving information from the database that may appear in a Report Header or Page Header
- Retrieving constants, such as a conversion rate, that are used in variables
- Providing data for use in dynamic SQL constructs

► To create an initialization query:

1 Display the layout for the master query in the Layout window.

2 Click  on the Object Toolbar, select **Insert**, then **Field**, or right-click **Fields** in the Object Explorer and choose **Insert**.

The Report Fields dialog box is displayed with the master query listed in the Database tab.

3 Click **New** and choose **Init Query**.

4 In the Query Builder, enter a name for the initialization query and select the data to use.

After you create an initialization query, it is displayed in the Database tab of the Report Fields dialog box.

Note:

You can create an initialization query using data from a different data source than the data source used by the master query. See [“Creating Queries Using Different Data Sources”](#) on page 127.

Note:

The fields returned from an initialization query can be used in the report layout like any other fields. The initialization query and the fields from the initialization query do not appear in the Query Explorer, however, since an initialization query does not have its own layout.

Creating Sequential Queries

Sequential queries are multiple *master* queries for the same report. In reports with sequential queries, the first query runs to completion and then the next one takes over.

For example, you could create a query to display information about the sales plans for each employee in the sales department. You could then create another query to display information about each employee’s forecasted sales. Finally, you could create a query to display information about each employee’s sales compensation. All of these queries would be master queries.

When you run the report in this example, the information for the sales plans would print first, followed by the information about the forecasted sales, followed by the information about sales compensation.

Note:

The *Order Details and Analysis* report discussed in this book contains multiple master queries. To view these queries, open `salesdemo.srm` from the `Hyperion\products\biplus\bin\SQR\Studio\samples` directory.

Creating the Queries

Select the data for sequential queries using the SQR Production Reporting Studio Query Builder. Start the Query Builder for the first query from the main SQR Production Reporting Studio menu. Start the Query Builder for the subsequent sequential queries from the Layout window for the first query.

Note:

When you create sequential queries, you can create each query using data from a different data source. See [“Creating Queries Using Different Data Sources”](#) on page 127.


Creating the First Query

- To create the first query:
 - 1 Select **File**, then **New** and select **New Tabular Report**.
 - 2 In the Query Builder, select the data to use.

When you select data for a query, you select the database tables that contain the data for the report, and you select the database columns that will make up the fields in the query. You can also refine the query by adding expressions, grouping the data, sorting the data, and adding conditions to the data.

For detailed information about creating a query, see [“Selecting Report Data \(Query Builder\)”](#) on page 17.

Creating Subsequent Sequential Queries

- To create subsequent sequential queries:
 - 1 Display the layout for the first query in the Layout window.
 - 2 Click  on the Object Toolbar, select **Insert**, then **Field**, or right-click **Fields** in the Object Explorer and select **Insert**.

The Report Fields dialog box is displayed with the first query listed in the Database tab.

- 3 Click **New** and select **Master Query**.
- 4 In the Query Builder, select the data to use.

When you create sequential queries, they appear at the same level on the Database tab in the Report Fields dialog box. Sequential queries also appear at the same level in the Query Explorer.

Formatting the Report

When you format reports created with sequential queries, each query has its own layout.

In addition to the Details, Query Summary, and Group Header and Summary sections (if you created groups), the layout for the first query includes the Report Header, Page Header, Page Footer, and Report Footer sections. You can use these sections to enter general information about the report.

The layout for each sequential query contains the Details, Query Summary, and Group Header and Group Summary (if you created group breaks) sections.

- ▶ To display the layout for a query:
 - Select the query or any query field in the Query Explorer.
 - Select the query on the status bar at the bottom of the Layout window.
 - Select the query or any query field on the Database tab in the Report Fields dialog box.

Understanding Master/Detail Reports

The information in Master/Detail reports is normally retrieved from multiple tables that have a one-to-many, or master/details relationship. In many cases, you can obtain this type of hierarchical information with a single query. In such a query, you join the data from the master table with the data from the detail table, and insert group breaks to group the detail records for each master record.

The *Order Details and Analysis* report discussed in this book is an example of a single query used to show hierarchical information. The report is grouped by customer and displays information about the product sales for each customer.

A single query designed to show hierarchical information has one major disadvantage. If a master record has no associated detail records, it is not displayed. If you need to show all master records, whether or not they have detail records, a single query will not meet your needs.

The solution is to create a Master/Detail report and bind the detail records to the master records by joining one or more query fields.

The following sections discuss two types of queries that you can use to create a master/detail report—a *multi-row detail query* and a *single-row detail query*.

Creating a Multi-Row Detail Query

This section discusses creating a multi-row detail query using a *Customer Orders and Payments* report as an example. The *Customer Orders and Payments* report displays the name and address of each customer of a fictitious company. After each customer name and address, the report displays information about the payments received from the customer and the orders the customer placed. In this example, *Customers* is the “master” report and *Orders and Payments* are the “detail” reports.

Figure 6 Sample Master/Detail Report that Returns Multiple Rows

Customer Orders and Payments		Page 1
as of 27-Jul-1998		
Customer Number	100001	
Joe Smith and Company 1711 Sunset Blvd Big Falls NM 87893-7070		
Payments Received		
01/01/96	\$519.96	
Total Payments		\$519.96
Orders Placed		
03/18/96	Widgets	\$55.08
	Curtain rods	\$480.96
12/27/96	Hammers	\$222.50
03/18/97	Ginger snaps	\$7.38
	Modeling clay	\$4,136.40
	Hookup wire	\$71.82
Total Orders		4974.14

Note:

To view the sample *Customer Orders and Payments* report discussed here, open `masterdetail.srm` from the `\Hyperion\products\biplus\bin\SQR\Studio\samples` directory.

When you create a multi-row detail query, you:

- Create a master query to select the data for the master report.
- Create a detail query to select the data for the detail report.
- Bind the detail query to the master query.
- Format the report.

Review the following sections for information on each of these steps.

Note:

When you create a multi-row detail query, you can create the master and detail queries using data from different data sources. See [“Creating Queries Using Different Data Sources”](#) on page 127.

Selecting Data for the Master Report

- To select data for the Master report:
 - 1 Select **File**, then **New** and select **New Tabular Report**.
The first page of the Query Builder appears.
 - 2 In the Query Builder, select the data to use.

For detailed information about creating a query, see “[Selecting Report Data \(Query Builder\)](#)” on page 17.

Selecting Data for the Detail Report

► To select data for the detail report:

1 Display the layout for the master query in the Layout window.

2 Click  on the Object Toolbar, select **Insert**, then **Field**, or right-click **Fields** in the Object Explorer and select **Insert**.

The Report Fields dialog box appears with the master query listed under the Database tab.

3 Click **New** and select **Detail Query**.

4 On the first Query Builder page, enter a name for the detail query.

For example, you could name the detail query for customer orders *Orders*, and the detail query for customer payments *Payments*.

5 Check the box next to **Assign a layout to this query**.

A detail query that has its own layout can return zero to many rows.

6 On the subsequent Query Builder pages, select the data for the detail query.

7 When you get to the Bind page, bind the detail query to the master query by joining one or more query fields.

See the following section for information on how to bind the detail query to the master query.

Binding the Detail Query to the Master Query

To display the results of a master query and a detail query in one report, you must *bind* the queries.

► To bind the detail query to the master query:

1 In the **Report Fields** dialog box, click **Bind**.

2 In the **Master Detail Binding** dialog box, join one or more query fields.

To bind queries, use the mouse to drag query fields from one table to another. You can also click **Auto Bind** to automatically join table columns for which both the name and the data type are the same. You must bind at least one table column in the master query to a table column in the detail query.

For example, the *Customer Orders and Payments* report uses CUST_NUM as the *bind value* that links the *Orders* detail query with the *Customer* master query.

SQR Production Reporting Studio automatically joins columns for which both the name and the data type are the same.

The difference between a join operation and a bind operation is that *joins* are between two tables in one query, and *binds* are between two queries.

Formatting the Report

You format a Master/Detail report in the Layout window. In a multi-row detail query, each query has its own layout. To display the layout for a query:

- Select the query or any query field in the Query Explorer.
- Select the query on the status bar at the bottom of the Layout window.
- Select the query or any query field in the Database tab in the Report Fields dialog box.

Once you display the layout for your master query (or detail query), you can format the contents of your report. See [“Formatting Report Contents” on page 53](#) for detailed information on formatting a report.

Creating a Single-Row Detail Query

A single-row detail query is a special form of a multi-row detail query. The model is still the same—the detail query executes for every row in the master query. However, a single-row detail query differs from a multi-row detail query in the following ways:

- A single-row detail query does not have its own layout. Instead, fields from the query are placed directly on the layout for the master query.
- A single-row detail query can return only one row. The row returned is a logical extension of the row produced by the master query, so the relationship must be one-to-one.
- A single-row detail query cannot be nested to multiple levels – it cannot have any detail queries of its own.

The process for creating a single-row detail query is the same as the process for creating a multi-row-detail query, except that you do *not* check the box next to *Assign a layout to this query* in the Query Builder.

Consider the *Customer Orders and Payments* report discussed in [“Creating a Multi-Row Detail Query” on page 122](#). We could add a single-row detail query to this report that gives the sales forecast for each customer for next year.

► To add this single-row detail query to the *Customer Orders and Payments* report:

1 Display the layout for the master query in the Layout window.

2 Click  on the Object Toolbar, select **Insert**, then **Field**, or right-click **Fields** in the Object Explorer and select **Insert**.

The Report Fields dialog box is displayed with the master query and any detail queries listed under the Database tab.

3 Click **New** and choose **Detail Query**.

4 On the first Query Builder page, enter a name for the detail query.

For example, you could name the detail query for customer sales forecasts *Forecast*.

5 Clear the box next to Assign a layout to this query.

This is different than multi-row detail queries that have their own layout and return more than one row.

6 On the subsequent Query Builder pages, select the data for the detail query.

To create the single-row detail query for this example, we will select SALES_FORECAST as the table, select CUST_NUM and create an expression to calculate the sales forecast value on the *Select Fields* Query Builder page, and bind the detail query to the master query using the customer number fields.

After you create the single-row detail query, it appears in the Database tab in the Report Fields dialog box.

7 Drag the desired fields into the layout for the master query.

Since single-row detail queries do not have their own layout, the name of the query and the fields in the query do not appear in the Queries or Fields section of the Layout window. As a result, you must drag the fields into the layout for the master query from the Report Fields dialog box.

8 Format the objects as desired.

In this example, if we placed the Forecast objects next the Name object in the details section of the layout, the resulting *Customer Orders and Payments* report would appear as shown in [Figure 7](#).

Figure 7 Results of a Single-row Detail query that Returns the Sales Forecast for the Year 2000

The screenshot shows a report titled "Customer Orders and Payments" as of 12-Nov-1999. It includes customer details for Joe Smith and Company, a forecast for 2000 of \$900.00, a summary of payments received totaling \$519.96, and a list of orders placed totaling \$4,974.14. The report is on Page 1.

Customer Orders and Payments		Page 1
as of 12-Nov-1999		
Customer Number	100001	
Joe Smith and Company		Forecast for 2000: \$900.00
1711 Sunset Blvd		
Big Falls NM 87893-7070		
Payments Received		
01/01/96	\$519.96	
Total Payments		\$519.96
Orders Placed		
03/18/96	Widgets	\$55.08
	Curtain rods	\$480.96
12/27/96	Hammers	\$222.50
03/18/97	Ginger snaps	\$7.38
	Modeling clay	\$4,136.40
	Hookup wire	\$71.82
Total Orders		\$4,974.14

Creating Queries Using Different Data Sources

You can create queries using data from different data sources in a single report. For example, you could create a master query using data from an Oracle data source, and a detail query using data from an SQL Server data source.

When you use multiple data sources in a single report, the data source type must be the same. For example, you can create a report with queries from more than one ODBC data source. Or, you can create a report with queries from more than one DDO data source. You cannot, however, create a report with one query from an ODBC data source and one query from a DDO data source.

Supported ODBC data sources include:

- Oracle
- SQL Server
- Sybase
- DB2
- Informix

Supported DDO data sources include:

- JDBC
- SAP R/3
- SAP BW
- Essbase
- MS-OLAP
- XML
- CSV

- To select which data source to connect to, select a data source on the Connection tab in the Query Builder.

For example, you could create a master query and select Informix on the Connection tab. When you create a detail query, the Query Builder is displayed again. This time you could select Sybase on the Connection tab.

Note:

You cannot use different data sources for a single query. You can only use different data sources for multiple queries within a single report.

8

Creating Reports with Nested Subqueries

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About Nested Subqueries

Nested subqueries are queries that are components of another query. To use subqueries effectively, you must have a good understanding of how they work. It also helps to have a good knowledge of SQL query syntax. Finally, you should understand the structure of your database and the data it contains.

Understanding Subqueries

Functionally, the three types of subqueries are: subqueries that return a single value, subqueries that return zero to many values, and subqueries that test existence.

Subqueries designed to return a single value are also known as *scalar subqueries*. You typically use scalar subqueries to obtain some value from a set of data, such as a count of all employees and their average salary. Scalar subqueries are used in Where and Having clauses, but can also be used as query fields in databases.

Subqueries that return zero to many values are used to generate lists. For example, you could create a subquery to generate a list of products not purchased by any customers in Ohio. This type of subquery is only used in Where and Having clauses.

The final type of subquery tests for existence of data. The data itself is not important, only whether the data exists. Existence subqueries are only used in Where and Having clauses. A typical use of an Existence subquery might be to discover which customers made purchases within some range of time. It does not matter how many purchases the customers made or what they bought. In an Existence subquery, it only matters whether they made at least one purchase of any kind.

Another important property of subqueries is called *correlation*. Correlation is the process of using a value returned by one query in the execution of another query. For every row returned by the

first query, the second query is executed. Some of the subqueries you create will need to be correlated, and some will not. It all depends on what you are trying to do.

You can nest subqueries to theoretically unlimited levels. In other words, a subquery may have a subquery of its own. In practice, nesting subqueries to a large number of levels is probably a good indication that you should rethink what you are trying to do. It is sometimes better to add more tables and join them effectively rather than creating subqueries.

Creating Subqueries that Return a Single Value

A subquery guaranteed to return a single value is known as a *scalar* subquery. A *standalone scalar subquery* is special version of a scalar query that is effectively an expression.

Although not a requirement, standalone scalar subqueries typically use aggregate functions, in part because an aggregate function guarantees a single value. Standalone scalar subqueries are used as expressions in the Select list in most databases, and they are typically correlated.

The following is an example of a subquery that displays the headcount for each department:

```
SELECT dname, (select count(empno) from emp where emp.deptno = dept.deptno)
FROM dept
```

Note that there are two Selects in this statement. The second Select is the subquery.

Note:

Using nested subqueries effectively requires some knowledge of SQL. Accordingly, we will include SQL examples to illustrate subquery concepts more clearly. SQR Production Reporting Studio shields you from having to write the actual SQL, but not from having to understand how it works.

The following steps explain how to use the SQR Production Reporting Studio Query Builder to create the SQL in the above example. The steps use sample data that you can load into your database with the `loadall.sqr` program included with SQR Production Reporting Studio. See [“Viewing the Sample Report” on page 13](#) for information on how to load the sample data.

➤ To create a subquery that returns a single value:

- 1 **Select Tabular Report** on the main SQR Production Reporting Studio screen and connect to a database.
- 2 On the **Query Builder - Tables** page, select the table(s) to use in the master query.

In this example, select `DEPT`.

- 3 On the **Query Builder - Fields** page, select the query fields for the master query.

In this example, select `DNAME`.

The Fields page is where you define the SELECT statement for the query. The department name selected here appears as the first SELECT statement in the corresponding SQL. (See `SELECT dname` in the SQL example on [“Creating Subqueries that Return a Single Value” on page 130](#)).

- 4 Click **New** and select **Subquery**.

5 On the **Query Name** page, enter a name for the subquery.

6 On the **Query Builder - Tables** page, select the table(s) to use in the subquery.

In this example, select EMP.

7 On the **Query Builder - Fields** page, select the field or define the expression to use in the **Select** list.

Since scalar subqueries must only return a single value, you can only select one field or enter one expression.

Keep in mind, however, that selecting one field does not guarantee that your query will return a single value. When you select a field or define an expression on the Fields page, you must be familiar with the data or you will get an error when you run the report. One way to guarantee a single value is to use an aggregate function, such as COUNT, AVG, or SUM.

In this example, we want to count the number of employees in each department. To do this:

- a. Click **New** and select **Expression**.
- b. Define the expression in the Expression Builder.

In this example, to display the number of employees in each department, use the aggregate function, COUNT, on employee name.

After you define the expression, it appears on the Fields page for the subquery.

8 Correlate the data in the master query with the data in the subquery.

To correlate the data, drag query fields from one table to another. Generally, you will only make one correlation; however, multiple correlation is possible for concatenated keys. In this example, correlate the data by department number (DEPTNO).

Correlating the queries in this example is essentially saying, *for every department returned by the outer query, run the second query to count the employees in that department*. If you do not correlate the queries, the subquery will return only one value – the count of employees in the entire company.

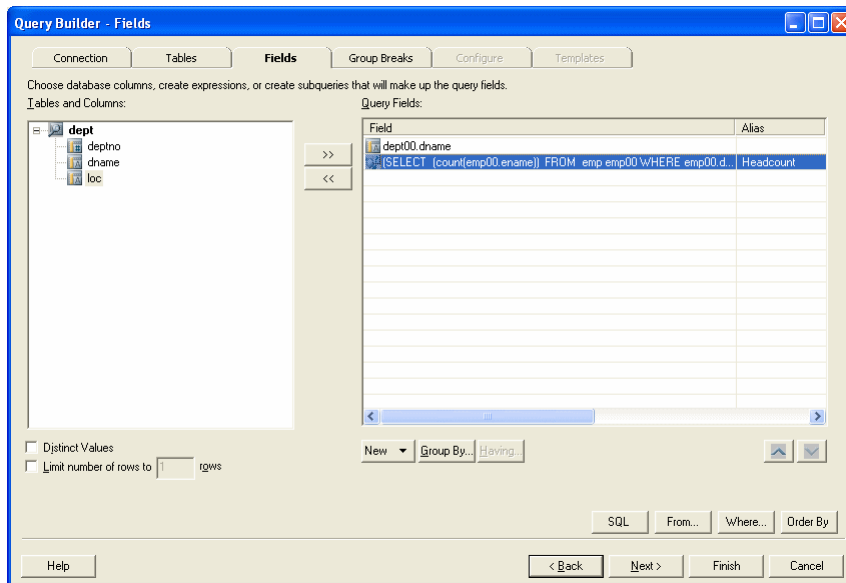
Correlating queries typically requires that one or more tables be aliased. SQR Production Reporting Studio automatically creates aliases as necessary. You can also create aliases yourself, or change the aliases created by SQR Production Reporting Studio. (See [Defining Table Aliases](#) for more information on creating table aliases.)

Tip:

To better understand correlated and uncorrelated subqueries, see the examples (*correlated_subquery.srm* and *uncorrelated_subquery.srm*) in Hyperion\products\biplus\bin\SQR\Studio\samples.

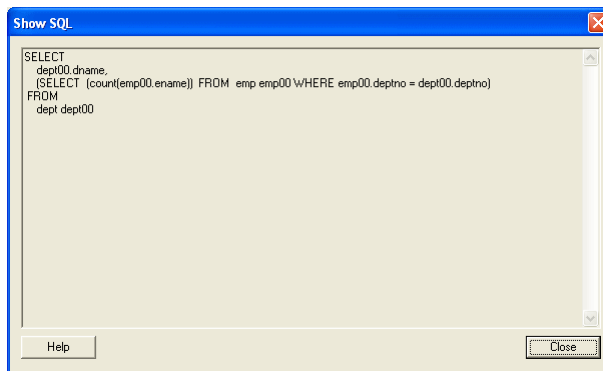
9 Click **Next** and then **Finish** to access the **Query Builder - Fields** page for the master query.

The subquery is displayed under Query Fields.



- 10 Click **SQL** to view the SQL code generated for the query.

In this example, the SQL code to display the head count for each department appears as follows:



- 11 Define how to group the report data.
In this example, group the report by department name.
- 12 On the **Query Builder - Configure** page, click **Finish** to display the report layout.

Creating Subqueries that Return Zero to Many Values

You can use Where and Having clauses to create nested subqueries that return zero to many values. A subquery in a Where or Having clause is always part of a larger conditional statement. The syntax for using subqueries in Where and Having clauses can be broken down into five basic forms:

```
<expression> <comparison operator> <subquery>
<expression> <comparison operator> [ ANY | SOME ] <subquery>
<expressions> <comparison operator> ALL <subquery>
<expression> [NOT] IN <subquery>
[NOT] EXISTS <subquery>
```

The query that contains the Where or Having clause is called the *outer* query, which makes the subquery in the Where or Having clause the *inner* query.

Subqueries in Where or Having clauses generally produce a result set that consists of a single column of zero or more rows. For this reason, the select list of the subquery can only include a single expression or column name. In addition, the database column or expression in the select list must also be join-compatible with the value on the left side of the Where or Having clause in the outer query.

Understanding the ANY and ALL Comparison Modifiers

When you use a Where or Having clause to create a subquery that returns zero to many values, you modify a comparison operator (such as equal to, less than, greater than) with the ANY or ALL comparison modifiers. Consider the following two examples:

- **>ALL**—This expression means *greater than every value*. You can also think of this as *greater than the largest value*.
- **>ANY**—This expression means *greater than at least one value*. You can also think of this as *greater than the minimum value*.

Problems arise with ANY and ALL in the following two cases:

- **The subquery comes back empty**—If the subquery is empty, ALL is automatically true and ANY is automatically false.
- **The subquery returns null values**—When the subquery returns NULL values, technically, the result is unknown. Remember that you are using comparison operators, and a comparison to NULL is undefined. For the most part, SQL treats *unknown* the same as *false* for Where clauses.

Creating a Where Clause Using ANY or ALL

- To create a Where clause using the ANY or ALL comparison modifiers:
 - 1 **Select the data for the master query using the SQR Production Reporting Studio Query Builder.**
 - 2 **When you get to the Query Builder - Fields page, click Where; then, click Add Clause.**
 - 3 **Proceed through the pages in the Where Clause Wizard. When you get to the Qualifier page, select a comparison operator.**

When you choose a comparison operator, you can modify it with the ANY or ALL comparison modifiers. Comparison modifiers are mutually exclusive – you can select ANY or ALL, or NONE, but not all three. When you choose ANY or ALL, the right side of the Where clause must be a subquery, and the Query Builder to create the subquery is displayed.

For examples of creating a Where clause without a comparison modifier (you select *None* under Comparison Modifiers), see [“Creating Where Clauses to Evaluate Database Columns or Expressions” on page 33](#).

- 4 **Create the subquery on the pages of the Query Builder.**

- 5 Return to the Where Clauses dialog box to view the Where clause that contains the subquery.

Creating Subqueries to Test for Existence/Non-Existence

An Existence (or Non-Existence) query checks for existence (or non-existence) of something. With an Existence/Non-Existence query, you are not interested in the results of the query—only if results are returned for the query. This is the key concept behind Existence /Non-Existence queries. The data returned by the query is not important, only whether such data exists.

Because you do not care about any particular data, you do not need to select any fields. If you were writing SQL code, you would use an asterisk (*) as your SELECT list. In SQR Production Reporting Studio, creating an Existence/Non-Existence query automatically generates the asterisk in the resulting SQL.

As an example, assume that you would like to see which customers did not place orders between January 1, 1998 and January 1, 1999. To do this, you would:

1. Create a query to get a list of customers. (This is the *outer query*.) The resulting SQL would look like:

```
SELECT name, state, phone FROM customers ORDER BY name
```

2. Create a second query to determine if there are any orders between the two dates. (This is the *inner query*.) The resulting SQL would look like:

```
SELECT * FROM orders WHERE order_date BETWEEN '1998-01-01' AND  
'1999-01-01'
```

3. Correlate the two queries.

For each customer returned by the first (or outer) query, we want to run the second (or inner) query to find any orders. Running one query for each row returned from another query is called *correlation*. Existence/Non-Existence queries are almost always correlated. To find just the orders for a specific customer, we need to correlate the queries on the customer number. The resulting SQL looks like:

```
SELECT c.name, c.state, c.phone FROM customers c WHERE NOT EXISTS  
(SELECT * FROM orders WHERE order_date BETWEEN '1998-01-01' AND  
'1999-01-01' AND orders.cust_num = c.cust_num) ORDER BY c.name
```

The following sections discuss how to use SQR Production Reporting Studio to create the SQL in the preceding example.

Note:

You can create the queries for the example discussed here using the sample data loaded into your database with the `loadall.sqr` program. Refer to information on `loadall.sqr` under [“Viewing the Sample Report” on page 169](#).

Creating the Outer Query

In this example, we want to get a list of customers who did not place orders between January 1, 1998 and January 1, 1999. So, we need to create a query to get a list of customers.

- To create a query to get a list of customers:
 - 1 Select **Tabular Report** on the main SQR Production Reporting Studio screen and connect to a database.
 - 2 On the **Query Builder - Tables** page, select CUSTOMERS.
 - 3 On the **Query Builder - Fields** page, select NAME, STATE, and PHONE.

Creating an Existence Test Subquery

- To create a query to determine whether customers placed any orders between two specific dates:
 - 1 On the **Query Builder - Fields** page, click **Where**; then, click **Add Clause**.
 - 2 Select **Test for non-existence via a subquery** as the type of clause and click **Next**.

The Query Builder is displayed, where you can enter the information for the subquery.

- 3 On the **Query Builder - Tables** page, select ORDERS and click **Next**.
- 4 Click **Auto-Bind** to correlate the master query that gets a list of customers with the subquery that determines if there are any orders.

Clicking Auto-Bind correlates the queries by customer number. You can also correlate the tables yourself by dragging a query field from one table to another. When you click Auto-Bind SQR Production Reporting Studio correlates the queries by matching the column name and data type.

At this point, we need to add a Where clause to specify the order dates we are interested in.

- 5 Click **Where** to access the Where Clause Builder for the subquery, then click **Add Clause**.
- 6 Select **Evaluate a Database Column or Expression** as the type of clause.
- 7 Choose **ORDER_DATE** as the database column to evaluate.
- 8 Choose **BETWEEN** as the qualifier.

Remember that we are looking for customers who did not place orders *between* two specific dates.

- 9 Enter values for the dates in the **Lower Value** and **Upper Value** fields.

Date formats vary for different databases. For example, if you are using Oracle, enter 01-Jan-98 and 01-Jan-99. If you are using SQL Server, enter 1998-01-01 and 1999-01-01.

You do not need to enter the single quotes required by SQL around the dates. SQR Production Reporting Studio automatically inserts the needed quotes.

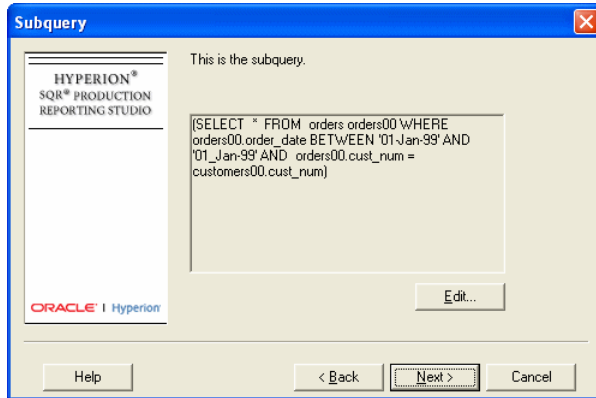
- 10 Click **Next** to view the SQL for the Where clause.

In this example, the SQL is as follows:

```
order_date BETWEEN '01-Jan-98' AND '01-Jan-99'
```

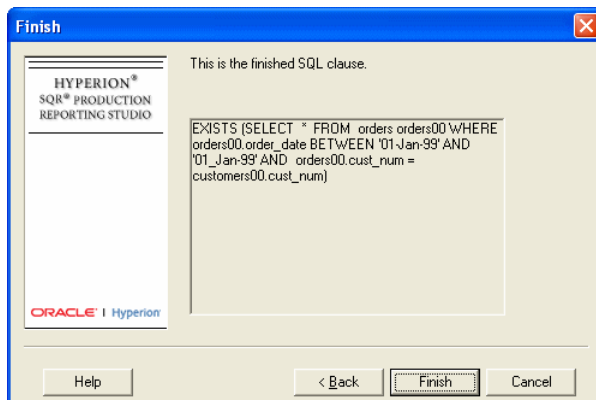
- 11 Click **Finish** to return to the Where Clause Builder for the subquery and view the Where Clause you just created.
- 12 Click **OK**, then **Next**, and then **Finish** to return to the Subquery window where you can view the SQL for the subquery.

In this example, the SQL appears as follows:



- 13 Click **Next** to view the finished SQL clause for the Non-Existence query.

In this example, the finished SQL appear as follows:



- 14 Click **Finish** to return to the main Where Clause Builder and view the Where clause to test for non-existence via a subquery.

P a r t I V

Distributing Reports

In Distributing Reports:

- [Printing, Emailing, and Exporting Reports](#)
- [Publishing Reports](#)

9

Printing, Emailing, and Exporting Reports

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Printing Reports

Before you print a report, you must set up the printer. You can then send the report directly to the printer, or you can preview the report before you print it. The following sections discuss:

- [Setting Up the Printer](#)
- [Sending Reports Directly to the Printer](#)
- [Previewing and Printing Reports](#)
- [Printing Options in the Layout, Source, and Report Windows](#)

Note:

HTML reports print inconsistently among browsers and platforms. To get the best printing support from your browser, print your report in a Portable Document Format (PDF). To generate a PDF report, select **File/Edit**, then **Preferences**, and then **Navigation Bar Tab** and select **Display Adobe Acrobat (PDF) file**. When you select this option, a PDF icon appears at the top of your HTML report. Click the PDF icon to generate the PDF report.

Setting Up the Printer

Before sending a report to a printer you must select a printer.

- ▶ If you have not yet printed in Windows, set up your printer as follows:
 - 1 **Connect the printer to your computer or a network according to the instructions in your printer manual.**
 - 2 **Install a printer driver through the Windows Control Panel. (For information, see your Windows documentation.)**
 - 3 **Select a printer in the Print Setup dialog box (**File**, then **Print Setup**).**

The Print Setup dialog box provides a list of installed printers, sets the default printer, and provides access to other printing options for the printer you select.

Sending Reports Directly to the Printer

► To send your report directly to the printer without first previewing the report:

- 1 Click  on the Standard Toolbar, or select **File**, then **Print**.

If you have not yet saved the report, you will be asked to do so. After you save the report, or if the report is already saved, the Run Report dialog box is displayed.

- 2 In the **Parameters** field, enter any desired **Production Reporting** command-line flags or parameters.

For information on flags and parameters, see Volume 2 in the *Hyperion SQR Production Reporting Developer's Guide* or the Production Reporting Language online help.

- 3 Specify whether to limit the number of pages printed and click **OK**.

Limiting the number of pages increases performance; however, keep in mind the following limitations:

- If you defined a specific sort order (see [“Sorting Data” on page 41](#)), SQR Production Reporting Studio does not sort the data when you limit the number of pages printed.
 - Limiting the number of pages prevents you from saving your report in an XML file. (See [“Displaying Icons on the Navigation Bar” on page 95](#) for information on saving a report in an XML file).
 - If you placed a calculated field in the Group Header section of the layout, the calculated field may not print if you limit the number of pages. (See [“Adding Calculated Fields” on page 61](#) for information creating calculated fields.)
- 4 If you defined any report parameters in the report query, enter the appropriate values before you print the report.

Previewing and Printing Reports

► To preview your report before you print it:

- 1 Click the **Report** tab, or select one of the following menu options:
 - **Report**, then **HTML Preview** (for HTML reports using an external browser)
 - **File**, then **Print Preview** (for SPF reports)

- 2 From the Report window, click  or select **File**, then **Print**.

Note:

For additional information on previewing reports, see [“Previewing Reports” on page 82](#).

Printing Options in the Layout, Source, and Report Windows


Printing options in SQR Production Reporting Studio vary depending on whether you are printing from the Layout, Source, or Report window.

Table 22 Printing Options in the Layout, Source, and Report Windows

Report View	Print Options	Results
Layout	Print	Sends the report directly to the printer
	Print Preview	Displays the report in the Report window
Source	Print	Prints the Production Reporting code
	Print Report	Sends the report to the printer
	Print Preview	Displays the report in the Report window
Report (SPF)	Print	Sends the report to the printer
Report (HTML)	N/A	N/A

Emailing Reports

► To email a report:

- Click  on the Standard Toolbar.
- Select **File**, then **Send**.

SQR Production Reporting Studio launches your email and sends the current, open file as an attached file to the user you specify.

One common use of email is to send a view-only report to members of your organization. You can view and print the report from any Windows PC that has Production Reporting Viewer installed. To view the report, other members of your organization do not need to install SQR Production Reporting Studio. All they need is the standalone Production Reporting Viewer. The reports that you can view in the Production Reporting Viewer window or with the standalone Production Reporting Viewer are called SPF reports.



Note:

You must configure your email system to support Simple MAPI (a messaging application programming interface). If you have trouble sending a report, it may be that your email is not configured properly. Consult your email administrator.

Exporting Reports

With an Export report, you export data for use by another application. You can export data to a file, or you can export data to a data target.

➤ To create an Export report:

- 1 Click  on the Standard Toolbar, or select **File**, then **New**.
- 2 In the **Create New Report** dialog box, select **New Export Report**.
- 3 Log onto the database if prompted.
- 4 Define a query using the pages in the Query Builder.
The database fields you define in the query are the database fields to export.
- 5 Enter information about how to format the report in the **Export Report Layout** window.
- 6 Press **[F5]** or click  to process the report.
- 7 Preview the report in the **Report** window and make any modifications in the **Layout** window if desired.
- 8 Use the data in the file or the data source in another application.

Exporting to a File

To export data to a file, select **Export to File** in the Export Report Layout window, and enter the information in [Table 23](#).

Table 23 Export Information

Delimiter	Description
Numeric Column Delimiter	Delimiter to use for numerical data. Click the arrow next to the field to select an option.
Text Column Delimiter	Delimiter to use for text. Click the arrow next to the field to select an option.
Separator	Character used to separate the data. Click the arrow next to the field to select an option.
Fixed Length Columns	Indicates whether the columns will be a fixed length.
One Column Per Line	Indicates whether there will be one column per line.

Note:

SQR Production Reporting Studio does not analyze the output from the database to determine if a delimiter is also used as a character of data, so you should choose your delimiters carefully.

Note:

You can set default information that will appear in the Export to File section of the Export Report Layout window by selecting **File/Edit**, then **Preferences** and clicking on the **Export** tab.

Exporting to a Data Target

When you export to a data target, you use Production Reporting DDO (Direct Data Objects) to import data from one data source and export it to another. DDO can access both relational and

three dimensional data sources. For example, you could use DDO to import your data from Oracle, and then export the data to SAP. Accordingly, the data source that you build query against must be a DDO data source.

Note:

Production Reporting DDO defines an open interface for data access, allowing applications to extract data from vastly different data sources. It is an open system that facilitates the task of providing secure access to a wide range of data sources.

You create a DDO data source by clicking **New** in the Data Connection dialog box, choosing **DDO** in the Data Connection Wizard, and entering information about the DDO data source in the remaining wizard pages.

For an example of creating a DDO data source, see [“Creating an SAP R/3 Data Source Connection” on page 170](#). For more information on DDO, see Volume 3 of the *Hyperion SQR Production Reporting Developer's Guide*.

➤ To export to a data target:

- 1 Click **Export to Data Target** in the Export Report Layout window.

If you did not use a DDO data source when building your query, the Export to Data Target option is disabled.

- 2 Select a data target by clicking the arrow to the right of the **Data Target** field and selecting an option.

After you select a valid data target, the available schema for the target appears under **Available Output Fields**.

- 3 Perform one of the following actions:

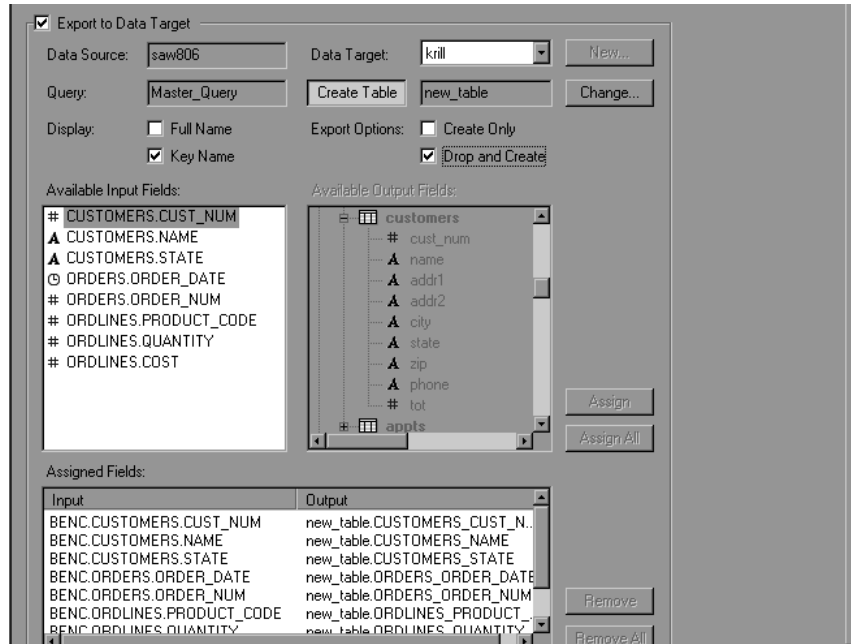
- Use the report to create a new table.
- Add rows to a table that is already defined.

Review the following sections for information on each of the above options.

Creating a New Table in the Data Target

[Figure 8](#) shows a sample Export Report Layout window for exporting to a data target and creating a new table in the data target.

Figure 8 Export to a Data Target and Create a New Table



➤ To create a new table in the selected data target:

- 1 Click **Create Table**, enter a table name, and click **OK**.

The assignment pairs for the table appear under **Assigned Fields**. Assignment pairs are created when each of the **Available Input Fields** are used as a template to create new fields. One row in the **Assigned Fields** list box shows where each selected field will be placed in the new table.

- 2 Perform one of the following actions:

- Create a new table by selecting the **Create Only** export option.
- Drop and create a new table by selecting the **Drop and Create** export option.

Select **Drop and Create** if there is already a table with the name you entered in Step 1. When you select **Drop and Create**, SQR Production Reporting Studio attempts to drop the table with the specified name before attempting to create a new one.

- 3 Review the assigned fields.

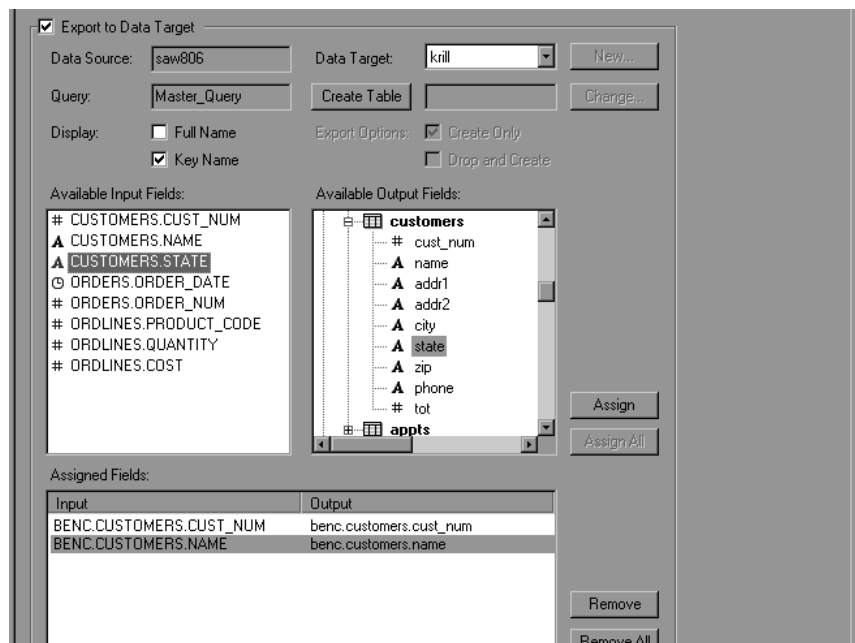
The table is created in the data target based on the query that has been built. To make changes to the assigned fields, you must edit the actual query. To edit the query, click **Edit Query** or select **Report**, then **Edit Query**.

- 4 Press **[F5]** or click  **Process** to process the report.

Adding Rows to an Existing Table in the Data Target

Figure 9 shows a sample Layout window for exporting to a data target and adding rows to the existing table in the data target.

Figure 9 Export to a Data Target and Add Rows to an Existing Table



- To individually assign fields to a table that already exists:
 - 1 Select a field from the **Available Input Fields** to assign to an output field.
 - 2 Select the desired output field in the **Available Output Fields** section of the Layout window.

After you select an Input Field and an Output Field, Assign is enabled.

- 3 Click **Assign** to add the Input Field and the Output Field to the Assigned Fields section.

To assign more than one Input Field and Output Field:

- a. Select the desired Input Field; then, select a table under Available Output Fields.
- b. Click **Assign All**.

- 4 Review the assigned fields.

To remove an assigned field, click on the field and click **Remove**. To remove all of the assigned fields, click **Remove All**.

- 5 Press **[F5]** or click  **Process** to process the report.

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Note:

This chapter discusses publishing reports when using SQR Production Reporting Studio as a stand-alone product. For information on importing Production Reporting reports into Oracle Enterprise Performance Management Workspace, Fusion Edition, see the *Hyperion Workspace User's Guide*.

Putting Production Reporting Reports into Production

SQR Production Reporting Studio allows you to graphically generate reports that you can run on a regular basis (daily, weekly, and monthly).

When you create a report in the Layout window and save the resulting SRM layout file, SQR Production Reporting Studio generates an associated SQR file. The SQR file is located in the same directory as the SRM file, and the files have the same name (for example, *reportname.srm* and *reportname.sqr*).

Once you successfully create a Production Reporting report, you can move the report into production and run it from a centralized area.

Note:

If you have an SQR file that was not generated from an SRM file, remove all hard-coded file paths. If the file contains an Interactive Reporting Analysis chart or cross-tab, reload the SRM file to publish.

- To move an Production Reporting report into production and run it from a centralized area:
 - 1 Transfer the Production Reporting file to the central area where you will run the report.
 - 2 Copy all of the #INCLUDE files referenced by the Production Reporting file.

For example, if you modify the Production Reporting code to include a standard header file *#include xxx*, you must copy the *xxx* file along with the Production Reporting file.

3 Copy any embedded images.

When SQR Production Reporting Studio embeds an image, the Production Reporting code contains the fully qualified path to the image. Since the path will likely change when the file is moved to the centralized area, you should manually modify the Production Reporting code. Do a text search on the phrase `IMAGE=` to locate the fully qualified path and modify it as necessary.

4 Set up a batch file or command script to run the report with the proper command line options.

The command script will contain at least a single line of script similar to the following:

```
Sqr reportname.sqr -keep -nolis username/password@server -printer:EH
```

See Volume 2 in the *Hyperion SQR Production Reporting Developer's Guide* for more details on the Production Reporting command line syntax.

Note:

For environments where HTML is the primary output, `-printer:EH` is the command line option that is critical to correctly reproduce the HTML output generated through SQR Production Reporting Studio.

Uploading HTML Report Output to Your Web Server

When you generate HTML reports using SQR Production Reporting Studio, you can distribute the report output to any Web server. The steps for uploading HTML report output to your Web server differ depending on whether your Web server supports UnZIP operations.

Uploading for Web Servers that Support UnZIP Operations

- For the simplest method of distributing the report:
 - 1 Select **File/Edit**, then **Preferences**, and then **HTML Tab** and select **Compress HTML and related GIF files into a ZIP archive**.
 - 2 Copy the resulting *.ZIP file to the appropriate Web server folder through a network connection or FTP.An UnZIP operation extracts the report output files.

Uploading for Web Servers that do not Support Unzip Operations

If your Web server does not support UnZIP operations (such as many non-Windows systems), then you must copy the report output files manually.

- To ensure that all the necessary files are transferred:
 - 1 From your Windows desktop, use the Start menu to open a DOS window.

- 2 At the DOS prompt, change the directory to the directory where your report's SRM file is located.

For example, if your SRM file is in the \Studio\samples subdirectory under the Hyperion \products\biplus\bin\SQR directory, you would change directories by entering the following command at the DOS prompt:

```
cd \Hyperion\products\biplus\bin\SQR\Studio\samples
```

- 3 After you change directories, review the files to transfer by entering the following command:

```
dir *reportname*.*
```

where *reportname* is the name of the SRM or SQR file used to generate the published HTML results.

- 4 Copy any report images.
- 5 Transfer the HTML output files to your Web server using a utility such as FTP.
- 6 Depending on the options selected when you generated your HTML report, you need to transfer some basic GIFs. Review the sections below to determine which GIFs you need.
 - Copy *all* of the following GIFs to your Web server.

black.gif

first.gif

go.gif

go_int.gif

last.gif

next.gif

prev.gif

line.gif

- If you created a table of contents to appear at the top of your HTML report (File/Edit, then Preferences, and then TOC Tab), copy the following GIF files to your Web server:

toc.gif

ball_d.gif

ball_u.gif

clear.gif

minus_d.gif

minus_tp.gif

minus_u.gif

plus_d.gif

plus_tp.gif

plus_u.gif

stat_d.gif

stat_tp.gif

stat_u.gif

- If you selected **Display XML report output** in your Navigation Bar preferences (**File/Edit**, then **Preferences**, and then **Navigation Bar Tab**), copy the following GIF to your Web server:

xml.gif

- If you selected **Export report data in CSV format** in your Navigation Bar preferences (**File/Edit**, then **Preferences**, and then **Navigation Bar Tab**), copy the following GIF to your Web server:

csv.gif

- 7** If you included **Interactive Reporting Analysis** capabilities for a chart or cross-tab in your HTML report, copy the following directories to your Web server:

\lib

\images

\doc

For example, if you transfer your generated HTML report to a *Reports* folder on your Web site, create the following directories to copy over the supporting thin-client files:

Studio\lib

Studio\images

Studio\doc

Note:

You can create a centralized area on your Web server that stores a single copy of the necessary thin-client applet files. To do this, change the HTML CODEBASE=applet tag to reference this area. This is recommended if you are highly proficient in HTML and Java Applets.

P a r t V

Using the Production Reporting Language to Customize Reports

In Using the Production Reporting Language to Customize Reports:

- [Working with the Production Reporting Language](#)

11

Working with the Production Reporting Language

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Overview

The SQR Production Reporting Studio Layout window helps you design reports and retrieve database information; however, you may want to enhance or further customize these reports in a way that goes beyond the scope of the layout. You can make these types of changes or enhancements with the Production Reporting programming language.

Using the Production Reporting programming language, you can write reports that are more complex than reports generated from layout formats. For example, you can write a Production Reporting program that updates the database, performs procedural logic prior to printing, and defines specific column wrapping or special formatting,. You can also add #INCLUDE files to keep commonly-used routines in a single file and create lookup tables to improve query processing. You may wish to write your basic report using the layout format, and then make changes directly in the Production Reporting code.

Note:

For detailed information on developing reports with the Production Reporting language, see Volume 1 in the *Hyperion SQR Production Reporting Developer's Guide*. For information on Production Reporting syntax, see Volume 2 in the *Hyperion SQR Production Reporting Developer's Guide*.

Methods for Writing Production Reporting Programs

The following sections discuss how to write or edit Production Reporting programs:

- [Editing Code for Objects in the Layout](#)
- [Editing Code in the Source Window](#)
- [Editing Code in the SQR Production Reporting Studio Editor](#)
- [Writing Code in Other Applications](#)

Editing Code for Objects in the Layout

You can edit Production Reporting code for any object directly in the Layout window. Changes made to the Production Reporting code for an object in the layout are maintained in the Source window.

► To edit Production Reporting code for an object in the layout:

- 1 Double-click the object and select the **SQR** tab.
- 2 Make the desired edits and click **OK**.

► To navigate from an object in the Layout window to the corresponding section in the Source window, right-click the object and select **Show Source**.

For example, right-clicking `product_category` and selecting **Show Source** as shown in [Figure 10](#) takes you directly to the `product_category` section in the Source window as shown in [Figure 11](#).

Figure 10 Product Category Object in the Layout Window

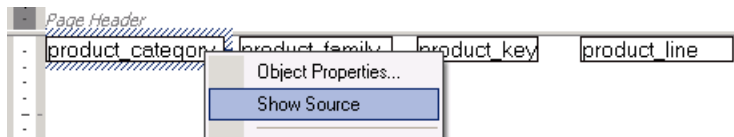


Figure 11 Corresponding Product Category Section in the Source Window

```
Begin-Procedure Master_Query
  Do CreateXML_ManifestFile
Begin-Select
  Alter-Printer Font=988 Point-Size=10 ! [SQR.INI] 988=MS Shell Dlg,pro
  product_category &Master_Query_product_category (10,1,14)
  product_family &Master_Query_product_family (10,91,12)
  product_key &Master_Query_product_key (10,175) Edit 9999999999na
  product_line &Master_Query_product_line (10,251,12)
```

Editing Code in the Source Window

When you edit an Production Reporting program in the Source window, you can move back and forth between the Layout window and the source code, and SQR Production Reporting Studio maintains the edits you make. Source code generated by SQR Production Reporting Studio appears on a gray background, and user code appears on a white background.

There are two editing modes in the Source window.

- ▶ To select an editing mode, select **File/Edit**, then **Preferences**, and then **Editor** tab and choose an option under **Editing Mode**.

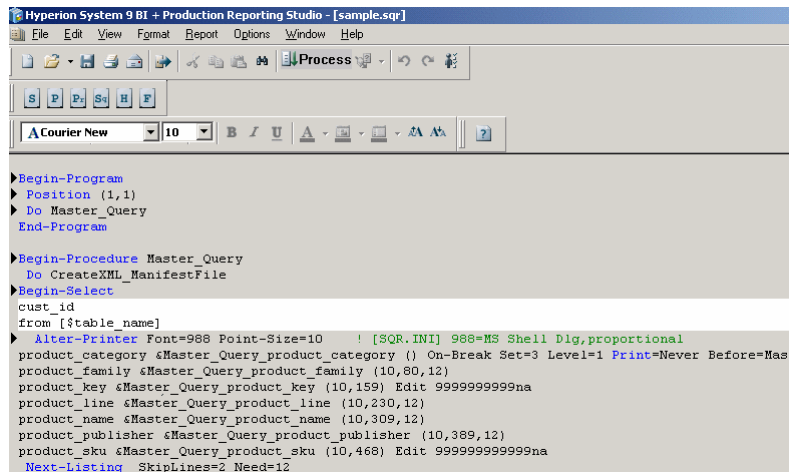
Standard Editing Mode

Standard editing mode restricts the editable code. In standard mode, you can only insert code after lines that appear next to a symbol. (The default symbol is an arrow.)

- ▶ To insert code in standard mode, click the symbol next to a line of code.

For example, in [Figure 12](#), you can only insert code after the lines next to which an arrow appears.

Figure 12 Source Window in Standard Editing Mode



Advanced Editing Mode

Advanced editing mode allows you to insert code after every line. When you edit in advanced editing mode, you can choose whether to hide or display symbols next to the code.

- To insert code in advanced mode, click next to the desired line.

Figure 13 Advanced Editing Mode with Symbols Hidden

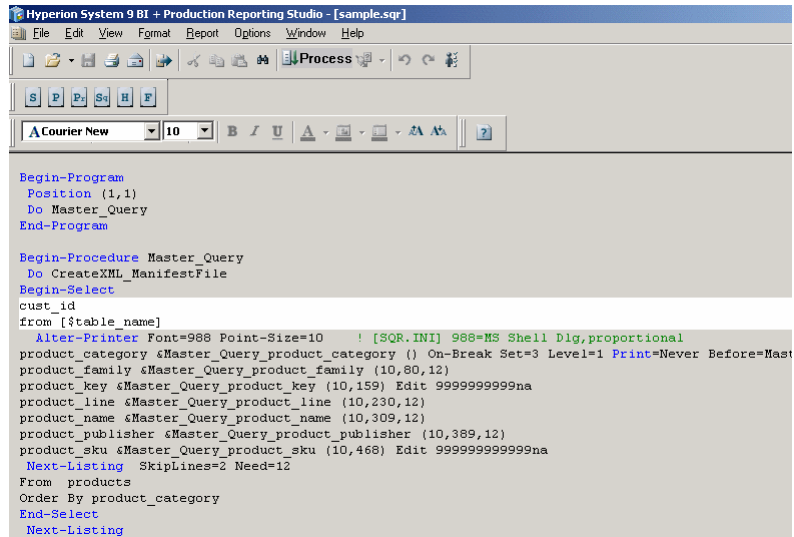
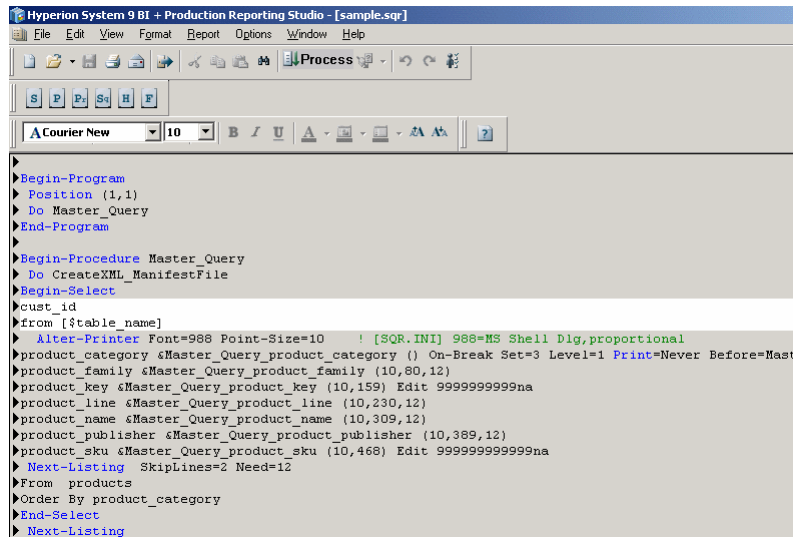


Figure 14 Advanced Editing Mode with Symbols Displayed



Selecting Symbols to Highlight Editable Lines

- To select the line symbol and symbol color for editable lines, select **File/Edit**, then **Preferences**, and then **Editor** tab and choose an option under **Symbol**.

Editing Code in the SQR Production Reporting Studio Editor

- To edit code in the SQR Production Reporting Studio Editor:
 - 1 Select File, then New, and then Open the SQR Production Reporting Studio Editor, or File, then New, and then Open an Existing Report.**

While in the SQR Production Reporting Studio Editor, you can edit any section of the code; however, you cannot access the Layout window to modify your report layout.

To move between the report layout and the source code and synchronize the edits, generate the Production Reporting program directly from the layout, and edit the code in the Source window. (See “[Editing Code in the Source Window](#)” on page 155.)

- 2 Write or edit your Production Reporting program in the Editor window.**
- 3 Select File, then Save to save the program.**

Note:

To display a default template when you open the Editor, select **File/Edit**, then **Preferences**, then **Editor** tab and select **Default Code Template in Editor**. The default template includes sections for `BEGIN-SETUP/END-SETUP`, `DECLARE-LAYOUT/END-DECLARE`, `BEGIN-PROGRAM/END-PROGRAM`, `BEGIN-PROCEDURE/END-PROCEDURE`, `BEGIN-EXECUTE/END-EXECUTE`, `BEGIN-SELECT/END-SELECT`, and `BEGIN-HEADING/END-HEADING`.

Writing Code in Other Applications

- To write Production Reporting code with another application:
 - 1 Create the Production Reporting program in another application such as Notepad or any text editor.**
 - 2 Save the file as text with an SQR extension.**
 - 3 Open the file in SQR Production Reporting Studio and make any desired edits.**
 - 4 Select File, then Save to save the file.**

Note:

Even if you wrote your Production Reporting program in another application, you may still wish to open it in SQR Production Reporting Studio to take advantage of the online help that the Production Reporting Editor provides.

Using the SQR Production Reporting Studio Editor

Use the SQR Production Reporting Studio Editor to write or edit Production Reporting programs. The Editor color-codes basic program elements. As you write programs, you can request information on commands, functions, and reserved variables. You can also cut, copy, paste, search, insert tabs, and select the font that the Editor uses.

Review the following sections for information on:

- [Defining Editor Preferences](#)
- [Handling Text](#)
- [Defining Colors](#)
- [Inserting Syntax](#)
- [Getting Help](#)

Defining Editor Preferences

The Editor uses default settings for editing mode, syntax color, fonts, tabs, and symbols. To view or change these preferences, select **File**, then **Preferences**, and then **Editor** tab, before opening a report, or select **Edit**, then **Preferences**, and then **Editor** tab while editing a report.

Table 24 Editor Preferences

Preference	Description
Editing Mode	Standard restricts the editable sections in the code. Advanced allows you to add code to any section. Show Symbol displays symbols next to the code in Advanced editing mode. You can select a line symbol and symbol color under Symbol .
Syntax Coloring	Colors for syntax elements.
Font	Default font for Production Reporting program display. You can only use monospaced fonts.
Tabs	Tab settings in Production Reporting programs. For example, 4 sets the tab stops to four characters. You can choose to insert spaces instead of tabs.
Symbol	Symbol used to highlight editable lines of code. You can select a line symbol and a symbol color.
Default Code Template in Editor	Displays a basic code outline when you initially open the SQR Production Reporting Studio Editor.

Note:

SQR Production Reporting Studio applies any changes to the preferences when you close the Production Reporting file and open it again. To change the preferences in the current Production Reporting file, use the Format menu options.

Handling Text

Table 25 Text-Handling Commands in the SQR Production Reporting Studio Editor

Command Type	Description
Editing Commands	Undo or reapply the last edit; cut, copy, paste, or delete text; change text to uppercase or lowercase; select all the text or a specific line; locate text, replace text, or find the next instance of the text; go to a specific program line; insert, delete, or append lines; and comment/uncomment selected lines.
Formatting Commands	Change the font type, set tabs, and define whether to apply syntax coloring to program elements.
Other Options	Define foreground and background colors and whether to word wrap text.

Defining Colors

Table 26 Default Colors in the SQR Production Reporting Studio Editor

Color	Purpose	Comments
Blue	BEGIN/END blocks of code DECLARE/CONTROL blocks of code	For example: BEGIN-SETUP/END-SETUP and DECLARE-LAYOUT/DECLARE-CHART
Red	Production Reporting reserved variables and compiler directives	Reserved variables begin with # or \$ and include such variables as #end-file and \$sqr-report. Compiler directives begin with # and include such commands as #DEFINE and #IF.
Green	Comments	In Production Reporting, comments begin with an exclamation point.

Program elements initially appear in black. For example, suppose you enter `BEGIN-PROGRAM`. As you type, the text appears in black until you complete it. As soon as you type the final “m” in `BEGIN-PROGRAM`, it changes to blue, which indicates a valid Production Reporting block command.

Note:






Colors do not affect Production Reporting programs. They are only an aid to make programs more readable.

Inserting Syntax

Use the options on the SQR Syntax toolbar to add common Production Reporting syntax.

- To display the toolbar, select **View**, then **Toolbars**, and then **SQR Syntax**.

Table 27 SQR Syntax Toolbar

Icon	Description
	BEGIN-SETUP END-SETUP
	BEGIN-PROGRAM END-PROGRAM
	BEGIN-PROCEDURE END-PROCEDURE
	BEGIN-SQL END-SQL
	BEGIN-HEADING END-HEADING

Getting Help

To access context-sensitive help while in the Production Reporting Editor, position the cursor and press [F1] on any of the following:

- **Commands**—You can get help on any Production Reporting command. To see descriptions of the arguments (parameters) of Production Reporting commands, click the command itself, not the argument. The command description describes all the arguments. For example, to get help on the `LEGEND` argument of `DECLARE-CHART`, press [F1] on `DECLARE-CHART`. The information on `LEGEND` will be included.
- **Compiler Directives**—Begin with `#` and include such commands as `#DEFINE` and `#IF`.
- **Reserved Variables**—Begin with `#` or `$` and include such variables as `#current-line` and `$sqr-report`. You cannot get help on user-defined variables. Only help on Production Reporting reserved variables is available.
- **Functions**—Functions can be numeric (such as `exp` or `cos`), file-related (such as `delete` or `rename`), or miscellaneous (such as `getenv` or `ltrim`).

If you cannot access a help description where you expect one, check that you correctly spelled the command, compiler directive, reserved variable, or function.

Positioning Parameters in Generated Production Reporting Programs

If you use the Source window to edit your Production Reporting code based on the Production Reporting layout, the position parameters in the generated Production Reporting program

depend on where you placed objects in the layout and whether the layout is in *Character Mode* or *Graphic Mode*.

- In *Character Mode*, the position parameters are in lines and characters.
- In *Graphic Mode*, or in Production Reporting programs for Windows, HP, or PostScript printers, the position parameters are in points. Using points achieves a very fine placement of objects and accommodates lines of different widths.

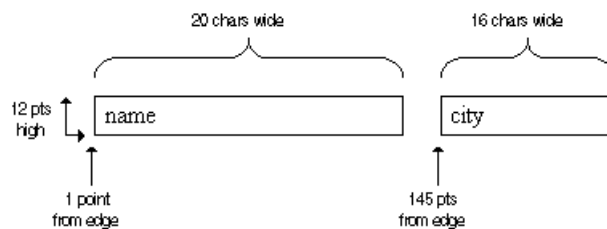
The position parameters in *Graphic Mode* indicate the **vertical position** in points, the **horizontal position** in points, and the **object width** in characters.

Note that 1 point = 1/72 inch. Therefore, if two objects on the page are one inch apart, this corresponds to 72 points.

Table 28 Inches/Points Conversion Table

Inches > Points	Centimeters > Points
1/8 in = 9 pts	1/2 cm = 14 pts
1/4 in = 18 pts	3/4 cm = 21 pts
3/8 in = 27 pts	1 cm = 28 pts
1/2 in = 36 pts	1 1/2 cm = 43 pts
1 in = 72 pts	1 3/4 cm = 50 pts
2 in = 144 pts	2 cm = 57 pts

To illustrate how Production Reporting positions objects using points, consider the following layout and the corresponding Production Reporting program. This layout contains two columns: *name* and *city*. The *name* column is 20 characters wide and the *city* column is 16 characters wide. They are positioned in the layout as follows:



The part of the Production Reporting program that corresponds to this layout appears below:

```

Begin-Select
    Alter-Printer Font=5 Point-Size=12
    name      (12,1,20)
    city      (12,145,16)

```

In this program, FONT=5 indicates Times Roman. POINT-SIZE=12 indicates 12-point font. Both the *name* and *city* columns have a vertical position of 12 because they are on the same line. The “12” represents the vertical position from the base of the font.

The second position parameter for *name* is 1. This indicates that the column is 1 point from the left margin. The second position parameter for *city* is 145. This indicates that it is 145 points from the left margin and 144 points (2 inches) from the left edge of the name column.

The third position parameter for *name* is 20, indicating that it is 20 characters wide. The third position parameter for *city* is 16, indicating that it is 16 characters wide.

Printing Production Reporting Reports

► To print a Production Reporting report:

- 1 Display the report in the Layout window and click  on the Standard Toolbar, or select **File**, then **Print**.

You can also print a Production Reporting report from the Source window by clicking  or by choosing **File**, then **Print Report**.

- 2 **Optional.** In the **Run Report** dialog box, enter command-line flags, parameters, and ASK variables in the **Parameters** field.

For a complete list of Production Reporting command-line flags, see Volume 1 in the *Hyperion SQR Production Reporting Developer's Guide* or the Production Reporting online help.

If your program includes the `DISPLAY` or `SHOW` commands, use the `-CB` flag.

- 3 **Specify whether to limit the number of pages printed and click **OK**.**

When you create a report, you may want to start by printing just a few pages. Then, when you are satisfied with the report design, you can print the entire report.

When you print an Production Reporting report for the first time, the Save As dialog box appears so that you can name the file. Give the file an SQR extension. If you edit this report and then run it, SQR Production Reporting Studio does an implicit save. To save your edited report with another name, select **File**, then **Save As** before printing the report.

Note:

To print the Production Reporting code used to create your report, go to the Source window and select **File**, then **Print**.

Printing Production Reporting Reports on Other Machines

If reportst will run additional machines, make sure to meet these requirements:

- [Font Requirements](#)
- [Image Requirements](#)
- [File Name Requirements](#)

Font Requirements

For reports printed on PostScript or HP LaserJet printers, choose a font that is available on these printers. The Courier New and Times New Roman fonts are available on PostScript or HP LaserJet printers. Other fonts, such as Arial, Courier, Times, or Helvetica may also be available on many printers.

Image Requirements

Bitmaps (BMP files) are only supported in Windows. For PostScript or HP LaserJet you must convert your BMP image to EPS or HPGL formats. Use any utility that can do the conversion (for example, HiJack).

After converting BMP images, modify `PRINT-IMAGE` to reflect the `TYPE` and `SOURCE`. For example:

```
PRINT-IMAGE(1,121)
  TYPE=eps-file
  SOURCE='C:\ADMIN\MY_IMAGE.EPS'
  IMAGE-SIZE=(24,24)
```

File Name Requirements

Production Reporting programs may contain file names in the `#INCLUDE` and `PRINT-IMAGE` commands. If you run Production Reporting programs from other machines, you may need to change the path and/or file name.

For example, assume a program contains these commands:

```
#INCLUDE 'C:\ADMIN\WRAP.INC'
PRINT-IMAGE(1,121)
  TYPE=bmp-file
  SOURCE='C:\ADMIN\MY_IMAGE.BMP'
  IMAGE-SIZE=(24,24)
```

If you move the program to another machine and convert the image to EPS, the commands might be:

```
#INCLUDE '/usr/admin/wrap.inc'
PRINT-IMAGE(1,121)
  TYPE=eps-file
  SOURCE='/usr/admin/my_image.eps'
  IMAGE-SIZE=(24,24)
```

Reading the Error File

If your Production Reporting program contains an error, SQR Production Reporting Studio generates an error file when you preview or print the Production Reporting program. The error file has the program name with an `ERR` extension. Double-click an error to correct it.

Most errors come from Production Reporting commands that are mistyped or placed in the wrong part of the program. Errors generated from the layout (SRM files) are unusual. However,

if you create a query and someone deletes or changes the tables referenced in the query before running the report, you will get an error.

Displaying the Command Line for Production Reporting Report Output

While in SQR Production Reporting Studio, you can view the latest command line used to generate the report output. The command line includes all the keywords and switches needed to reproduce the same report output in a report created outside of SQR Production Reporting Studio.

- To view the command line, select **File/Edit**, then **Preferences**, and then **General** tab.

If report output has not yet been generated *No Command Line at this time* displays instead of the command line.

Note:

You can edit the command line if desired.

Adding #INCLUDE Files

#INCLUDE files write external source files into Production Reporting report specifications. Use #INCLUDE files to keep commonly-used routines in a single file and reference or "include" that file in programs that use the routine.

For example, if you have a set of #DEFINE commands for different printers to control initialization, font changes, and page size declarations, you could reference the appropriate #INCLUDE file depending on the printer used.

- To add an #INCLUDE file to an SQR Production Reporting Studio report:

- 1 **Select Report, then Includes from the menu at the top of the Layout window.**

The Include Files dialog box is displayed.

The Include Files dialog box displays all the #INCLUDE files in the report. The order in which the #INCLUDE files appear is the order in which Production Reporting executes the files. To change the order, select an #INCLUDE file and click **Move Up** or **Move Down**.

- 2 **Click Add to add an #INCLUDE file.**

You can also click **Edit** to edit an #INCLUDE file, or **Remove** to remove an #INCLUDE file.

The Include File dialog box is displayed.

- 3 **In the Path field, enter the path to the #INCLUDE file and the name of the #INCLUDE file.**

To search for a specific #INCLUDE file, click **Browse**.

- 4 In the **Placement** listbox, select an option to define where to place the #INCLUDE file in your Production Reporting program.

Placement options include:

- Pre-Setup
- Post-Setup
- Pre-Header
- Pre-Footer
- End of File

Creating Lookup Tables

Lookup tables improve query execution by performing an often-used pattern of query processing with a single access to the database.

Lookup patterns are characterized by a translation from one form of data (typically an index number) into another form (typically a text string, which is more readable.) For example, a “customers” table often has the title (or salutation) encoded as a numeric. The numeric is a key field to a “title” table, which contains a full description of the title. In this case, you could load a lookup table with the contents of the “title” table. The master query producing the list of customers would then access the lookup table to perform the translation to a readable title for the customer.

Although you could perform this type of operation with a join, this is often not practical, since the master query may already contain many joins, and to perform this additional one would consume excessive resources.

The following sections discuss how to create and use lookup tables in SQR Production Reporting Studio. As we discuss creating and using lookup tables, we will load a lookup table with “customer number” as the key field. We will then create a variable to read the customer number and return the customer name.

Creating Lookup Tables in SQR Production Reporting Studio

- To create a lookup table using SQR Production Reporting Studio:

- 1 Display your report in the Layout window and select **Report**, then **Lookup Tables**.

The Lookup Tables dialog box is displayed with any previously-defined lookup tables.

- 2 Click **Add**.

A “lookup wizard” appears with pages where you can enter information about the lookup table.

- 3 In the **General page**, enter information about the lookup table.

Information that you can enter includes:


- **Lookup name**—The name of the lookup table.

- **Sort options**—Defines whether the sort will be case sensitive.
 - **Suppress messages during creation**—Suppresses the message *Loading lookup array...* when the command executes. When you select this option, SQR Production Reporting Studio also suppresses the warning message stating the number of duplicate keys found.
 - **Set initial size**—The initial size of the lookup table in rows. This is optional and if not specified, SQR Production Reporting Studio uses a value of 100.
 - **Set growth size**—The amount to increase the array when it becomes full. This is optional and if not specified, SQR Production Reporting Studio uses 25% of the value defined in the *Set initial size* field.
- 4 Choose the field to use as the key for the Lookup table.**
- To display the values in the database for a field, select the desired field and click **Show Values**.
- 5 Create a return value by dragging a field into the Return Value edit box .**
- To display the values in the database for a field, select the desired field and click **Show Values**.
- If you need several fields returned for each lookup, you can combine more than one column into an expression. You do this by concatenating the columns. The following is an example for Oracle. See your database manual for the correct syntax for your database.
- ```
'city||''-''||state||''-''||zip'
```
- 6 Click **Finish** to return to the Lookup Tables dialog box.**
- The lookup table you just created is displayed.

## Creating Variables that Use Lookup Tables

After you create a lookup table, the next step is to create a variable that uses the lookup table.

► To create a lookup variable:

- 1** Click  on the Object Toolbar, or select **Insert**, then **Field**.
- 2** In the **Report Fields** dialog box, select the **Variables** tab; then, click **New** and choose **Lookup**.  
If you have not yet created any lookup tables, SQR Production Reporting Studio disables the **Lookup** option.
- 3** In the **Lookup Builder**, enter information about the lookup table.
- 4** Click **OK** to display the variable in the **Report Fields** dialog box.
- 5** Click **Insert** to insert the variable into the report layout.

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# Accessing Additional Data Sources

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In Accessing Additional Data Sources:

- [Creating SAP R/3 Reports](#)
- [Creating SAP BW Reports](#)
- [Creating Essbase Reports](#)





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## About Creating SAP R/3 Reports

The interactive, query-building capabilities of SQR Production Reporting Studio access R/3 Business Objects through a graphical user interface. You use the embedded BAPI browser to navigate through the meta-layer defined by SAP R/3 and to select report data.

Production Reporting's Direct Data Objects (DDOs) provide direct reporting capability to the SAP R/3 system and turn SAP R/3 non-relational data into object-oriented structures that SQR Production Reporting Studio processes. (See, Chapter 7, "Using Production Reporting DDO to Access SAP R/3 Data" in Volume 3 of the *Hyperion SQR Production Reporting Developer's Guide*.)

Using SQR Production Reporting Studio to create SAP R/3 reports involves creating an SAP R/3 data source connection, choosing a report type, connecting to the database, and selecting data.

## Viewing the Sample Report

This chapter uses an example report (Customer Activity) to guide you through the process of creating an SAP R/3 report. Customer Activity is an internal report that displays information about the product sales for each customer of a fictitious company.

Figure 15 Sample Customer Activity Report

| Customer Activity Report    |                 |                                 | 05/06/1999 | 1 |
|-----------------------------|-----------------|---------------------------------|------------|---|
| Customer: Lampen-Markt GmbH |                 |                                 |            |   |
| Sales Order:                | Purchase Order: | Order Date:                     | Currency:  |   |
| 0000005467                  | D-G-19980617-1  | 06/17/1998                      | DEM        |   |
| Item Number                 | Net Price       | Description                     |            |   |
| 10                          | 769.00          | Ghuelampe 80 Watt klar 220/235V |            |   |
| 20                          | 757.00          | Ghuelampe 60 Watt rot 220/235V  |            |   |
| 30                          | 782.00          | Ghuelampe 80 Watt rot 220/235V  |            |   |
| 40                          | 755.00          | Ghuelampe 40 Watt rot 220/235V  |            |   |
| Order Total:                | 3,063.00        |                                 |            |   |
| Sales Order:                | Purchase Order: | Order Date:                     | Currency:  |   |
| 0000005445                  | D-G-19980518-2  | 05/18/1998                      | DEM        |   |
| Item Number                 | Net Price       | Description                     |            |   |
| 20                          | 755.00          | Ghuelampe 40 Watt rot 220/235V  |            |   |
| 10                          | 782.00          | Ghuelampe 80 Watt rot 220/235V  |            |   |
| Order Total:                | 1,537.00        |                                 |            |   |
| Sales Order:                | Purchase Order: | Order Date:                     | Currency:  |   |
| 0000005384                  | D-G-19980415-2  | 04/15/1998                      | DEM        |   |
| Item Number                 | Net Price       | Description                     |            |   |
| 10                          | 782.00          | Ghuelampe 40 Watt klar 220/235V |            |   |
| 20                          | 757.00          | Ghuelampe 60 Watt rot 220/235V  |            |   |
| Order Total:                | 1,539.00        |                                 |            |   |
| Sales Order:                | Purchase Order: | Order Date:                     | Currency:  |   |
| 0000005347                  | D-G-19980127-4  | 01/27/1998                      | DEM        |   |
| Item Number                 | Net Price       | Description                     |            |   |
| 20                          | 744.00          | Ghuelampe 60 Watt matt 220/235V |            |   |
| 10                          | 779.00          | Ghuelampe 80 Watt gelb 220/235V |            |   |
| Order Total:                | 1,523.00        |                                 |            |   |
| Sales Order:                | Purchase Order: | Order Date:                     | Currency:  |   |
| 0000005346                  | D-G-19980127-3  | 01/27/1998                      | DEM        |   |
| Item Number                 | Net Price       | Description                     |            |   |
| 10                          | 775.00          | Ghuelampe 80 Watt matt 220/235V |            |   |
| 20                          | 740.00          | Ghuelampe 40 Watt matt 220/235V |            |   |
| 30                          | 752.00          | Ghuelampe 40 Watt gelb 220/235V |            |   |
| 40                          | 753.00          | Ghuelampe 60 Watt gelb 220/235V |            |   |
| Order Total:                | 3,020.00        |                                 |            |   |

**Note:**

Customer Activity was created with the GetList BAPI in version 4.0 of an SAP R/3 system. To this report, go to Hyperion\products\biplus\bin\SQR\Studio\samples and open SAPCustomerActivity.srm.

## Creating an SAP R/3 Data Source Connection

Before you create a report, you must first create an SAP R/3 data source connection.

➤ To create an SAP R/3 data source connection:

- 1 Click **Connection** on the main SQR Production Reporting Studio screen.

A Create Data Connection wizard is displayed.

- 2 On the first page, enter a name to identify the data connection.

For example, enter SAPR3 to identify a connection to an SAP R/3 data source.

- 3 On the second page, select **DDO** to identify the data source provider.

For an example of selecting ODBC as the data source provider, see [“Creating a New Data Source Connection”](#) on page 15.

- 4 On the third page, select an SAP R/3 data source.

The wizard displays the available registries and data sources. Before connecting to an SAP R/3 data source, you must add the data source to the Registry.properties file in the DDO

Registry Editor. (See “Using the Registry Editor to Make an SAP R/3 Connection” in Volume 3 of the *Hyperion SQR Production Reporting Developer's Guide*)

**5 (Optional) On the fourth page, enter login parameters.**

If you do not enter a username and password here, you are prompted to enter a username and password each time you connect to the database and create a report. If you do enter a username and password here, however, you are not prompted to enter them again.

If you choose to override the default server name or the default database name, enter the desired server name or database name here.

**6 Click **Finish** to exit the wizard.**

The data source you defined is displayed in the Data Connection dialog box.

**7 Highlight the data source and click **OK**.**

## Logging onto an SAP R/3 System

► To log onto an SAP R/3 system:

- 1 In the **Data Connection** dialog box, select the SAP R/3 data source, and click **OK**.**
- 2 Enter the requested information in the Logon dialog box and click **OK**.**

**Table 29** General Logon Options

| <b>Option</b>   | <b>Description</b>                                                                                                                                                                |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Client</b>   | SAP R/3 logon client identifier<br>SQR Production Reporting Studio displays the client identifier defined in the registry properties when you installed Production Reporting DDO. |
| <b>User</b>     | SAP R/3 user name to log onto the data source<br>If you defined a user name in the Data Connection wizard, it is displayed as the default value.                                  |
| <b>Password</b> | Password for the user name<br>If you defined a password in the Data Connection wizard, it is displayed as the default value.                                                      |
| <b>Language</b> | SAP R/3 logon language<br>For example, EN for English or DE for German.                                                                                                           |
| <b>Options</b>  | Options to further customize the logon                                                                                                                                            |

## Defining Direct Logon Options

Direct options set up a direct connection between the client and the R/3 application server. A direct connection is a client/server connection, where the client contains the DDO libraries, and the server is the SAP R/3 application server.

Define direct options *only* when the server is R/3, the server is an external application server, and you are not using load balancing.

- To define direct options:
  - 1 In the **Logon** dialog box, click **Direct**.
  - 2 Enter the requested information, and click **OK**.

**Table 30** Direct Logon Options

| Option                   | Description                                                                       |
|--------------------------|-----------------------------------------------------------------------------------|
| <b>SAP System Number</b> | SAP system number of a specific application server                                |
| <b>Host Name</b>         | Host name of a specific application server, when using R/3 without load balancing |

## Defining SAP R/3 Router Logon Options

SAP R/3 router options provide additional router specifications. The connection is typically through an SAP R/3 Router to an SAP Gateway server, and from there to the SAP R/3 application server.

Define SAP R/3 router options *only* when the server is R/3, the server is an external application server, and you are not using load balancing.

- To define SAP R/3 router options:
  - 1 In the **Logon** dialog box, click **SAP Router**.
  - 2 Enter the requested information, and click **OK**.

**Table 31** SAP R/3 Router Logon Options

| Option                   | Description                                                                       |
|--------------------------|-----------------------------------------------------------------------------------|
| <b>SAP System Number</b> | SAP system number of a specific application server                                |
| <b>Host Name</b>         | Host name of a specific application server, when using R/3 without load balancing |

## Defining Load Balanced Logon Options

Load balanced options define the connection to a load balanced server. The load balanced server decides to which SAP R/3 application server to connect.

Define load balanced options *only* when the server is R/3 and you are using load balancing.

- To define load balanced options:
  - 1 In the Logon dialog box, click **Load Balanced**.
  - 2 Enter the requested information, and click **OK**.

**Table 32** Load Balanced Logon Options

| Option                   | Description                              |
|--------------------------|------------------------------------------|
| <b>Message Server</b>    | Host name of the SAP message server      |
| <b>R/3 System Name</b>   | Name of the R/3 system                   |
| <b>Application Group</b> | Name of the group of application servers |

## Defining Gateway Logon Options

Gateway options provide a "gateway" to an SAP external application server.

Define gateway options *only* when the server is R/2 or external.

- To define gateway options:
  - 1 In the **Logon** dialog box, click **Gateway**.
  - 2 Enter the requested information, and click **OK**.

**Table 33** Gateway Logon Options

| Option                     | Description                                                                                                                                                                                                                                                    |
|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Logical Destination</b> | Destination in <code>saprfc.ini</code><br><br>If the RFC server is R/2, you must also define the destination in the <code>sideinfo</code> for the SAP gateway. Enter information in this field <i>only</i> when you reference an <code>saprfc.ini</code> file. |
| <b>Gateway Host</b>        | Host name of the SAP gateway                                                                                                                                                                                                                                   |
| <b>Gateway Server</b>      | Server of the SAP gateway                                                                                                                                                                                                                                      |
| <b>Server Host Name</b>    | Host name of the external RFC server program                                                                                                                                                                                                                   |
| <b>Server Program Name</b> | Path and name of the external RFC server program or Program ID of a registered RFC server program                                                                                                                                                              |

## Defining Miscellaneous Logon Options

Miscellaneous options provide advanced and diagnostic specifications. In general, leave the miscellaneous options at their default values.

- To define miscellaneous options:
  - 1 In the **Logon** dialog box, click **Miscellaneous**.
  - 2 Enter the requested information, and click **OK**.

**Table 34** Miscellaneous Logon Options

| Option                 | Description                                                   |
|------------------------|---------------------------------------------------------------|
| <b>RFC Server Type</b> | Type of external RFC server program (3 for an SAP R/3 system) |
| <b>SAP Logon Check</b> | Defers logon verification until you make a first call         |
| <b>RFC Trace</b>       | Establishes an RFC trace log for diagnostic support           |

## Choosing a Report Type

Before creating an SAP R/3 report, select a report type:

- **Tabular**—Data displayed in columns
- **Chart**—Data summarized visually
- **Cross-tab**—Summary numeric data displayed in a matrix or spreadsheet
- **Label**—Data used on customer mailings, file folders, and internal company routings
- **Export**—Data formatted for use by another program

Most reports are *tabular*. Use the other report types to accompany or enhance tabular reports.

➤ To choose a report type:

- Click next to the desired report type on the main SQR Production Reporting Studio screen, or
- Select **File**, then **New** and select the desired report type in the Create New Report dialog box.

## Selecting Report Data (Query Builder)


After connecting to a database and selecting a report type, you must select the report data to use. When you select data, you *query* a database.

Selecting report data involves:

- [Starting the Query Builder](#)
- [Connecting to an SAP R/3 Data Source](#)
- [Selecting Procedures](#)
- [Selecting Tables](#)
- [Selecting Fields](#)
- [Creating Group Breaks](#)
- [Defining Input Parameters](#)

## Starting the Query Builder

A *query* is a set of instructions that specifies which data to use in a report. SQR Production Reporting Studio comes with a Query Builder that steps you through the process of building a query.


- To launch the Query Builder for a new report, select the desired report on the main Hyperion SQR Production Reporting Studio screen, or select **File**, then **New** and specify the report type.
- To launch the Query Builder for an existing report, display the report in the Layout window and select **Report**, then **Edit Query** or click .
- To move through the Query Builder, click **Next** and **Back** or click the tab on the top of a Query Builder page.

Note that some pages are disabled until you enter information on the previous page.

## Connecting to an SAP R/3 Data Source

Begin building a query by connecting to an SAP R/3 data source. Use the **Query Builder - Connection** page to connect to a data source.

The available sources are the data sources that have already been created. (See [“Creating an SAP R/3 Data Source Connection” on page 170.](#)) Click **New** to create a new data source, **Edit** to edit the information on an existing data source, **Rename** to Rename the data source, or **Delete** to delete the data source.

- To connect to a data source, select an existing data source under **Available Sources** and click  to move it under **Selected Source**.

## Selecting Procedures

Begin building an SAP R/3 query by selecting a procedure (BAPI). *You can only select one procedure per query.* Select a procedure on the **Query Builder - Start** page.

Available Procedures displays application components (for example Sales and Distribution); business objects (for example, SalesOrder); BAPIs (for example, GetList); and BAPI parameters, return value, and result sets.

These are from the SAP Business Object Repository (BOR) of the connected R/3 Application Server. The procedures displayed depend on the SAP R/3 version and configuration and your SAP R/3 user permissions.

- To select a procedure:
  - 1 Select which procedures (application components, business objects, and BAPIs) to display.

To select which procedures to display, click the arrow to the right of the list box under Available Procedures and select an option. (For example, you could select Business Object View, Financial Accounting Only, and Payroll Accounting Only.) To display all of the procedures, select *Full Hierarchy View*.

SQR Production Reporting Studio organizes the procedures according to their definition in SAP R/3. The preceding example displays the full hierarchy view of all the procedures assigned to a data source.

## 2 Display the desired procedure.

To display the data contained in a procedure, click the plus sign (+) next to the procedure.

The preceding example displays the *GetList* procedure (BAPI) under the *SalesOrder* business object, under the *Sales and Distribution* application component.

This is the procedure used to create the *Customer Activity* report.

## 3 Select the procedure.

- Drag a procedure (BAPI) from **Available Procedures** to **Selected Procedure**.
- Select a procedure and click .

Each procedure can contain:

| Option              | Description                                                                                                |
|---------------------|------------------------------------------------------------------------------------------------------------|
| <b>Parameters</b>   | Values passed to and from BAPIs. Parameters can be <i>input</i> , <i>input/output</i> , or <i>output</i> . |
| <b>Return Value</b> | The return value for the BAPI.                                                                             |
| <b>Result Sets</b>  | The data returned after executing a BAPI.                                                                  |

### Tip:

For information about an object under Available Procedures, point to the object. For example, pointing at the *GetList* BAPI, under the *SalesOrder* business object, under the *Sales and Distribution* application component, displays a tooltip that says: *GETLIST: List of all orders for customer*.

## Finding Objects

If you cannot find an object, you can search for text in the object's name. You can search for objects on the **Query Builder - Start** page (for example, a *GetList* BAPI), and on the **Query Builder - Tables** page (for example, a column in the *SalesOrder* table).

- To search for text in an object:

### 1 Select an object under **Available Procedures** or **Available Tables**.

For example, if the *GetList* BAPI is under the *Sales and Distribution* application component, select *Sales and Distribution* to limit the search to that application component.



To search all objects, select the top hierarchy level. For example, to search for a BAPI in an SAP R/3 system, click **SAPR3** at the top of Available Procedures.

**2 Click Find.**

**3 In the Find Database Object dialog box, enter information in Search Text and click Search.**

You can search for an entire object name, or you can search for any portion of the text in the name. SQR Production Reporting Studio highlights the first object that contains the text.

**4 (Optional) Select Match case to consider case when searching.**

## Selecting Tables

After selecting a procedure (BAPI), the next step is to select the table to use in the report. Select a table on the **Query Builder - Tables** page.

► To select a table:

- Drag a table from **Available Tables** to **Selected Tables**.
- Select a table and click .

To create the *Customer Activity* report, we selected the SALES\_ORDERS table under the GETLIST procedure (BAPI).

Expand a table to view its associated columns and data types. To expand a table, click the plus sign (+) next to the table, or double-click the table.

For additional information about a table, point at the table. For example, pointing at the SALES\_ORDER table displays a tooltip that says: *Table of orders for the customer.*

### Note:


You can only select one table per query; however, you can use multiple tables in reports by creating initialization, sequential, or detail queries. When you create additional queries, you can use as many tables as desired. If your queries contain similar data, you can copy and modify existing queries. (See [Chapter 7, “Creating Reports with Multiple Queries.”](#))

## Defining Table Aliases

Aliases are alternate names that can make cryptic table names clearer. For example, you can change a table name such as GETLIST.EMP to EMPLOYEES.

► To define a table alias:

**1 Select a table on the Query Builder - Tables page.**

- Click the table under **Selected Tables** and click .
- Right-click the table under **Selected Tables** and select **Edit**.
- Double-click the table under **Selected Tables**.

- 2 In the **Define Table Alias** dialog box, enter an alias for the table and click **OK**.
- 3 Enter an alias and click **OK**.

The table alias is displayed under Selected Tables with the original table name to the right. For example, EMPLOYEES (GETLIST.EMP).


To delete a table alias, right-click the table and select **Delete Alias**.

## Selecting Fields

After selecting a table, you select the columns that compose the query fields. Your query can retrieve all the columns associated with the table or specific columns. Select fields on the **Query Builder - Fields** page.

- To select the columns that will make up the query fields:

- 1 **Select the desired columns.**

- Drag a column from **Tables and Columns** to **Query Fields**.
- Select a column and click .
- Double-click a column.

To select all of the columns in a table, select the table using one of the methods described above. To remove a column from Query Fields, click the column and click the left arrow. (To select more than one column to delete, hold down the [Ctrl] key and click the desired columns.)

- 2 Use   to define the column order in the default report layout.

The default layout initially appears when you format a report in the Layout window. The order in which the database columns appear on the Query Builder - Fields page is the order in which the columns will appear in the default report layout. You can change the column order when formatting a report in the layout if desired.

## Limiting Query Rows

- To limit the number of query rows, select **Limit number of rows to** and enter a number.

For example, to create a report on the first 100 customers to which your company made a sale, select **Limit number of rows to** and enter 100 (assuming that you sort your report by customer). Similarly, you can create a report on the last 100 customers by changing the customer sort order. (See “[Sorting Data](#)” on page 41.)

## Defining Column Aliases

Aliases are alternate names that can make cryptic column names clearer. For example, you could change PURCH\_NO to Purchase Number.

- To define a column alias, go to the Query Builder - Fields page and enter the alias in the Alias column under Query Fields.

Once you define an alias, you can view the alias name in the report layout by selecting **View**, then **Column Aliases**.

- To change a column alias in the report layout:
  - Right-click the column, select **Object Properties**, and change the alias in the Alias field on the Format tab.
  - Select the column and change the alias in the Property Explorer.

## Creating Group Breaks

Group breaks group database information in tabular reports. Defining group breaks allows you to add white space to reports, avoid printing redundant data, perform conditional processing on variables that change, and print subtotals.

When you define a group break, a column (or expression) prints only when the value of the column (or expression) changes.

For example, in the *Customer Activity* report below, each sales order prints once – at the top of the description of the sales in the sales order. By defining the *Sales Order* column as a group break, the column prints only when its value changes. In addition, the group break added some white space between each group to make the report easier to read.

Figure 16 Report with Group Breaks

| <b>Customer Activity Report</b> |                   |                                | <b>07-May-1999</b> |
|---------------------------------|-------------------|--------------------------------|--------------------|
| <b>Sales Order</b>              | <b>Order Date</b> | <b>Description</b>             | <b>Net Price</b>   |
| 0000005467                      | 06/17/1998        | Ghuehlampe 80 Watt klar 220/23 | 768.00             |
|                                 | 06/17/1998        | Ghuehlampe 60 Watt rot 220/235 | 757.00             |
|                                 | 06/17/1998        | Ghuehlampe 80 Watt rot 220/235 | 782.00             |
|                                 | 06/17/1998        | Ghuehlampe 40 Watt rot 220/235 | 755.00             |
| 0000005445                      | 05/18/1998        | Ghuehlampe 40 Watt rot 220/235 | 755.00             |
|                                 | 05/18/1998        | Ghuehlampe 80 Watt rot 220/235 | 782.00             |
| 0000005384                      | 04/15/1998        | Ghuehlampe 40 Watt klar 220/23 | 8980.00            |
|                                 | 04/15/1998        | Ghuehlampe 60 Watt rot 220/235 | 757.00             |
| 0000005347                      | 01/27/1998        | Ghuehlampe 60 Watt matt 220/23 | 744.00             |
|                                 | 01/27/1998        | Ghuehlampe 80 Watt gelb 220/2  | 778.00             |
| 0000005346                      | 01/27/1998        | Ghuehlampe 80 Watt matt 220/23 | 775.00             |
|                                 | 01/27/1998        | Ghuehlampe 40 Watt matt 220/23 | 740.00             |
|                                 | 01/27/1998        | Ghuehlampe 40 Watt gelb 220/23 | 752.00             |
|                                 | 01/27/1998        | Ghuehlampe 60 Watt gelb 220/23 | 753.00             |


If you did not define the *Sales Order* column as a group break, however, the column would print on each line as shown in [Figure 17](#).

Figure 17 Report without Group Breaks

| Customer Activity Report |                   |                                | 07-May-1999      |
|--------------------------|-------------------|--------------------------------|------------------|
| <u>Sales Order</u>       | <u>Order Date</u> | <u>Description</u>             | <u>Net Price</u> |
| 0000005467               | 06/17/1998        | Ghueklampe 80 Watt klar 220/23 | 768.00           |
| 0000005467               | 06/17/1998        | Ghueklampe 60 Watt rot 220/235 | 757.00           |
| 0000005467               | 06/17/1998        | Ghueklampe 80 Watt rot 220/235 | 782.00           |
| 0000005467               | 06/17/1998        | Ghueklampe 40 Watt rot 220/235 | 755.00           |
| 0000005445               | 05/18/1998        | Ghueklampe 40 Watt rot 220/235 | 755.00           |
| 0000005445               | 05/18/1998        | Ghueklampe 80 Watt rot 220/235 | 782.00           |
| 0000005384               | 04/15/1998        | Ghueklampe 40 Watt klar 220/23 | 8980.00          |
| 0000005384               | 04/15/1998        | Ghueklampe 60 Watt rot 220/235 | 757.00           |
| 0000005347               | 01/27/1998        | Ghueklampe 60 Watt matt 220/23 | 744.00           |
| 0000005347               | 01/27/1998        | Ghueklampe 80 Watt gelb 220/2  | 778.00           |
| 0000005346               | 01/27/1998        | Ghueklampe 80 Watt matt 220/23 | 775.00           |
| 0000005346               | 01/27/1998        | Ghueklampe 40 Watt matt 220/23 | 740.00           |
| 0000005346               | 01/27/1998        | Ghueklampe 40 Watt gelb 220/23 | 752.00           |
| 0000005346               | 01/27/1998        | Ghueklampe 60 Watt gelb 220/23 | 753.00           |
| 0000005344               | 01/27/1998        | Ghueklampe 60 Watt matt 220/23 | 744.00           |
| 0000005344               | 01/27/1998        | Ghueklampe 60 Watt gelb 220/23 | 753.00           |
| 0000005344               | 01/27/1998        | Ghueklampe 80 Watt matt 220/23 | 775.00           |
| 0000005344               | 01/27/1998        | Ghueklampe 40 Watt gelb 220/23 | 752.00           |

Use the **Query Builder - Group Breaks** page to select the query fields that will become group breaks in the report.

➤ To select a query field to be a group break:

- Select a field and click .
- Double-click a field.

Arrange multiple group breaks in a hierarchy. For example, if the breaks are geographical units, it is logical to arrange them according to size: first *state*, then *city*.

➤ To change group break order, select a break and click **Up** or **Down**.

**Note:**

SQR Production Reporting Studio uses the Group Breaks defined in the Query builder to configure the default report layout. To change the group breaks while formatting a report, select **Report**, then **Group Breaks** in the Layout window.

## Defining Input Parameters

Input parameters are the values passed to the BAPI. SQR Production Reporting Studio displays input parameters based on the BAPI selected in the Query Builder.

Input parameter size is limited by SAP R/3 definitions. A dot in the upper-right corner of a cell indicates that the input parameter is required. You must define values for all required input parameters. Defining values for the other input parameters is optional.

➤ To define a value for an input parameter:

- 1 On the **Query Builder - Input Parameter**, page, select a parameter under **Parameter**.
- 2 Enter a value under **Values**, or click **Show Values** and select a value.

Enter dates in the format of DDMMYYYY. For example, enter February 1, 2005 as 01022005.

**Note:**

Show Values retrieves a list of help values from the SAP R/3 system. Help values may not be available for all input parameters because the ABAP/4 programmer did not build help value definitions for the field, you do not have permission to access the values, or help values were not activated in the SAP R/3 installation configuration. When help values are not available, SQR Production Reporting Studio disables Show Values.

**Tip:**

Some input parameters require leading zeros. If you run a report and no data is displayed, you may need to add extra zeros in front of an input parameter. For example, you may need to enter customer number 15 as 00015. The number of leading zeros required is determined by SAP R/3.

## Entering Multiple Input Parameter Values

When you first access the Input Parameters page, SQR Production Reporting Studio displays all applicable tables and single-value input parameters. Tables initially appear in a collapsed form. Expanding a table displays its input parameters. You can enter multiple values for the input parameters in a table.

- To enter multiple input parameter values:
  - 1 Click the plus sign (+) next to a table to display the available input parameters.
  - 2 In the **Parameter** pane, select a parameter.
  - 3 Enter a value in the **Values** input field to the right of the parameter and press **Enter**.  
Another input field is displayed to the right of the entered value.
  - 4 Enter additional values as desired.

## Entering Runtime Parameters

Runtime parameters allow you to enter values and generate a new result set each time you run a report. This is useful for reports that have one or more varying parameters, such as start and stop dates and zip codes.

Consider the scenario of limiting the *Customer Activity* report discussed in this chapter to a specific sales group. If you entered an *input parameter*, you would limit the report to the defined input parameter each time you run the report. If you defined a *runtime parameter*, however, you could define a different sales group each time you run the report.

- To define a runtime parameter:
  - 1 Select a parameter in the **Input Parameters** dialog box and click **Runtime**.

The Runtime Parameter dialog box is displayed.

- 2 Select **Query the user at runtime for the value of this parameter**.
- 3 Enter a prompt to appear when a user runs the report.

For example, a runtime parameter for *Sales group* might say: *Enter a sales group*.

- 4 Click **OK** to return to the Input Parameters page.

**Note:**

Runtime parameters have a dot in the cell's lower right corner, and the Values field next to the parameter disables.

**Note:**

To remove a previously-entered runtime parameter, select the parameter, click **Runtime**, and clear **Query the user at runtime for the value of this parameter**.

## Configuring Layout Information

The default layout is the arrangement of data columns and headings that initially appears in the report layout. Use the **Query Builder - Configure Page** to configure default layout information.

When you configure the default layout, you can:

- Configure query fields
- Configure layout information
- Configure breaks

For detailed information, see [“Configuring the Default Layout” on page 44](#).

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**In This Chapter**

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## About Creating SAP BW Reports

SQR Production Reporting Studio provides interactive query building capabilities that access SAP BW data sources through a graphical user interface. Production Reporting's Direct Data Objects (DDOs) provide the direct reporting capability to SAP BW data sources by turning SAP BW non-relational data into object-oriented structures that SQR Production Reporting Studio processes.

**Note:**

For detailed information on using DDO to access SAP BW data, see Chapter 8 “using Production Reporting DDO To Access an SAP BW Data Source” in Volume 3 of the *Hyperion SQR Production Reporting Developer's Guide*.

Using SQR Production Reporting Studio to create SAP BW reports involves creating an SAP BW data source connection, choosing a report type, connecting to the database, and selecting data.

## Creating an SAP BW Data Source Connection

Before you create a report, you must first create an SAP BW data source connection.

- To create an SAP BW data source connection:
  - 1 Click **Connection** on the main SQR Production Reporting Studio screen.  
The Create Data Connection wizard is displayed.

- 2 On the first page, enter a name to identify the data connection.

For example, you could enter `SAPBW` to identify a connection to an SAP BW data source.

- 3 On the second page, select **DDO** to identify the data source provider.

- 4 On the third page, select an SAP BW data source and specify whether to enable properties attributes.

The wizard displays the available registries and data sources. To connect to an SAP BW data source, you must first add the data source to the `Registry.properties` file in the DDO Registry Editor. (See “Adding the SAP BW Data Source to the Registry.properties File” in Volume 3 of the *Hyperion SQR Production Reporting Developer's Guide*)

To filter, slice, order, and report on the properties of a characteristic or key figure while building reports, select **Enable Properties Attributes**. (See “Defining Filters” on page 191, “Defining Slicers” on page 192, and “Defining Order By Clauses” on page 193 for detailed information.)

- 5 (Optional) On the fourth page, enter login parameters.

If you do not enter a username and password here, you are prompted to enter a username and password each time you connect to the database and create a report. If you do not enter a username and password here, however, you are not prompted to enter them again.

The server name and database name parameters are not used when connecting to SAP BW.

- 6 Click **Finish** to exit from the wizard.

The SAP BW data source you defined appears in the Data Connection dialog box.

- 7 Highlight the SAP BW data source and click **OK**.

**Tip:**

If you are in Windows and get a “Login Failed” message after you create the SAP BW data source, ensure that the `sapjco.jar`, `sapjcorfc.dll`, and `librfc32.dll` files are in the `Hyperion\products\biplus\lib` directory.

## Choosing a Report Type

Before creating an SAP BW report, select a report type.

- **Tabular**—Data displayed in columns
- **Chart**—Data summarized visually
- **Cross-tab**—Summary numeric data displayed in a matrix or spreadsheet
- **Label**—Data used on customer mailings, file folders, and internal company routings
- **Export**—Data formatted for use by another program

Most reports are *tabular*. Use other report types to accompany or enhance tabular reports.

- To choose a report type:

- Click next to the desired report type on the main SQR Production Reporting Studio screen, or



- Select **File**, then **New** and select the desired report type in the Create New Report dialog box.


## Selecting Report Data (Query Builder)

After choosing a report type and connecting to a data source, you must select the data to use in the report. When you select data, you *query* a database. Selecting report data involves:

- [Starting the Query Builder](#)
- [Connecting to an SAP BW Data Source](#)
- [Selecting an SAP BW Object](#)
- [Selecting Fields](#)

### Starting the Query Builder

A *query* is a set of instructions that specifies which data to use in a report. SQR Production Reporting Studio comes with a Query Builder that steps you through the process of building a query.


- To launch the Query Builder for a new report, select the desired report on the main SQR Production Reporting Studio screen, or select **File**, then **New** and specify the report type.
- To launch the Query Builder for an existing report, display the report in the Layout window and select **Report**, then **Edit Query** or click .
- To move through the Query Builder, click **Next** and **Back** or click the tab on the top of a Query Builder page.

Note that some pages are disabled until you enter the information on the previous page.

### Connecting to an SAP BW Data Source

Begin building a query by connecting to an SAP BW data source. Use the **Query Builder - Connection** page to connect to a data source.

The available sources are the data sources that have already been created. (See [“Creating an SAP BW Data Source Connection” on page 183.](#)) Click **New** to create a new data source, **Edit** to edit the information on an existing data source, **Rename** to Rename the data source, or **Delete** to delete the data source.

- ▶ To connect to a data source, select an existing data source under **Available Sources** and click  to move it under **Selected Source**.

## Selecting an SAP BW Object

Begin building a query by selecting an SAP BW object. *You can only select one object per query.* Select an SAP BW object on the **Query Builder - InfoProvider** page.

- ▶ To select an SAP BW object:

### 1 Select which SAP BW objects to display.

To select which procedures to display, click the arrow to the right of the list box under **Available InfoProviders** and select an option. Available options include:

- Full hierarchy view
- InfoCubes only
- QueryCubes only
- ODS Objects Only
- InfoSets Only

### 2 Select the SAP BW object.

- Drag the object from **Available InfoProviders** to **Selected Object**.
- Select the object and click .

#### Tip:

To display the SAP unique name for an SAP BW object, point at an object under **Available InfoProviders**. The SAP unique name displays as a tool tip in the metadata hierarchy.

## Finding an SAP BW Object

If you cannot find an SAP BW object, you can search for text in the object's name.

- ▶ To search for text in an SAP BW object:

### 1 Click **Find**.

### 2 In the **Find Database Object** dialog box, enter information in **Search Text** and click **Search**.

You can search for an entire SAP BW object name, or you can search for any portion of the text in the name.



After you click **Search**, SQR Production Reporting Studio highlights the first SAP BW object that contains the text.

### 3 (Optional) Select **Match case** to consider case when searching.

## Selecting Fields

After selecting an SAP BW object, the next step is to add query values. Use the **Query Builder - Fields** page to select values, create clauses, and set conditions.

The Fields page is divided into three main parts:

- **Characteristics and Key Figures**—The selected SAP BW object, its characteristics and key figures, and all its members. Use to add query values or set up the query clause.
  - **Query Values**—Query values for the report.
  - **Query Clause**—Conditions.
- To add a query value:
- Drag a characteristic or key figure from **Characteristics and Key Figures** to **Query Values**.
  - Select a characteristic or key figure and click .
  - Double-click a characteristic or key figure.
- To set up a query clause:
- Drag a member (dimension member, dimension child member, dimension level, or dimension level member) from **Characteristics and Key Figures** to **Query Clause**.
  - Select a member and click .
  - Double-click a member.

Setting up a query clause allows you to add filters, slicers, Order By clauses, and SAP Variables to the generated report. (See [“Defining Filters” on page 191](#), [“Defining Slicers” on page 192](#), [“Defining Order By Clauses” on page 193](#), and [“Defining SAP Variables” on page 194](#).)

### Tip:

To display the SAP unique name for an object under **Characteristics and Key Figures**, point at the object. The SAP unique name displays as a tool tip.

Selecting fields involves:

- [“Limiting the Members Displayed” on page 188](#)
- [“Limiting the Number of Query Rows” on page 189](#)
- [“Searching for a Characteristic, Key Figure, or Member” on page 189](#)
- [“Restricting the Members Retrieved” on page 189](#)
- [“Defining Currency Parameters for Key Figures” on page 190](#)
- [“Defining Filters” on page 191](#)
- [“Defining Slicers” on page 192](#)
- [“Defining Order By Clauses” on page 193](#)

- [“Defining SAP Variables” on page 194](#)
- [“Defining Runtime Parameters” on page 195](#)
- [“Defining Calculated and Restricted Key Figures” on page 195](#)

## Limiting the Members Displayed

Based on the value set in the `NbrMaxMembers` entry `incom_scribe_bwacc_BWDataSource_Properties.properties`, you can limit the number of members displayed under Characteristics and Key Figures. If there are more members than the defined value, `MORE . . .` appears as the last node. Click `MORE . . .` to display additional node members.

For example, if the value in the property sheet is two, only two nodes are displayed and `MORE . . .` appears as the last node.

You can limit the members displayed for:

- `DimensionLevels`
- `DimensionLevelMembers`
- `DimensionMembers`
- `DimensionChildMembers`
- `HierarchyLevels`
- `HierarchyLevelMembers`
- `HierarchyMembers`
- `HierarchyChildMembers`
- `NavigationalAttributeLevels`
- `NavigationalAttributeLevelMembers`
- `NavigationalAttributeMembers`
- `Properties`
- `SAP Variables – Interval`
- `SAP Variables – Single`
- `SAP Variables - Interval Mandatory`
- `SAP Variables - Single Mandatory`
- `SAP Variables - Single MandatoryNo1`
- `SAP Variables - Interval MandatoryNo1`

## Limiting the Number of Query Rows

- To limit the number of query rows, select **Limit number of rows to** and enter the desired number of rows.

For example, assume your company has a large customer base. Assume further that you want a report on the first 100 customers to which your company made a sale. In this example, you would select **Limit number of rows to** and enter 100 as the number of rows. (This assumes that you sort your report by customer.)

## Searching for a Characteristic, Key Figure, or Member

If you cannot find a particular characteristic, key figure, or member you can perform a search.

- To search for a characteristic, key figure or member:

- 1 Click Find.**

The Find dialog box is displayed.

- 2 Enter the text by which to search in Search Text, select the desired search options, and click Search.**

- **Match case**—Considers case when searching. Do not select this option to search for all instances of the text string regardless of case. For example, *customer* as opposed to *Customer*.
- **Search using SAP unique names**—Searches for the characteristic, key figure, or member using the SAP unique name.
- **Search only immediate children**—Searches for the immediate children of the selected characteristic, key figure, or member. Searching for immediate children can speed up the search process and improve search performance.
- **Search all descendents**—Searches for all the descendents of the selected characteristic, key figure, or member.

## Restricting the Members Retrieved

When you build a query, you can restrict the members retrieved based on the required number of child nodes, level members, hierarchy levels, hierarchy members, hierarchy child members, property, SAP variable members, or key figures. This provides greater flexibility and enhances performance - particularly for levels containing thousands of level members (common for InfoCubes).

- To restrict the members retrieved:

- 1 On the Query Builder - Fields page, select a tab in the Query Clause section (Filter, Slicer, or SAP Variable).**

- 2 Select a level member, hierarchy level, hierarchy member, hierarchy child member, property member, SAP Variable member, or key figure and click Range.**

- 3 In the Select Members dialog box, enter the start and end values for the range and click Retrieve.**

For example, to restrict the data to the first 100 members, you would enter 1 for the start value and 100 for the end value. If you leave the start and end values at their default value of 0, SQR Production Reporting Studio retrieves all of the records.

When you click **Retrieve**, the members in the defined range display under Available Members.


**4 (Optional) Further restrict the members retrieved by entering information to perform a wild card search.**

- **Low**—Enter the low value for the search. For example, to restrict the search to members containing the letter “R”, you would enter R\*.
- **High**—Optionally, enter a high value for the search.
- **Operand**—Use the drop down list to select an operand. For example, to restrict the search to members containing the letter “R”, you would select “contains” as the operand.
- **Flag**—Select either Include or Exclude.

In the example above, restricting the search to members containing the letter “R” would change the members retrieved from Commercial, Residence, and Not Assigned, to Residence.

**5 Specify whether to search using descriptive names or technical names.**

For example, you could search using “Billing Dispute Analyzer” or “TELCO/DSP1.”

**6 (Optional) Further restrict the returned result set for a member under Available Members by selecting the member and clicking  to move the member to Filtered Members.**

Depending on whether you are creating a filter, slicer, or SAP variable, the filtered data appears in the Filter, Slicer, or SAP Variable tab in the Query Clause section of the Fields page.

**7 Click OK to return to the Query Builder - Fields page.**

## Defining Currency Parameters for Key Figures

Use the **Query Builder - Fields** page to enter currency conversion parameters. You can define default currency values for all key figures, and you can define currency values for individual key figures.

- To define *default currency parameters* for all key figures in the query, select **Default Currency Parameters for Key Figures** and enter the information described in [Table 35](#).


**Table 35** Currency Conversion Parameters

| Parameter       | Description                                                                                                                                               |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Currency</b> | Currency type.                                                                                                                                            |
| <b>Rate</b>     | Currency rate.                                                                                                                                            |
| <b>Date</b>     | Date that the currency rate becomes effective.                                                                                                            |
| <b>Unit</b>     | Unit of measure based on the key figure selected.<br>For example, if the key figure is <i>Dispute%</i> , the unit of measure could be <i>percentage</i> . |

- To override the default parameters and assign an *individual currency parameter* to a key figure, define a currency, rate type, effective date, and unit of measure next to the key figure under Query Values.

## Defining Filters

Filters restrict the returned result set. Use the Filter tab in the Query Clause section of the Fields page to define a filter.

- To add a member to a filter:
  - Drag a member from Characteristics and Key Figures to Filter.
  - Select a member under Characteristics and Key Figures and click .
  - Double-click a member.

**Table 36** Filter Options

| Option                 | Description                                                                                                                                                                                                                                                                                                                                                                  |
|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Member</b>          | Selected member.                                                                                                                                                                                                                                                                                                                                                             |
| <b>Operand</b>         | <p>Operands to use in the Filter clause.</p> <p>Use the following operands with key figures:</p> <p>=</p> <p>&gt;</p> <p>&lt;</p> <p>&gt;=</p> <p>&lt;=</p> <p>&lt;&gt;</p> <p>BottomCount</p> <p>BottomSum</p> <p>BottomPercent</p> <p>TopCount</p> <p>TopSum</p> <p>TopPercent</p> <p>Use the following operands with non-key figure members:</p> <p>=</p> <p>&lt;&gt;</p> |
| <b>Value</b>           | Integer numeric value for a key figure or the selected member of hierarchy for a non-key figure member.                                                                                                                                                                                                                                                                      |
| <b>Characteristics</b> | Characteristic in the hierarchy for the selected member.                                                                                                                                                                                                                                                                                                                     |
| <b>Input</b>           | Whether the value is an input parameter to be defined during runtime.                                                                                                                                                                                                                                                                                                        |

| Option         | Description                                                                                                                                                                                                                        |
|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Type</b>    | Optional: The type of filter. Select a type of filter for a specific member in the output: <ul style="list-style-type: none"> <li>● Children</li> <li>● Ancestor</li> <li>● Descendent</li> </ul>                                  |
| <b>Flag</b>    | Optional: Select a flag: <ul style="list-style-type: none"> <li>● After</li> <li>● Before</li> <li>● Before and After</li> <li>● Self</li> <li>● Self and After</li> <li>● Self and Before</li> <li>● Self Before After</li> </ul> |
| <b>Join</b>    | Optional: Join type used for the filter. Select a join type: <ul style="list-style-type: none"> <li>● And</li> <li>● Or</li> </ul> <p>The join type joins multiple filters on the same characteristic.</p>                         |
| <b>Runtime</b> | Allows users to define filter values at runtime. (See <a href="#">“Defining Runtime Parameters” on page 195.</a> )<br>Note: Runtime is enabled only when Input is checked.                                                         |

**Note:**

When creating filters, you can further restrict the data retrieved by selecting a level member, hierarchy level, hierarchy member, hierarchy child member, property member, or key figure, clicking **Range**, and entering information in the Select Members dialog box. (See [“Restricting the Members Retrieved” on page 189.](#))


**Tip:**

Except clauses provide additional filtering capability by limiting the set of values used for a selected characteristic. You can define an Except clause on a non-key figure member by using the < > operand in the Filter tab. This indicates that the selected characteristic should not be included in the required output.

## Defining Slicers

Slicers (also called Where Clauses) define the characteristics to use in the Query. Use the Slicer tab in the Query Clause section of the Fields page to define a slicer.



- To add a characteristic to a slicer:
  - Drag the lowest child member for a characteristic from **Characteristics and Key Figures** to **Slicer**.
  - Click the lowest child member for a characteristic under **Characteristics and Key Figures** and click .
  - Double-click the lowest child member for a characteristic.

**Table 37** Slicer Options


| Option                 | Description                                                                                                                                                                |
|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Characteristics</b> | Selected characteristic                                                                                                                                                    |
| <b>Value</b>           | Selected child member in the characteristic                                                                                                                                |
| <b>Input</b>           | Whether the value is an input parameter to be defined during runtime.                                                                                                      |
| <b>Runtime</b>         | Allows users to define slicer values at runtime. (See <a href="#">“Defining Runtime Parameters” on page 195.</a> )<br>Note: Runtime is enabled only when Input is checked. |

**Note:**

When creating slicers, you can restrict the data retrieved by selecting a dimension or hierarchy, clicking **Range**, and selecting the lowest level member to add to the slicer. (See [“Restricting the Members Retrieved” on page 189.](#))

## Defining Order By Clauses

Order By clauses specify the order the selected key figure or dimension property is returned. Use the Order tab in the Query Clause section of the Fields page to define an Order By clause.

- To add a key figure or dimension property to an Order By clause:
  - Drag a key figure or dimension property from **Characteristics and Key Figures** to **Order**.
  - Select a key figure or dimension property under **Characteristics and Key Figures** and click .
  - Double-click a key figure or dimension property.


**Table 38** Order By Clause Options

| Option                                   | Description                                                                                                                  |
|------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| <b>Key Figures/ Dimension Properties</b> | Selected key figure or dimension property.                                                                                   |
| <b>Characteristics</b>                   | Characteristic in the hierarchy for the key figure or dimension property. Use the drop down list to select a characteristic. |

| Option                      | Description                                                                                                                                                                                                                                                                                                          |
|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Sort Values</b>          | <ul style="list-style-type: none"> <li>● ASC—Sort in ascending order and preserve the hierarchy.</li> <li>● BASC—Sort in ascending order and break the hierarchy.</li> <li>● DESC—Sort in descending order and preserve the hierarchy.</li> <li>● BDESC—Sort in descending order and break the hierarchy.</li> </ul> |
| <b>Sort All Key Figures</b> | Sorts all the key figures or dimension properties for the selected SAP BW object.                                                                                                                                                                                                                                    |
| <b>Up/Down Arrows</b>       | Changes the sequence of key figures or dimension properties in the Order by clause.                                                                                                                                                                                                                                  |

## Defining SAP Variables

Use the SAP Variables tab in the Query Clause section of the Query Builder - Fields page to define an SAP Variable.

- To add an SAP variable:
  - Drag a member from **Characteristics and Key Figures** to **SAP Variable**.
  - Select a member under **Characteristics and Key Figures** and click 
  - Double-click a member.

### Note:

Mandatory SAP variables are automatically added to the SAP Variable tab along with their default values and input parameters.

**Table 39** SAP Variable Options

| Option            | Description                                                                                                                            |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| <b>Name</b>       | Name of the SAP variable.                                                                                                              |
| <b>Expression</b> | SAP variable expression.                                                                                                               |
| <b>Value</b>      | SAP variable value. Enter a numeric value, or click the field to select a value.                                                       |
| <b>High Value</b> | (Optional) High value for the SAP variable.                                                                                            |
| <b>Input</b>      | (Optional) When defining an SAP variable as an input parameter, enables users to enter a low value/high value when running the report. |

### Note:

When creating SAP Variables, you can restrict the data retrieved by selecting an SAP Variable member, clicking **Range**, and entering information in the Select Members dialog box. (See [“Restricting the Members Retrieved” on page 189.](#))

## Defining Runtime Parameters

Runtime parameters allow you to enter values and generate new result sets each time you run a report. This is useful for reports with multiple parameters, such as start dates, stop dates, and zip codes.

You can define runtime parameters for Slicers and Filters by clicking **Runtime** when you create the Slicer or Filter.

► To define a runtime parameter:

- 1 Select a Slicer or Filter in the **Query Clause** section of the **Fields** page, check the **Input** box, and click **Runtime**.

The Runtime Parameter dialog box is displayed.

- 2 Select **Query the user at runtime for the value of this parameter**.
- 3 Enter a prompt to appear when the user runs the report.

For example, a runtime parameter for *time code* could have a prompt that says: *Enter your time code value*.

- 4 Click **OK** to return to the **Fields** page.

## Defining Calculated and Restricted Key Figures

► To define a calculated or restricted key figure:

- 1 Click **Calculate/Restrict** on the **Query Builder - Fields** page.
- 2 Select **Member** or **Set** in the **Expression Builder** and enter the requested information.

Calculated and restricted key figures are resolved by calculating an MDX expression to return a value.

Figure 18 Calculated/Restricted Key Figure with the Set Option in the Expression Builder

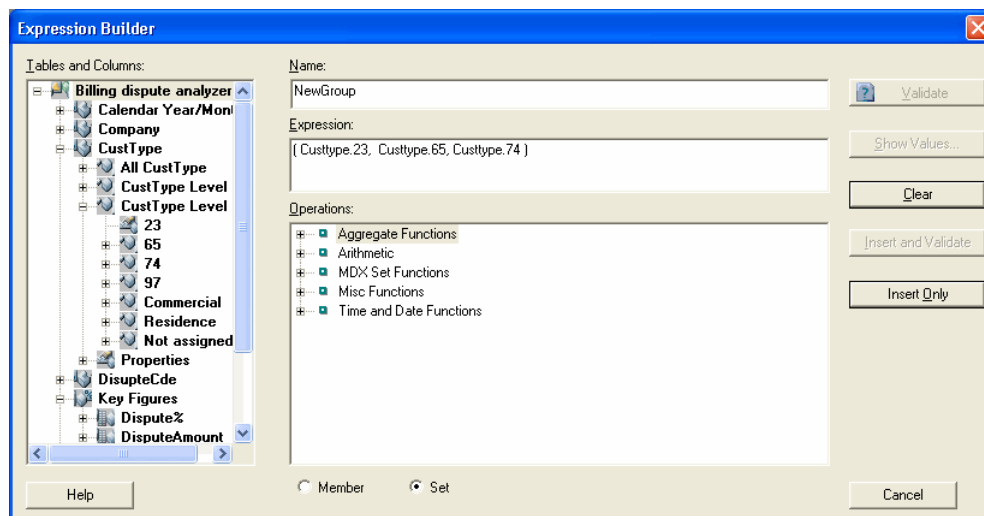
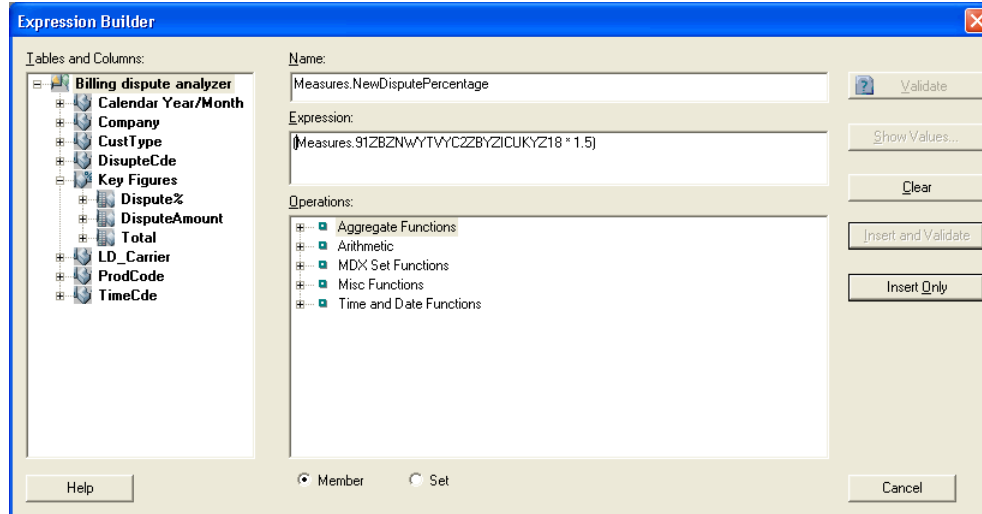


Figure 19 Calculated/Restricted Key Figure with the Member Option in the Expression Builder



## Creating Group Breaks

Group breaks group database information in tabular reports. Defining group breaks allows you to add white space to reports, avoid printing redundant data, perform conditional processing on variables that change, and print subtotals.

When you define a group break, a column (or expression) prints only when the value of the column (or expression) changes.

For example, in the *Customer Activity* report below, each sales order prints once – at the top of the description of the sales in the sales order. By defining the *Sales Order* column as a group break, the column prints only when its value changes. In addition, the group break added some white space between each group to make the report easier to read.

Figure 20 Report with Group Breaks

| <b>Customer Activity Report</b> |                   |                                | <b>07-May-1999</b> |
|---------------------------------|-------------------|--------------------------------|--------------------|
| <u>Sales Order</u>              | <u>Order Date</u> | <u>Description</u>             | <u>Net Price</u>   |
| 0000005467                      | 06/17/1998        | Ghuehlampe 80 Watt klar 220/23 | 768.00             |
|                                 | 06/17/1998        | Ghuehlampe 60 Watt rot 220/235 | 757.00             |
|                                 | 06/17/1998        | Ghuehlampe 80 Watt rot 220/235 | 782.00             |
|                                 | 06/17/1998        | Ghuehlampe 40 Watt rot 220/235 | 755.00             |
| 0000005445                      | 05/18/1998        | Ghuehlampe 40 Watt rot 220/235 | 755.00             |
|                                 | 05/18/1998        | Ghuehlampe 80 Watt rot 220/235 | 782.00             |
| 0000005384                      | 04/15/1998        | Ghuehlampe 40 Watt klar 220/23 | 8980.00            |
|                                 | 04/15/1998        | Ghuehlampe 60 Watt rot 220/235 | 757.00             |
| 0000005347                      | 01/27/1998        | Ghuehlampe 60 Watt matt 220/23 | 744.00             |
|                                 | 01/27/1998        | Ghuehlampe 80 Watt gelb 220/2  | 778.00             |
| 0000005346                      | 01/27/1998        | Ghuehlampe 80 Watt matt 220/23 | 775.00             |
|                                 | 01/27/1998        | Ghuehlampe 40 Watt matt 220/23 | 740.00             |
|                                 | 01/27/1998        | Ghuehlampe 40 Watt gelb 220/23 | 752.00             |
|                                 | 01/27/1998        | Ghuehlampe 60 Watt gelb 220/23 | 753.00             |


If you did not define the *Sales Order* column as a group break, however, the column would print on each line as shown in [Figure 21](#).

Figure 21 Report without Group Breaks

| Customer Activity Report |                   |                                | 07-May-1999      |
|--------------------------|-------------------|--------------------------------|------------------|
| <u>Sales Order</u>       | <u>Order Date</u> | <u>Description</u>             | <u>Net Price</u> |
| 0000005467               | 06/17/1998        | Ghuehlampe 80 Watt klar 220/23 | 768.00           |
| 0000005467               | 06/17/1998        | Ghuehlampe 60 Watt rot 220/235 | 757.00           |
| 0000005467               | 06/17/1998        | Ghuehlampe 80 Watt rot 220/235 | 782.00           |
| 0000005467               | 06/17/1998        | Ghuehlampe 40 Watt rot 220/235 | 755.00           |
| 0000005445               | 05/18/1998        | Ghuehlampe 40 Watt rot 220/235 | 755.00           |
| 0000005445               | 05/18/1998        | Ghuehlampe 80 Watt rot 220/235 | 782.00           |
| 0000005384               | 04/15/1998        | Ghuehlampe 40 Watt klar 220/23 | 8980.00          |
| 0000005384               | 04/15/1998        | Ghuehlampe 60 Watt rot 220/235 | 757.00           |
| 0000005347               | 01/27/1998        | Ghuehlampe 60 Watt matt 220/23 | 744.00           |
| 0000005347               | 01/27/1998        | Ghuehlampe 80 Watt gelb 220/2  | 778.00           |
| 0000005346               | 01/27/1998        | Ghuehlampe 80 Watt matt 220/23 | 775.00           |
| 0000005346               | 01/27/1998        | Ghuehlampe 40 Watt matt 220/23 | 740.00           |
| 0000005346               | 01/27/1998        | Ghuehlampe 40 Watt gelb 220/23 | 752.00           |
| 0000005346               | 01/27/1998        | Ghuehlampe 60 Watt gelb 220/23 | 753.00           |
| 0000005344               | 01/27/1998        | Ghuehlampe 60 Watt matt 220/23 | 744.00           |
| 0000005344               | 01/27/1998        | Ghuehlampe 60 Watt gelb 220/23 | 753.00           |
| 0000005344               | 01/27/1998        | Ghuehlampe 80 Watt matt 220/23 | 775.00           |
| 0000005344               | 01/27/1998        | Ghuehlampe 40 Watt gelb 220/23 | 752.00           |

Use the **Query Builder - Group Breaks** page to select the members that will become group breaks in the report.

➤ To select a query member to be a group break:

- Select a member and click .
- Double-click a member.

Multiple group breaks must be arranged in a hierarchy. For example, if the breaks are geographical units, it is logical to arrange them according to size: first *state*, then *city*. To change group break order, select a break and click **Up** or **Down**.

**Note:**

SQR Production Reporting Studio uses the Group Breaks defined in the Query Builder to configure the default report layout. To change the group breaks while formatting a report, select **Report**, then **Group Breaks** in the Layout window.

## Configuring Layout Information

The default layout is the arrangement of data columns and headings that initially appears when you format your report layout. Use the **Query Builder - Configure** page to configure default layout information.

When you configure the default layout, you can:

- Configure query fields
- Configure layout information

- Configure breaks

For detailed information, see [“Configuring the Default Layout”](#) on page 44.

## In This Chapter

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| Overview of Essbase Cubes .....                  | 199 |
| Creating an Essbase Data Source Connection ..... | 200 |
| Choosing a Report Type .....                     | 201 |
| Selecting Report Data (Query Builder) .....      | 202 |
| Creating Group Breaks .....                      | 205 |
| Configuring Layout Information .....             | 206 |

## About Creating Essbase Reports

SQR Production Reporting Studio provides interactive query building capabilities that access Essbase data sources through a graphical user interface. Production Reporting's Direct Data Objects (DDOs) provide direct reporting capability to Essbase data sources by turning Essbase non-relational data into object-oriented structures that SQR Production Reporting Studio processes.

### Note:

For additional information on using DDO to access Essbase data, see Chapter 9, "Using Production Reporting DDO to Access an Essbase Cube" in Volume 3 of the *Hyperion SQR Production Reporting Developer's Guide*.

Using SQR Production Reporting Studio to create Essbase reports involves connecting to an Essbase data source, choosing a report type, connecting to the database, and selecting data.

## Overview of Essbase Cubes

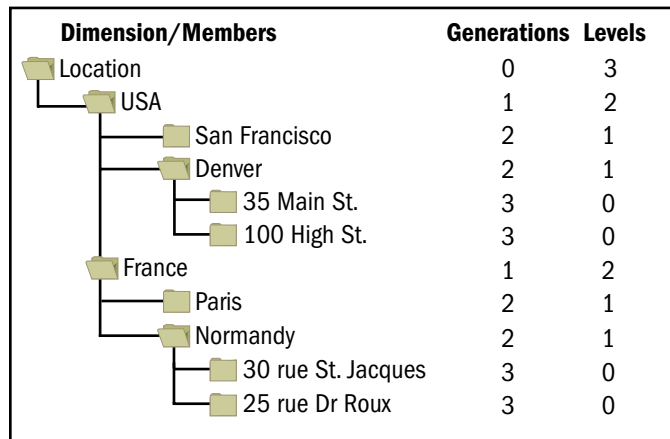
Essbase cubes contain multidimensional database components to support multiple views of data. The multidimensional database components are arranged in a "hierarchical tree" (outline) structure. The components include:

- **Dimensions**—Categories of information, such as Location, Products, Stores, and Time.  
Essbase has two types of dimensions:

- *Standard dimensions*—Core dimensions often relating to departmental functions such as product lines or divisions.
- *Attribute dimensions*— Further group and analyze members of standard dimensions. For example, you could compare an aspect of a product line with another aspect of the same product line.
- **Members**—Content values for dimensions. A Location dimension for example, could contain the members USA, France, San Francisco, Paris, and 35 Main Street.
- **Generations**—Consolidation of dimension levels. The top of each dimension is Generation 1. The generations count down from this position toward each dimension member.
- **Levels**—Groups of similar member types. For example, USA and France could belong to the Country level, San Francisco and Paris could belong to the City level, and 35 Main Street could belong to the Address level. Levels are counted in reverse order of generations and start at zero.
- **Aliases**—(Optional) Descriptive member names stored in alias tables. In report output, aliases can be used instead of member names when member names are non-descriptive.
- **Measures**—Aggregations stored in fact table columns for quick retrieval by users querying cubes.

Figure 22 illustrates a folder tree containing Location dimension members in a cube. In this example, Location is the dimension, and USA, France, and all other branches are its members. Location is generation 1, USA and France are generation 2, San Francisco and Paris are generation 3, and 35 Main St. and 30 rue St. Jacques are generation 4. Levels refer to the branches of each dimension and are in reverse order of generations.

Figure 22 Hierarchy of the Location Dimension



## Creating an Essbase Data Source Connection

Before you create a report, you must first create an Essbase data source connection.



➤ To create an Essbase data source connection:

**1 Select Connection on the main SQR Production Reporting Studio screen.**

The Create Data Connection wizard is displayed.

**2 On the first page, enter a name to identify the data connection.**

For example, you could enter Essbase to identify a connection to an Essbase data source.

**3 On the second page, select **DDO** to identify the data source provider.**

**4 On the third page, select an Essbase data source.**

The wizard displays the available registries and data sources. (For information on using the DDO Registry Editor to manage data sources, see Chapter 5, “Production Reporting DDO Registry Editor” in Volume 3 of the *Hyperion SQR Production Reporting Developer's Guide*.)

**5 (Optional) On the fourth page, enter login parameters.**

If you do not enter a username and password here, you are prompted to enter a username and password each time you connect to the database and create a report. If you do enter a username and password here, however, you are not prompted to enter them again.

If you choose to override the default server name or the default database name, enter the desired server name or database name here.

**6 Click **Finish** to exit the wizard.**

The data source you defined appears in the Data Connection dialog box.

**7 Highlight the data source and click **OK**.**

## Choosing a Report Type

Before creating an Essbase report, you must select a report type. SQR Production Reporting Studio supports five report types:

- **Tabular**—Data displayed in columns
- **Chart**—Data summarized visually
- **Cross-tab**—Summary numeric data displayed in a matrix or spreadsheet
- **Label**—Data used on customer mailings, file folders, and internal company routings
- **Export**—Data formatted for use by another program

Most reports are *tabular*. Use the other report types to accompany or enhance the tabular reports.

➤ To choose a report type:

- Click next to the desired report type on the SQR Production Reporting Studio screen, or
- Select **File**, then **New** and select the desired report type in the Create New Report dialog box.

## Selecting Report Data (Query Builder)


After choosing a report type and connecting to a database, you must select the data to use in the report. When you select data, you *query* a database.

Selecting report data involves:

- [Starting the Query Builder](#)
- [Connecting to an Essbase Data Source](#)
- [Selecting a Database](#)
- [Selecting Fields](#)

### Starting the Query Builder

A *query* is a set of instructions that specifies which data to use in a report. SQR Production Reporting Studio comes with a query builder. The SQR Production Reporting Studio Query Builder contains several pages that collect information and step you through the process of building a query.


- To launch the Query Builder for a new report, select the desired report on the main SQR Production Reporting Studio screen, or select **File**, then **New** and specify the report type.
- To launch the Query Builder for an existing report, display the report in the Layout window and select **Report**, then **Edit Query** or click .
- To move through the Query Builder, click **Next** and **Back** or click the tab on the top of a Query Builder page.

Note that some pages are disabled until you enter the information on the previous page.

### Connecting to an Essbase Data Source


Begin building a query by connecting to an Essbase data source. Use the **Query Builder - Connection** page to connect to a data source.

The available sources are the Essbase data sources that have already been created. (See [“Creating an SAP BW Data Source Connection” on page 183.](#)) Click **New** to create a new data source, **Edit** to edit the information on an existing data source, **Rename** to Rename the data source, or **Delete** to delete the data source.

- To connect to a data source, select an existing data source under **Available Sources** and click  to move it under **Selected Source**.

## Selecting a Database

Begin building an Essbase query by selecting a database. Select the database on the **Query Builder - Database** page.

- To select a database:
  - 1 **Select which database view to display.**
    - **Full Hierarchy View**—Displays all available cubes and dimensions.
    - **Measure Dimensions Only**—Displays all measure dimensions.
    - **Non Measure Dimensions Only**—Displays all non-measure dimensions.
    - **Selected Database Leaf Members Only**—Displays all dimensions and members of the selected database.
  - 2 **Select the desired database.**
    - Drag a database from **Available Databases** to **Selected Database**.
    - Select a database and click .

## Finding a Database

If you cannot find a database, you can search for text in the database name.

- To search for a database:
  - 1 **Click Find.**
  - 2 **In the Find Database Object dialog box, enter information in Search text and click Search.**

You can search for an entire database name, or you can search for any portion of the text in the name.


After you click **Search**, SQR Production Reporting Studio highlights the first database that contains the text string. To find additional databases that contain the text string, click **Search** again.
  - 3 **(Optional) Select Match case to consider case when searching.**

## Selecting Fields

After selecting a database, the next step is to add query members and set up the member clause. You do this on the **Query Builder - Fields** page.

**Dimensions and Members** displays the selected dimension and all its members. You can use these items to add members or to set up the member clause.

► To add a member:

- Drag a member from **Dimensions and Members** to **Query Members**.
- Select a member and click .


You cannot add measure dimensions to query members; however, you can add *members* of measure dimensions to query members.

If a query member is a non-measure dimension, you can edit its level and generation. To do this, click on the Level and Generation columns in the Query Members pane. If the query member is a member of a measure dimension; however, you cannot edit the level and generation information.

**Note:**

The level and generation information entered in the Query Builder is used to form the Production Reporting commands SET-MEMBER, SET-LEVELS, and SET-GENERATIONS. For information on these commands, see Chapter 2, “Production Reporting Command Reference” in Volume 2 of the *Hyperion SQR Production Reporting Developer's Guide*.


► To set up the member clause:

- Drag a member from **Dimensions and Members** to **Member Clause**.
- Select a member and click .

Setting up a member clause adds filters to the generated report. The members selected as part of a member clause should belong to a non-measure dimension.

**Tip:**

You can generate reports from multiple cubes. To do this, you must create a query for each cube.

To create a query from the Layout window, click  or select **Insert**, then **Field**. In the Report Fields dialog box that appears, click **New** and choose **Master Query**.

## Using Data Source Aliases

To have the processed report use the aliases of the selected dimension members, select **Use Data Source Aliases**. For example, if the member name is *Cost of Goods Sold*, and its alias is *COGS*, the generated report will display *COGS* for the selected column.

## Limiting the Number of Query Rows

To limit the number of query rows, select **Limit number of rows to** and enter the number of rows.

For example, assume your company has a large customer base. Assume further that you want a report on the first 100 customers to which your company made a sale. In this example, you would select **Limit number of rows to** and enter 100 as the number of rows. (This assumes that you sort your report by customer.)

## Creating Group Breaks

Group breaks group database information in tabular reports. Defining group breaks allows you to add white space to reports, avoid printing redundant data, perform conditional processing on variables that change, and print subtotals.

When you define a group break, a column (or expression) prints only when the value of the column (or expression) changes.

For example, in the *Customer Activity* report below, each sales order prints once – at the top of the description of the sales in the sales order. By defining the *Sales Order* column as a group break, the column prints only when its value changes. In addition, the group break added some white space between each group to make the report easier to read.

Figure 23 Report with Group Breaks

| Customer Activity Report |                   |                                | 07-May-1999      |
|--------------------------|-------------------|--------------------------------|------------------|
| <u>Sales Order</u>       | <u>Order Date</u> | <u>Description</u>             | <u>Net Price</u> |
| 0000005467               | 06/17/1998        | Ghuehlampe 80 Watt klar 220/23 | 768.00           |
|                          | 06/17/1998        | Ghuehlampe 60 Watt rot 220/235 | 757.00           |
|                          | 06/17/1998        | Ghuehlampe 80 Watt rot 220/235 | 782.00           |
|                          | 06/17/1998        | Ghuehlampe 40 Watt rot 220/235 | 755.00           |
| 0000005445               | 05/18/1998        | Ghuehlampe 40 Watt rot 220/235 | 755.00           |
|                          | 05/18/1998        | Ghuehlampe 80 Watt rot 220/235 | 782.00           |
| 0000005384               | 04/15/1998        | Ghuehlampe 40 Watt klar 220/23 | 8980.00          |
|                          | 04/15/1998        | Ghuehlampe 60 Watt rot 220/235 | 757.00           |
| 0000005347               | 01/27/1998        | Ghuehlampe 60 Watt matt 220/23 | 744.00           |
|                          | 01/27/1998        | Ghuehlampe 80 Watt gelb 220/2  | 778.00           |
| 0000005346               | 01/27/1998        | Ghuehlampe 80 Watt matt 220/23 | 775.00           |
|                          | 01/27/1998        | Ghuehlampe 40 Watt matt 220/23 | 740.00           |
|                          | 01/27/1998        | Ghuehlampe 40 Watt gelb 220/23 | 752.00           |
|                          | 01/27/1998        | Ghuehlampe 60 Watt gelb 220/23 | 753.00           |


If you did not define the *Sales Order* column as a group break, however, the column would print on each line as shown in [Figure 24](#).

Figure 24 Report without Group Breaks

| Customer Activity Report |                   |                                | 07-May-1999      |
|--------------------------|-------------------|--------------------------------|------------------|
| <u>Sales Order</u>       | <u>Order Date</u> | <u>Description</u>             | <u>Net Price</u> |
| 0000005467               | 06/17/1998        | Ghuehlampe 80 Watt klar 220/23 | 768.00           |
| 0000005467               | 06/17/1998        | Ghuehlampe 60 Watt rot 220/235 | 757.00           |
| 0000005467               | 06/17/1998        | Ghuehlampe 80 Watt rot 220/235 | 782.00           |
| 0000005467               | 06/17/1998        | Ghuehlampe 40 Watt rot 220/235 | 755.00           |
| 0000005445               | 05/18/1998        | Ghuehlampe 40 Watt rot 220/235 | 755.00           |
| 0000005445               | 05/18/1998        | Ghuehlampe 80 Watt rot 220/235 | 782.00           |
| 0000005384               | 04/15/1998        | Ghuehlampe 40 Watt klar 220/23 | 8980.00          |
| 0000005384               | 04/15/1998        | Ghuehlampe 60 Watt rot 220/235 | 757.00           |
| 0000005347               | 01/27/1998        | Ghuehlampe 60 Watt matt 220/23 | 744.00           |
| 0000005347               | 01/27/1998        | Ghuehlampe 80 Watt gelb 220/2  | 778.00           |
| 0000005346               | 01/27/1998        | Ghuehlampe 80 Watt matt 220/23 | 775.00           |
| 0000005346               | 01/27/1998        | Ghuehlampe 40 Watt matt 220/23 | 740.00           |
| 0000005346               | 01/27/1998        | Ghuehlampe 40 Watt gelb 220/23 | 752.00           |
| 0000005346               | 01/27/1998        | Ghuehlampe 60 Watt gelb 220/23 | 753.00           |
| 0000005344               | 01/27/1998        | Ghuehlampe 60 Watt matt 220/23 | 744.00           |
| 0000005344               | 01/27/1998        | Ghuehlampe 60 Watt gelb 220/23 | 753.00           |
| 0000005344               | 01/27/1998        | Ghuehlampe 80 Watt matt 220/23 | 775.00           |
| 0000005344               | 01/27/1998        | Ghuehlampe 40 Watt gelb 220/23 | 752.00           |

Use the Query Builder - Group Breaks page to select the query members that will become group breaks in the report.

➤ To select a query member to be a group break:

- Select a member and click .
- Double-click a member.

Arrange multiple group breaks in a hierarchy. For example, if the breaks are geographical units, it is logical to arrange them according to size: first *state*, then *city*.

➤ To change the group break order, select a break and click Up or Down.

**Note:**

SQR Production Reporting Studio uses the Group Breaks defined in the Query Builder to configure the default report layout. To change the group breaks while formatting a report, select **Report**, then **Group Breaks** in the Layout window.

## Configuring Layout Information

The default layout is the arrangement of data columns and headings that initially appears when you format your report layout. Use the **Query Builder - Configure** page to configure default layout information.

When you configure the default layout, you can:

- Configure query fields
- Configure layout information
- Configure breaks

For detailed information, see “Configuring the Default Layout” on page 44.

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P a r t V I I

# Appendices

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In Appendices:

- [Specifying Startup Files](#)
- [Creating an SQR Production Reporting Report Using BI Server as a Data Source](#)
- [Accessibility](#)







# Specifying Startup Files

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## Specifying a Startup File

SQR Production Reporting Studio provides parameters for limiting the number of users and tables that appear in the Query Builder. You can specify these parameters in a *startup file*.

► To specify a startup file:

**1 Name the startup file.**

For example, you could name the file `mydfmts.suf`.

**2 Specify the file with the -S command-line flag.**

Use the following syntax:

```
DEVELOPER.EXE [-Sstartup-file]
```

This command starts SQR Production Reporting Studio using the startup file *mydfmts.suf*.

## Formatting a Startup File

When you format a startup file, each keyword must end with a colon. The generic formats are:

```
! Comment line goes here
Command: Arg0, Arg1, . . ., Argn
```

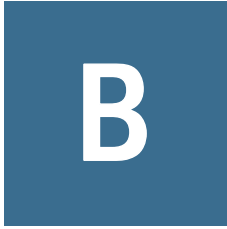
Depending on your company's security procedures, you can display a complete or edited list of users and tables when you start SQR Production Reporting Studio. Use the keywords in the following table to show or hide users and tables.

**Table 40** User Name and Table Settings in the Startup File

| Keywords          | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Hide_User</b>  | Takes database.user names as its arguments. For ORACLE, specify <i>user</i> . The specified users do not appear in the list of available users. SQR Production Reporting Studio does not check the validity of the user name.<br><br><b>Example: Hide_User: pubs.barry</b>                                                                                                                                                                                                                                       |
| <b>Show_User</b>  | Takes database.user names as its arguments. For ORACLE, specify <i>user</i> . If you use this command, only the specified user names appear in the list of available users if the users have tables that are accessible. SQR Production Reporting Studio does not check the validity of the user name.<br><br><b>Example: Show_User: pubs.gwyn</b>                                                                                                                                                               |
| <b>Hide_Table</b> | Takes user.table names as its arguments. For SYBASE, specify the complete table name: <i>database.user.table</i> . For ORACLE, specify <i>user.table</i> . The specified table names do not appear in the list of available tables. SQR Production Reporting Studio does not check the validity of the table names. Only the first table name needs to specify the user name. Subsequent tables specified without a user use the preceding user name.<br><br><b>Example: Hide_Table: pubs:dbo.authors.titles</b> |
| <b>Show_Table</b> | Takes database.user.table names as its arguments. For ORACLE, specify <i>user.table</i> . If you use this command, only the specified table names appear in the list of available tables for the specified user. SQR Production Reporting Studio does not check the validity of the table names. Only the first table name needs to specify the user name. Subsequent tables specified without a user use the preceding user name.<br><br><b>Example: Show_Table:pubs.dbo.authors.titles</b>                     |

As you define user name and table settings in the startup file, observe the following guidelines:

- Separate arguments with a tab, space, return, or comma character. For SYBASE, the arguments are *not* case sensitive. For ORACLE, the arguments *are* case sensitive.
- Follow command names with a colon (:).
- You can enter commands in any order, and you can repeat commands.
- When you include a list of arguments with commands, you can string the arguments together on one command line. The system includes all arguments separated by commas or spaces until a new command or user name is read. When you enter table names, you must enter the full *database.user.table* for only the first table or anytime you enter a table name for a user.



# Creating an SQR Production Reporting Report Using BI Server as a Data Source

## In This Appendix

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## OBIEE Semantic Layer Integration

The SQR Production Reporting engine interfaces with the OBIEE semantic layer and provides metadata in a manner consistent with other OBIEE client tools (for example, Interactive Reporting, BI Publisher, Answers).

In SQR Production Reporting Studio, you can incorporate OBIEE semantic layer metadata into the existing report-building paradigm by doing the following:

- [Creating a DSN Using the BI Server ODBC Driver](#)
- [Creating an SQR Connection to BI Server Using ODBC](#)
- [Creating a Report Using a BI Server Catalog as a Data Source](#)

## Creating a DSN Using the BI Server ODBC Driver

- ▶ To create a DSN using the BI Server ODBC driver:
  - 1 Launch the **ODBC Data Source Administrator** and select **System DSN**.
  - 2 Select **Add** to add a new data source.
  - 3 In **Create New Data Source**, select **Oracle BI Server**.
  - 4 In **Oracle BI Server DSN Configuration**, do the following:
    - Enter a name for the DSN.
    - Enter a login ID and password.
    - Select a database.
    - (Optional) Select a default catalog.
    - Click **Finish**.

- 5 Click **OK** to exit the ODBC Data Source Administrator.

## Creating an SQR Connection to BI Server Using ODBC

- To create an SQR connection to BI Server using ODBC:
  - 1 Open SQR Production Reporting Studio and launch the Query Builder.
  - 2 On the **Connection** tab, select **New**.
  - 3 In **Create Data Connection**, enter a name for the data source connection.
  - 4 In **Select Provider**, select **ODBC**.
  - 5 In **Select Data Source**, select the appropriate BI Server DSN.  
You can create a different DSN for each BI Server catalog.
  - 6 In **Select SQR Database**, select **ODBC** as the local run.
  - 7 In **Enter Login Parameters**, enter the necessary values.
  - 8 Click **Finish**.

## Creating a Report Using a BI Server Catalog as a Data Source

- To create a report using a BI Server catalog as a data source:
  - 1 In the SQR Production Reporting Studio Query Builder **Connection** tab, select a BI Server catalog connection.
  - 2 On the **Tables** tab, select catalog tables based on the data that you want to include in the report.

**Note:**

You do not need to create joins between catalog objects. All necessary joins have already been defined as part of the semantic layer.

- 3 Continue through Query Builder to complete the report.



# Accessibility

## In This Appendix

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This appendix describes SQR Production Reporting Studio accessibility and compatibility features. For information regarding the recommended screen reader and magnifier to use with this product, refer to *Oracle's Hyperion Reporting and Analysis Readme*.

## Enabling Accessibility

SQR Production Reporting Studio is always accessible. You do not need to do anything to enable accessibility.

## Enabling Keyboard Equivalents

SQR Production Reporting Studio provides keyboard shortcuts for general navigation.

**Table 41** Keyboard Equivalents

| Key      | Action                                                                                     |
|----------|--------------------------------------------------------------------------------------------|
| CTRL+D   | Default settings                                                                           |
| CTRL+G   | Go to a particular line in the source code window                                          |
| ALT+BACK | Undo previous action                                                                       |
| VK_F1    | Help                                                                                       |
| SHIFT+F1 | Context sensitive help                                                                     |
| CTRL+1   | Configure default layout settings                                                          |
| CTRL+2   | Rebuild default layout                                                                     |
| CTRL+D   | Access the Preferences dialog box where you can sets formatting features to default values |
| CTRL+F   | Insert new fields in the layout                                                            |

| <b>Key</b> | <b>Action</b>                              |
|------------|--------------------------------------------|
| CTRL+G     | Insert/modify group breaks                 |
| CTRL+Q     | Modify the query                           |
| CTRL+DOWN  | Align objects to the bottom of the section |
| F5         | Report view                                |
| F7         | Source view                                |
| F9         | Center layout objects                      |

**Note:**

All items in the toolbars are accessible through the keyboard shortcuts.

---

# Glossary

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**aggregate function** A mathematical operation (such as AVG, COUNT MIN, MAX, and SUM) that summarizes the results of a query rather than listing all of the rows. For example, you could use a function such as MAX(Price) to determine the most expensive product ordered.

**alias** An alternate name for a column or table. You can use an alias for a column to make the column name clearer. For example, the alias for la\_stores could be Los Angeles Stores. You can also use an alias for a table to make the table name clearer or when you create a copy of the table to use in a table self join operation.

**anchor** A name used to identify an object to which you wish to link. When you create an anchor, you can link other objects to the section in your report identified by the anchor.

**bind operation** Connects a subquery to the master query by joining one or more query fields. Binding queries is necessary to display the results of both queries in one

**bitmap** An image that you can insert into a report. A bitmap has a BMP extension.

**browser** A client program that allows users to read hypertext documents on the World Wide Web and navigate between them. SQR Production Reporting Studio supports both internal and external browsers.

**button** An icon in a toolbar, dialog box, or property page on which a user clicks to execute commands, display pop-up windows, or display menus.

**calculated field** An object in a report that displays statistics gathered while the report runs. For example, if you group your records by state, you could use a calculated field to print the total number of customers in each state.

**chart** A graphical representation of data such as a pie chart, a line chart, a bar chart, or an area chart. When you create a chart, you can place it in the summary section of a Tabular report, or you can create the chart as a separate report.

**column** A named field of a specific datatype in a database table. For example, Product Code, Description, and Price could be columns in a table called PRODUCTS. Columns are also referred to as “fields.”

**condition** An expression that limits the rows of data retrieved in a query. You can combine several conditions with the logical operators AND or OR. For example, you could create conditions to limit the data retrieved to customers in California who had orders greater than \$100.

**correlation** The process of using a value returned by one query in the execution of another query.

**cross-tab** A matrix or spreadsheet-like report for presenting summary numeric data. With cross-tabs, you can quickly present a summary of data based on two categories. When you create a cross-tab, you can place it in the summary section of a Tabular report, or you can create the cross-tab as a separate report.

**DDO (Direct Data Objects) Registry Editor** A graphical interface for managing data objects.

**default layout** The arrangement of data columns and headings that initially appears when you format your report layout.

**demand paging** Defines the number of report pages in each HTML file. With demand paging, you can avoid downloading an entire report in the browser. Instead, you can break a report into smaller sections for better performance.

**exception** A subset of data that meets a defined condition. When you create an exception, you can format the data in the exception so that it will stand out in a report.

**Exception Builder** A tool in SQR Production Reporting Studio that you can use to add exceptions to your report query.

**Export report** A type of report that formats data and sends it to a file for use by another application.

**expression** A value that is computed based on other values in the database. For example, you could create an expression such as `QUANTITY * PRICE` to calculate the amount of a sale. You can use expressions for many purposes, such as: performing math calculations, concatenating two columns, and retrieving the current date and time.

**Expression Builder** A tool in SQR Production Reporting Studio used to add expressions to report queries.

**expression line** Displays the JavaScript syntax for each item displayed in a report. Use this line to build equations in the Report section. For ease of use, it can be undocked and resized.

**field** A named field of a specific datatype in a database table. Fields are also referred to as “columns.”

**GIF** Graphics Interface Exchange Format. A format used for displaying bitmap images on the Web.

**group break** A feature that allows you to group database information in a report. Defining group breaks allows you to add white space to a report, avoid printing redundant data, perform conditional processing on variables that change, and print subtotals.

**Having clause** An expression that defines selection criteria for aggregate rows. For example, if you created an aggregate function such as `MAX(Price)` to determine the most expensive product ordered, you could then create a Having clause such as `PRICE>1000` to limit the items printed to items over \$1000.

**HTML** Hypertext Markup Language. A programming language used to create World Wide Web pages, with hyperlinks and tags that explain how to format the information on the screen.

**hypertext link** A connection made between objects in HTML documents. Clicking a hypertext link automatically displays the linked information.

**include file** A type of file that writes an external source file to an Production Reporting report. Useful for keeping commonly-used routines together in a single file that can be referenced in programs that use the routine.

**initialization query** A query that executes once at the beginning of a report, before the master query.

**interactive report** An HTML report that includes group breaks and allows you to filter information and expand and collapse detail items.

**Interactive Reporting Analysis** A type of analysis that extracts information from an SQR Production Reporting Studio report, chart, or cross-tab and displays the information in as an Interactive Reporting Analysis file. Interactive Reporting Analysis is a Windows-only solution.

**join operation** A query operation that retrieves data from multiple database tables in one SELECT statement. Also, a common database column used to connect, or join, a pair of tables.

**join type** A value that specifies the type of connection between the database columns in tables. Join type operators include: equal, not equal, greater, less, greater or equal, less or equal, and outer join.

**JPEG** Joint Photographic Experts Group. A format for storing high-quality color and grayscale photographs in a bitmap form.

**Label report** A type of report that creates labels to use on items such as customer mailings, file folders, and internal company routings

**Layout Window** An SQR Production Reporting Studio screen display where you can insert and position everything that will print in your report.

**loadall** A program that loads sample data into a database. The loadall program is included with Production Reporting.

**lookup table** A function in the Production Reporting language and SQR Production Reporting Studio that improves the speed of query execution by performing a often-used pattern of query processing with a single access to the database.

**master/detail report** A type of report that shows hierarchical information. The information is normally retrieved from tables that have a one-to-many, or master/details relationship.

**multi-row detail query** A query that you define for a detail report in a Master/Detail report that returns zero to many values and can be nested to many levels.



**ODBC** Open Database Connectivity. A standard for accessing different database systems. SQR Production Reporting Studio uses ODBC Drivers during the Query Building process to provide database independence when building an SQR Production Reporting Studio report.

**outer join** A type of join that includes all of the rows from one of the tables joined, regardless of whether there were matches in the other table.

**query** A set of instructions that specify which data to retrieve from a database for use in a report.

**Query Builder** A report “wizard” containing several pages that collect information and step you through the process of building a query.

**report parameter** A type of condition that allows you to enter different values and generate a new result set each time you run a report. You can also create a default value if a user fails to enter a value at run-time.

**Report window** An SQR Production Reporting Studio screen display where you can view your report. Typically, the report displays in an HTML format using an internal browser. If you do not want to use an internal browser or if your system does not support it, the report displays in an SPF format.

**self join** An operation that correlates the data in a single table.

**sequential query** One of a series of master queries that execute in a sequential order in the same report.

**single-row detail query** A query that you define for a detail report in a Master/Detail report that can only return one row and cannot have any detail queries of its own.

**Source window** An SQR Production Reporting Studio screen display where you can view or edit the generated Oracle's Hyperion® SQR® Production Reporting code used to create your report.

**SPF file** The file that SQR Production Reporting Studio creates when it executes an SQR file. SPF files contain a representation of the actual formatted report output, including fonts, spacing, headers, and footers.

**SQR file** A file that contains the actual script that SQR executes to run a report

**SQR Production Reporting Editor** A tool that allows you to write a new Production Reporting program or edit an existing Production Reporting program. The Production Reporting Editor is included as part of SQR Production Reporting Studio

**SQR Production Reporting Language** A specialized programming language for data access, data manipulation, and reporting.

**SRM file** A saved SQR Production Reporting Studio layout. An SRM file is a binary file with a proprietary format.

**SRT file** A saved SQR Production Reporting Studio layout template.

**subquery** A query that is a component of another query.

**summary columns** Calculated fields generated by the default layout in the Group Summary section of a report.

**system table** A hidden or private table that generally contains information about the database.

**table** The basic unit of data storage in a database. Database tables hold all of the user-accessible data. Table data is stored in rows and columns.

**Tabular report** A type of report that includes database information in columns on the page.

**template** A document that defines the look and feel of a report, while remaining separate from the report. A template can contain objects inserted into the report layout, report properties, and formatting styles. In SQR Production Reporting Studio, templates are also referred to as Layout Templates.

**Template window** An SQR Production Reporting Studio display where you can define the settings to be used in an SQR Production Reporting Studio layout template.

**URL** Uniform Resource Locator. The current addressing scheme for resources on the Internet or an Intranet.

**variable** A value that can be modified when you run a report. String variables are useful for concatenating two or more database columns. Numeric variables can calculate values based on other values in the database. Encode variables are string variables that contain nondisplay and other special characters.

**Variable Builder** A tool in Oracle's Hyperion® SQR® Production Reporting Studio that you can use to add variables to your report.

**view** A custom-tailored presentation of the data in one or more database tables. Views do not actually contain or store data; rather, they derive their data from the tables on which they are based, referred to as the base tables of the views.

**Where clause** A condition (or expression) used to limit the number rows that the query has to search. Where clauses usually consist of an expression or column, an operator, and one or more values.

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